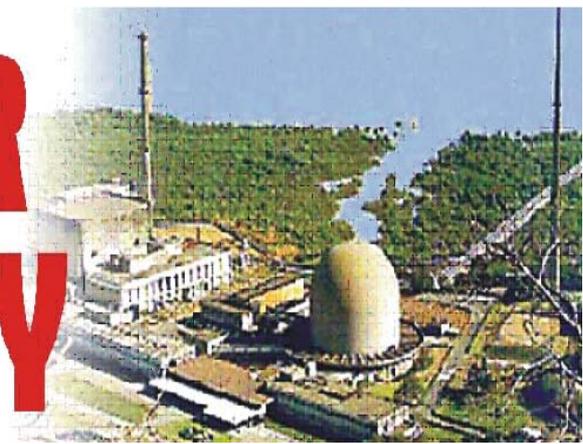


NUCLEAR SECURITY



A FORTNIGHTLY NEWSLETTER ON NUCLEAR DEFENCE, ENERGY AND PROLIFERATION FROM
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OPINION – Mark Fitzpatrick

Why China Will Wait On Nuclear Test Ban Ratification

To understand what lies behind China's positions on arms-control issues, a roundtable in Beijing with non-government experts was not a bad start. Joining a delegation organized by the UN Association of the UK, I was fortunate to have that experience on 01 November 2013, courtesy of the UN Association of China and the Chinese Arms Control and Disarmament Association (CACDA).

Why can't China exercise leadership on the CTBT and ratify it without waiting for the US Congress to go first, I asked our hosts, embarrassing as that would be for me as an American. Because the US has conducted over 1,000 nuclear-test blasts and China only 45, they replied. By signing the CTBT in 1996, China made a huge sacrifice, we were told, stopping its testing program at an early stage in the learning curve. Needing more tests to ensure reliability of its nuclear arsenal, China has no incentive to ratify before the US does so... For the US, a few more tests would make no significant difference, but for China, even one or two additional tests would benefit its nuclear program.

A former Chinese military officer put the point more directly: stopping China's testing program was one of the main reasons for the US to push for a CTBT. He wondered if, having achieved that objective, Washington now felt complacent and wanted to keep its own options open by not ratifying. He suggested that China should consider saying that it was fed up with the US position and would give up on the treaty unless the US ratified. Hinting partial seriousness, he said maybe such a position would spur a US sense of urgency.

Such a threat is not the party line, however. In China these days, one can hear different opinions. Another academic said it is a cultural trait that, having signed the treaty, China will continue to honour it. But there are uncertainties. Beijing will wait on ratification for an appropriate moment when it can be used as an incentive for others to ratify, he said. Not hiding

China has no incentive to ratify before the US does so. For the US, a few more tests would make no significant difference, but for China, even one or two additional tests would benefit its nuclear program.

With regard to the other would-be international treaty on the minds of arms controllers, our Chinese counterparts insisted that China was not hiding behind Pakistan's obstruction of a ban on fissile material production for nuclear weapons. Having heard that accusation many times before, they did not need much of a prompt to reiterate Beijing's denials. China used to link

support for a FMCT to its desire for a treaty banning nuclear weapons in outer space, but broke this linkage a decade ago, they said. Why doesn't China join the other four permanent members of the Security Council in declaring a unilateral end to fissile-material production?

Then why doesn't China join the other four permanent members of the Security Council in declaring a unilateral end to fissile-material production, I asked.... One of the professors then voiced a personal opinion that, since China's fissile-material stockpile is the smallest among the nuclear-weapons states, it is not as easy for Beijing to declare a moratorium as it is for nations that have an excess. Another of the Chinese participants said he assumed China has enough fissile material for its military purposes. It was ready to go along with an FMCT that would apply to all countries. They all agreed that Chinese nuclear scientists were willing to accept verification measures in such a treaty....

Source: Mark Fitzpatrick directs the IISS Non-Proliferation and Disarmament Program. <http://english.alarabiya.net/>, 02 November 2013.

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OPINION – Ahmed Rashid

Beware Pakistan's Small Nuclear Weapons

When PM Nawaz Sharif meets President Obama at the White House on 21 November 2013, their meeting will be critical for the future course of US-Pakistan relations. One issue

at the top of the agenda – alongside the future of Afghanistan, Pakistan's own much-weakened state and attacks by terrorist groups – will be the country's nuclear weapons programme. Pakistan's rapid development of battlefield nuclear weapons raises many questions in the region and abroad.

Western analysts estimate Pakistan has between 100 and 120 nuclear weapons, far more than its rival India, which is believed to have 90-100. Pakistan has multiple delivery capability, such as long and short-range rockets and aircraft. It will soon add naval capability with sea-launched missiles.

Less well-known is that Pakistan has one of the fastest growing battlefield or tactical nuclear weapons programmes in the world today, according to senior western officials I have spoken with. The Americans developed the capacity to put miniaturised nuclear bombs on short-range rockets, artillery and a tank shell in the 1950s – something Pakistan is apparently doing now and very successfully.

"The most significant development in recent years has been the creation of a battlefield nuclear force 'in being' that provides Pakistan the option of a battlefield use of nuclear weapons," writes Christopher Clary in an essay on Pakistani nukes published by the US National Bureau of Asian Research. Western officials say the dangers of such weapons are many. They are made in large numbers and are small and thus can more easily be stolen or hijacked by extremist groups operating openly in Pakistan; smaller nuclear weapons make it easier to decide to wage a limited nuclear war if Islamabad considers it is being defeated in a conflict with India's much larger conventional armed forces; and such weapons can be specifically targeted on, say, invading Indian military formations, raising the ante for an all-out nuclear war.

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It is still difficult to convince the Pakistani army that the real threat comes not from India, but from the spread of Islamic extremism and terrorist groups active on its soil. The army also faces questions from a public that by and large supports the nuclear programme, but wonders why Pakistan needs such a large nuclear arsenal when it already has a viable nuclear deterrent against India and why so much is still being spent on making new bombs when the economy is in melt down.

Pakistan refuses to adopt a "no first use" of nuclear weapons in its strategic focus and therefore every crisis the two countries have been involved in since they became nuclear weapon states has forced Islamabad to adopt a threatening and risky posture in order to avoid total war with

India, which it would surely lose. "Small nuclear weapons make it psychologically easier for decision makers to use them, rather than having to decide about an all-out nuclear war," say one western expert.

Pakistani officials point out several elements in their favour. Despite attacks on airports, military bases and other sensitive places, terrorists have never stolen or been able to acquire nuclear materials – although there is always a first time.

There is the equally threatening posture of Indian forces who have developed a battlefield plan called "Cold Start", which takes advantage of their much larger conventional forces to inflict a quick defeat on specific Pakistani forces or border regions before Islamabad can fully mobilise. The Pakistan army which has to defend a very long border with India, and does not have the forces or reserves to do so adequately, fears exactly such a strategy. India denies that it even has a Cold Start strategy which makes discussions between the two countries even more difficult.

The real concern for western powers at the moment is not that two rational governments will go to war, but that the proxy wars they wage against each other will get out of hand. Terrorist groups who have been sponsored by the Pakistani military in the past and are not under any control now could create a war syndrome on the border, just as the 2008 suicide attack in Mumbai by Lashkar-e-Taiba did

when 166 Indians were killed. Likewise, India is needling Pakistan by allegedly backing separatists in Baluchistan.

In recent weeks, scares generated by terrorist attacks either on Indian forces in the disputed region of Kashmir or on civilian targets in both countries have led to several acute rises in tensions. It is still difficult to convince the Pakistani army that the real threat comes not from India, but from the spread of Islamic extremism and terrorist groups active on its soil. The army also faces questions from a public that by and large supports

the nuclear programme, but wonders why Pakistan needs such a large nuclear arsenal when it already has a viable nuclear deterrent against India and why so much is still being spent on making new bombs when the economy is in melt down. So far there has been no adequate answer.

What makes the North Korea precedent particularly troubling is how much Iran has mimicked the regime in Pyongyang. This naturally prompts questions about whether Iran is using the current round of negotiations as a façade for an ongoing effort to develop nuclear weapons.

Both India and Pakistan spend an extraordinary amount of money on their nuclear weapons programmes that are expanding and growing all the time at a huge cost to their respective populations who remain largely mired in poverty. Pakistan's larger nuclear arsenal and development of tactical bombs and India's huge rocket development programme for carrying nuclear weapons has only fuelled a new arms race in the region that now involves not just the size of bombs, but also delivery vehicles.

Both countries may not like or trust one another but increasingly their nuclear weapons programmes are totally out of sync with economic and other realities on the ground. But who will say this to them when there is no international or regional diplomatic effort in place which could hold talks between the two sides and try and stem this hugely dangerous game? The west's concerns about Pakistan's miniaturised nuclear bombs should be translated into a larger deal that pushes both Islamabad and New Delhi to contain what is now a runaway bomb by making by two countries who have proved three times that they can go to war against one another.

Source: The Financial Times, 22 October 2013.

OPINION – Bennett Ramberg

Tehran's Nuclear Quandary

When the US and its allies resume talks over Iran's nuclear program on 7-8 November 2013, the vexing task of crafting Iran's recent proposal into an enduring agreement will begin in earnest. There are many obstacles to an agreement, but among the least examined is the legacy of nuclear-disarmament efforts involving Libya and North Korea. Both cases raise issues that neither Iran nor the US wants to see repeated but that both will have difficulty avoiding.

For the US, North Korea illustrates how a poor but ambitious country developed the bomb by gaming talks and gaining time. For Iran, Muammar el-Qaddafi's 2003 relinquishment of Libya's weapons of mass destruction demonstrates how a regime, still considered a *bête noire*

Since then, Iran has responded to incremental tightening of international sanctions by building more centrifuges.

by the international community even after normalization of diplomatic relations, arguably forfeited its survival in 2011 by forgoing the chance to build a nuclear deterrent. Digging further into each case illuminates the challenges faced by Iran and its international interlocutors.

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Consider parallels ten years apart. In June 1993, following talks with the US and a threat to withdraw from the NPT, North Korea allowed the IAEA to conduct limited "safeguards activities." Then, in October 1994, the US and North Korea entered into the Agreed Framework to freeze North Korea's nuclear program. Similarly, in December 2003, after hiding construction of the Natanz uranium-enrichment facility and other plants from the IAEA, Iran agreed to sign but not ratify the so-called Additional Protocol, allowing broader application of IAEA safeguards. Then, in November 2004, in negotiations with European representatives, Iran agreed to suspend nuclear enrichment.

Neither agreement lasted long. In March 1996, the IAEA reported that North Korea was not complying with efforts to verify plutonium held at the Yongbyon nuclear facility. On 09 October, 2006, North Korea detonated its first nuclear weapon, and the UNSC adopted Resolution 1718 calling on the country to abandon its program and re-join international denuclearization talks. Since then, North Korea has responded to incremental tightening of international sanctions with two more nuclear tests, the latest this year under the new leadership of Kim Jong-un.

Likewise, in January 2006, following the collapse of negotiations with European emissaries, Iran broke the IAEA seals on the Natanz facility's equipment and storage areas. The following month, the IAEA reported the Islamic Republic to the Security Council for its failure to be forthright about its nuclear program. Since then, Iran has responded to incremental tightening of international sanctions by building more centrifuges. The question now is whether the North Korea-Iran parallel stops with Iran's new president, Hassan Rouhani.

The Libyan legacy confronts Iran with its own conundrum. Like Iran, Qaddafi's Libya suffered economic and political isolation for many years during which it attempted to advance a WMD program. By the late 1990's, however, it had had enough.

British and American negotiators secretly met with Libyan counterparts to resolve the case of the 1988 bombing of Pan Am Flight 103 over Lockerbie, Scotland, and other terrorism issues. In the quid pro quo that followed, Qaddafi agreed to eliminate his nascent nuclear program in exchange for an end to pariah status. This was coupled with a critical demand: no deal without America's commitment to eschew regime change. On 19 December, 2003, Libya formally renounced all WMD efforts.

Eight years later, pinned down by a US Predator drone and French airstrikes, Qaddafi met his demise. Without a nuclear deterrent, his regime was helpless when the US reneged on the deal a lesson that has not been lost on North Korea. ...Iran's leaders may believe that economic isolation is the greatest danger to the regime. But what happened in Libya has made them fear that Qaddafi's fate could be theirs, too, without an adequate deterrent.

...Allowing Iran to retain some low-grade enrichment capacity would be a plausible concession – and one that would allow the country's leaders to save face but only if linked to Iran's unfettered disclosure of all nuclear activities to the IAEA and confirmed cessation of any capability that contributes to weaponization. And, given the stakes, any international agreement with Iran must come with an assured response to cheating, including military action.

With little leverage, Iran's leaders would then have two options. They could follow North Korea by sacrificing economic prosperity for nuclear breakout, and hope that US and Israeli talk of "all options" being on the table to stop their efforts is a bluff; or they could pursue economic prosperity by forgoing a nuclear-weapons capacity, and hope that a Libya-style revolt does not envelope the country and doom the regime to a fate like that of Qaddafi. It is not an easy choice, but it is one that Iran's leaders cannot postpone for much longer.

Source: Bennett Ramberg served in the Bureau of Politico-Military Affairs under George H. W. Bush, <http://www.japantimes.co.jp/>, 08 November 2013.

OPINION – Pankaj Mishra

India Shouldn't Buy What Japan Is Selling

An obsession with nuclear power makes many political elites secretive, ruthless and delusional, even as their cherished projects threaten millions of people with disaster. But the egregious examples I have in mind here aren't Iran, Pakistan and North Korea. They are Japan and India, two countries with democratic institutions. Last week in the south Indian city of Pondicherry, I met a friend who had managed to penetrate the security lockdown around Kudankulam, the Russian-built nuclear power station in Tamil Nadu that began partial operations late last month despite strong protests from local villagers.

Kudankulam lies only a few miles away from a coastline that was ravaged by a tsunami in 2004. Opposition to the plant intensified after another intense earthquake and tsunami in March 2011 caused meltdowns at three nuclear reactors at the Fukushima nuclear plant in Japan. Since then, Indian police have deported the few journalists who have tried to report on the protests, sequestered entire villages and levied criminal charges against tens of thousands of locals, some of whom have been accused of sedition and "waging war on the state."

Indian PM Singh, who invested much political capital in a nuclear deal with the US in 2008, resorted to an Indian political ploy from the 1970s: blaming an unspecified "foreign hand" for the protests. (Never mind that the much-despised foreign hand helped build the Kudankulam plant, along with much of India's nuclear infrastructure.)

Nuclear Mirage

Certainly, the protesters at Kudankulam have much to be worried about. In recent years, some of the crucial Russian suppliers of components to the plant have been detained in Russia and indicted for shoddy business practices. According to A. Gopalakrishnan, former chairman of India's Atomic Energy Regulatory Board (AERB) "equipment, components and materials of substandard quality" have already been installed in the plant. Their "deficiencies and defects are dormant today, but these very same shortcomings may cause such parts to catastrophically fail when the reactor is operated for some time."

Tokyo Electric Power Co., owner of the Fukushima plant, presents an ominous example of extraordinary negligence, denial and collaborative coverup. Long ignored by a

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compliant Japanese news media and complicit politicNEWS.GNOM.ES, the evidence of Tepco's falsehoods and ineptitude has accumulated inescapably in the more than two years since the disaster. Leaks of highly radioactive water in recent months undermine claims by the Japanese government that the situation is under control.

Despite the fact that 150,000 of its people remain homeless and that the nuclear disaster has cost almost \$100 billion, Japan is preparing to start up a massive nuclear-fuel reprocessing plant that can produce nine tons of weapons-usable plutonium annually — enough for 2,000 atomic bombs. PM Abe has also been busy vending Japan's nuclear industry around the world, including to seismically active Turkey and India, countries that have even less institutional oversight than Japan.

In India, Abe's path is smoothed not only by the customarily powerful stakeholders in a multibillion-dollar industry but also by the superstitious faith invested in nuclear energy in a country where a large part of the population suffers from long power outages almost every day. Pro-nuclear advocates propose nuclear energy as an answer to India's power shortages and crippling reliance on imported oil. A new book, "The Power of Promise: Examining Nuclear Energy in India" by Princeton University physicist M.V. Ramana, takes a sober — and sobering — look at the fantasies and perils attached to this mirage, and finds the promise of nuclear energy empty in every way: environmental, economic and technological.

"While the Indian nuclear establishment's arguments might provide a case for rapidly increasing the nuclear power capacity," Ramana writes, "they do not in any way lend support to the supposition that it can increase rapidly."

Great Hallucination

India, like many postcolonial countries, invested heavily in nuclear technology for reasons of both national pride and energy self-sufficiency. Ramana explains how India's Department of Atomic Energy first acquired its present political clout, and how the Atomic Energy Commission, which reports directly to the PM, achieved its immunity to public scrutiny despite repeated failure to meet India's nuclear-energy needs.

In recent years, problematic reports from government bodies such as the comptroller and auditor general have had no impact on the functioning of the nuclear

establishment. On occasion, even elected members of the Parliament have been frustrated by its nontransparency.

Chronicling the march of folly, Ramana notes each one of the nuclear establishment's many dismal milestones, the outlandish targets that were set in continuous defiance of actual results. For instance, the target for the year 2000 (set in 1984) was 10,000 megawatts; the result was a mere 1,840 megawatts. Undeterred by such poor performance, PM now expects India to have 470,000 megawatts of nuclear capacity in 2050 — a figure from science fiction that assumes India will annually increase its nuclear capacity by 11,500 megawatts until 2050 (which is on average 2.5 times the entire nuclear capacity added by the country over the last four decades).

The more disturbing parts of Ramana's book deal with the neglect of safety by the nuclear establishment. Recounting various alarming "incidents" in recent decades, he inspires little confidence in India's ability to avoid a major disaster such as Chernobyl or Fukushima.

So what accounts for this great hallucination of the elites in India and Japan? After all, nuclear power is on its way out in many countries, and it has grown distinctly unpopular in Japan, where a majority wants to phase it out. As detailed by Ramana, the argument for nuclear energy in India fails on economic grounds alone, even before we consider the challenges of radiation and waste disposal that bedevil the Japanese at Fukushima.

'Risky Choices'

Of course, any powerful and secretive bureaucracy tends to swell behind official barricades of secrecy — a fact of public life manifested most recently by the US National Security Agency's apparent impunity. But there are also broader political and economic compulsions behind the new proliferation of nuclear technologies.

Japan's conservative leaders want to preserve their nuclear option, even if that risks provoking South Korea and a devastating arms race in north Asia. Worried by Japan's unused plutonium supply, the US, as the Wall Street Journal reported in May 2013, is pushing to restart nuclear reactors in Japan.

It is also true that, as Japan scholar Jeff Kingston points out, the export of technology by Japanese companies is key to Abenomics. Japan is at the center of the global nuclear-industrial complex, which stands to benefit greatly from the continued sale of an outdated and demonstrably

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dangerous technology to wannabe nuclear powers such as India and Turkey.

Toshiba Corp. owns 87 percent of Westinghouse Electric Co. LLC, which is helping to build a nuclear plant – again, against intense local protests – in the Indian state of Rajasthan; Hitachi Ltd. and Mitsubishi Group are in collaborations with General Electric Co. and the French company Areva SA, whose multiple deals with India make it the real beneficiary of the country's US-assisted admission to the nuclear club in 2008.

In this scramble for large profits, democratic values such as oversight, accountability and transparency are likely to be trampled into the dust. The case of Tepco shows how a large and networked company can buy the silence of the media as well as of politics and regulators. Thus, while Fukushima remains volatile, another nuclear catastrophe seems to be developing in India....

Source: Pankaj Mishra is the author of "From the Ruins of Empire: The Revolt Against the West and the Remaking of Asia" and a Bloomberg View columnist, <http://www.bloomberg.com/>, 05 November 2013.

NUCLEAR STRATEGY

RUSSIA

Russia Tests Its Defenses as NATO's Missile Defense Shield Advances

Three days after a ground-breaking ceremony in Romania marked the beginning of work on the first-ever US land-based missile defense facility in Europe, Russian President Vladimir Putin on 29 October 2013 repealed a two-year-old executive order setting up a Kremlin working group to develop missile defense cooperation with NATO.

One day earlier, Putin oversaw an unscheduled exercise of Russia's nuclear deterrent, incorporating test launches of silo- and sea-based ballistic missiles in central, northern and far-eastern Russia. The Defense Ministry reported a high degree of readiness. And in the Western hemisphere, two Russian Tupolev "Blackjack" strategic bombers carried out combat training patrols between Venezuela and Nicaragua – a mission similar to one in 2008, which followed an announcement by Putin that Cold War-style long-range flights of strategic bombers – which had been halted after the Soviet Union's collapse – would resume.

In the Western hemisphere, two Russian Tupolev "Blackjack" strategic bombers carried out combat training patrols between Venezuela and Nicaragua – a mission similar to one in 2008, which followed an announcement by Putin that Cold War-style long-range flights of strategic bombers – which had been halted after the Soviet Union's collapse – would resume.

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Moscow gave no overt indication that the muscle-flexing was linked to development in Romania, but has made no secret of its continuing strong opposition to US/NATO missile defense programs in Europe.

Foreign Minister Sergei Lavrov said Monday that missile defense "remains one of the pressing issues" between the two sides, adding that repeated US assurances that the shield "isn't aimed against Russia"

were not acceptable. For years the Pentagon has insisted that the evolving European BMD plans are designed to counter a missile attack from Iran, not to weaken Russia's nuclear deterrent.

The Kremlin remains skeptical, and the beginning of work on the Romanian facility 1,200 miles from Moscow will deepen the tensions. "NATO is getting closer to Russia's borders," the government daily Rossiyskaya Gazeta commented this week in a report on the ground-breaking ceremony.

Last week, Defense Secretary Chuck Hagel and other NATO defense ministers discussed BMD with their Russian counterpart, Sergei Shoigu, in Brussels, but Shoigu said afterwards there had been no progress and that "our concerns are ignored." A Pentagon official said Hagel during the talks had "encouraged Russia to consider joint initiatives" with the US and NATO.

NATO has repeatedly invited Russia to cooperate in missile defense, but talks have stalled over differences about command and control, data-sharing and other issues. On 31 October 2013 Interfax reported that Putin had "invalidated" an order from 2011 that set up an internal working group on cooperating with NATO over missile defense. It said the decision was officially gazetted.

The Obama administration in 2009 amended its predecessor's European BMD plans and announced its so-called European Phased Adaptive Approach (EPAA). Phase one, already operational, entails a radar station in Turkey and the deployment of a US Navy Aegis warship in the eastern Mediterranean, equipped to track and destroy ballistic missiles in flight.

Phase two is a US. land-based "Aegis-Ashore" interceptor, located in Romania, which according to the plan will provide protection, starting in 2015, to two-thirds of Europe – and US troops stationed there against medium-range ballistic

missiles launched from the Middle East. Monday's ground-breaking ceremony at a former air base 110 miles west of Bucharest marked the beginning of its construction.

Also as part of phase two, Spain will host four BMD-capable Aegis warships. Phase three of the EPAA is the deployment in Poland of a similar "Aegis-Ashore" interceptor, by 2018, designed to extend the protective shield over the whole of Europe. (EPAA had a phase four, an expansion of the Poland capabilities by 2021 to protect the US homeland against potential ICBM threats from the Middle East, but that was canceled March 2013 in favor of deploying additional interceptors in Alaska to serve the same purpose.)

BMD site groundbreaking

Moscow has demanded that NATO provide written guarantees that the BMD shield will not be used to neutralize Russian defenses, but the alliance has declined. In a speech at a BMD conference in Poland on 31 October 2013 US arms control official Rose Gottemoeller again explained why. She cited Article Five of the North Atlantic Treaty, which states that that an attack on any NATO member is considered an attack on all.

"In keeping with its collective security obligations, NATO alone bears responsibility for defending the Alliance from ballistic missile threats. Just as Russia must ensure the defense of Russian territory, NATO must ensure the defense of NATO territory," she said.

"NATO cannot and will not outsource its Article Five commitments. Russia continues to request legal guarantees that could create limitations on our ability to develop and deploy future missile defense systems against regional ballistic missile threats such as those presented by Iran and North Korea. We have made clear that we cannot and will not accept limitations on our ability to defend ourselves, our allies, and our partners, including where we deploy our BMD-capable Aegis ships."

Gottemoeller underlined once more that US BMD is not directed at Russia (or at China, which has criticized US BMD cooperation with Japan).

"With just 44 ground-based interceptors scheduled to be deployed, both Russia and China's nuclear arsenals far exceed the number of interceptors we have," she said. "There is therefore no way that US missile defenses could undermine the effectiveness of Russia's or China's strategic nuclear forces."

... Undersecretary of Defense James Miller said when phase two was in place "Europe will be safer, US forces will be better protected, Romania will be safer, and the NATO alliance will be stronger." The facility will be manned by US Navy and civilian personnel, with the Romanian military providing security.

It will host 24 SAM-3 Block IB missiles, which achieved its fifth consecutive successful intercept last month, when an interceptor missile launched from the guided-missile cruiser USS Lake Erie destroyed a target medium-range ballistic missile off the coast of Hawaii.

Source: <http://cnsnews.com>, 31 October 2013.

USA

US Readies for \$400 Billion Nuclear Arms Upgrade

High-ranking Pentagon officials told members of Congress that the US is in dire need of billions of dollars' worth of upgrades to the country's arsenal of antiquated atomic warheads. Before a meeting of the House Armed Services Committee on 29 October 2013, US Department of Defense officials said the US must spend at least a decade working to revitalize the high-power weapons, and insisted that doing otherwise could be detrimental to the country's national security.

... "Modernization work of this kind is expensive, but there is no doubt that the investment ... is necessary," Creedon said, according to Reuters' David Alexander. Alexander reported that Creedon considers the US' B61 gravity bomb, currently deployed in Europe, a "cornerstone" of America's commitment to protect its fellow NATO nations.

Elsewhere during the hearing, the commander of the US Strategic Command said that three key functions performed by the nation's nuclear arsenal could be questioned if upgrades aren't made soon. America's warheads deter potential adversaries, assure allies and partners and "in the unlikely event deterrence fails, [they employ] nuclear weapons when directed by the president to achieve US and allied objectives," Air Force Gen. C. Robert Kehler told the committee, according to the American Forces Press Service.

To do as much, Kehler said, requires repairing and replacing of old components that have degraded over the course of several decades. "Our requirement to deter nuclear attack is a military mission," Kehler said. "This B-61 weapon arms the B-2. It will arm the future long-range strike platform. It arms the dual-capable aircraft that are forward stationed in Europe as well as those of our NATO allies."

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Earlier in the hearing, Creedon told the panel that the last time the country's nuclear stockpile was fully examined and upgraded accordingly occurred in the 1990s when the production of new warheads was suspended. Launching an operation now, though ... is too costly to consider for others.

The non-partisan Stimson Center think-tank estimated last year estimated that the cost of upgrading the nation's entire nuclear arsenal over the course of

a decade, including weapons, infrastructure and delivery systems, could come at a price-tag as high as \$400 billion. At the same time, the sequestration deal signed earlier this year calls for the Pentagon to slash spending by roughly \$1 trillion during that same time-span.

Not all say it's worth it, and among those is Kingston Reif, an analyst at the Center for Arms Control and Non-Proliferation. According to Reuters, Reif said that spending even as little as \$11 billion to upgrade just the B61 bomb would be inappropriate. "That program is unaffordable, unrealistic and unnecessary because there are cheaper alternatives to extend the life of the weapon," Reif said in a recent interview cited by Reuters...

Source: <http://rt.com/>, 01 November 2013.

Nuclear Arsenal: US to Turn Old Bombs Into All-Purpose Weapons

US wants to modernize nuclear bombs stationed in Europe in a way many experts call the equivalent of creating a new weapon. Critics believe the move violates pledges by President Obama he would not develop new nukes.

The idea of fighter jets taking off from Western Europe, thundering their way eastwards and dropping nuclear bombs on Soviet troops is a scenario taken straight out of the Cold War playbook. But while that playbook has long been outdated, American nuclear bombs are still stationed in Europe. ...

...Last week, representatives of the US military, the Pentagon and the Department of Energy announced new details about the B-61 program in a hearing in the House Armed Services Committee's Subcommittee on Strategic Forces. The new variant of the nuclear bomb, called the B61-12, is now expected to replace the

The new variant of the nuclear bomb, called the B61-12, is now expected to replace the older types 3, 4, 7 and 10 as well as the bunker-busting B-61-11 and B-83 strategic nuclear bombs. The latter has an explosive power of up to 1.2 megatons of TNT, making it more than 90 times more powerful than the bomb dropped on Hiroshima. The first B-61-12 is expected to be completed by 2020. By 2024, all the old bombs are expected to be replaced.

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The first B-61-12 is expected to be completed by 2020. By 2024, all the old bombs are expected to be replaced. Then, according to the plan, the new weapons will be deployable using fighter jets like the F-16, the new F-35 and with strategic bombers like the B-2 "Spirit" or the planned

new LRS-B bomber....

...Warnings of a Weapon with New Capabilities

Indeed, experts view the B-61-12 as far more than a pure life-extension program or slightly upgraded version of the old bombs. Instead, they consider it to be, de facto, a weapon with new military capabilities — a development that would seem to violate the spirit of US President Barack Obama's stated pledge of not creating any new nuclear weapons or ones with new military capabilities.

So far, no bombs with the military capabilities of the B-61-7, B-61-11 or B-82 have been deployed in Europe, ...the NNSA, itself admits that 15 of the 16 planned upgrades are not aimed at improving security and avoiding obsolescence, but rather an increase in performance.

...A Threat to Disarmament Negotiations

The NNSA is trying to placate its critics: The B-61-12 uses revised versions of nuclear components taken from an existing bomb and brings with it no new military capabilities, officials claim. ...And with the help of the B-61-12, the US' total stockpile of airborne nuclear bombs could be reduced by around half its current amount.

But observers warn of a potential threat to the future disarmament negotiations between NATO and Russia, intended to discuss the issue of non-strategic nuclear weapons. That the B-61-12 is now set to replace the B-61-11 bunker buster and the strategic B-83 is "indeed alarming," Meier said. "The Russians are modernizing their arsenal also, and will surely, therefore, gratefully use the B-61 program to question NATO's seriousness." In the disarmament efforts, the B-61 modernization program is thus "definitely not helpful."...

Observers warn of a potential threat to the future disarmament negotiations between NATO and Russia, intended to discuss the issue of non-strategic nuclear weapons.

'We Still Need to Complete' the Program

The NNSA, meanwhile, is pressing ahead with the B-61 modernization program, despite the criticism from pro-disarmament politicians and an enormous explosion in costs — because the B-61 project is only the first step on the path to a more modern, much more efficient nuclear weapons posture for the US. In November 2012, the Nuclear Weapons Council, a joint decision-making body of the departments of defense and energy, enacted the so-called 3-plus-2 strategy, whereby American nuclear weapons are to be kept ready for use until well into the second half of this century.

In the future, Washington plans to have three types of nuclear warheads for sea- and land-based long-range missiles. Two further types will remain in service on aircraft: One bomb, the B-61-12, and one warhead yet to be chosen for future air-launched cruise missiles, which is set to be based on a derivative of the B-61...

Source: Excerpted from Speigel Online International, 06 November 2013.

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BALLISTIC MISSILE DEFENCE

INDIA

Nuclear-Capable Agni-I Ballistic Missile Successfully Test-Fired

India on 08 November 2013 successfully test-fired its indigenously developed nuclear-capable Agni-I ballistic missile with a strike range of 700 km from a test range off Odisha coast as part of a user trial by the Army. The surface-to-surface, single-stage missile, powered by solid propellants, was test-fired from a mobile launcher...

"The test-fire of the ballistic missile was fully successful," ITR Director M V K V Prasad said. Agni-I missile was launched by the Strategic Forces Command (SFC)," he said, adding the DRDO developed medium-range ballistic missile from the production lot was launched as part of regular training exercise by the armed forces.

The Agni-I missile has a specialised navigation system which ensures it reaches the target with a high degree of accuracy and precision, he said. Weighing 12 tonnes, the 15-metre-long Agni-I, which can carry payloads up to 1000 kg, has already been

The Agni-I missile has a specialised navigation system which ensures it reaches the target with a high degree of accuracy and precision, he said. Weighing 12 tonnes, the 15-metre-long Agni-I, which can carry payloads up to 1000 kg, has already been inducted into the Indian Army.

inducted into the Indian Army....The last trial of the sophisticated Agni-I missile was successfully carried out on 12 December, 2012 from the same base.

Source: <http://articles.economic-times.indiatimes.com/>, 08 November 2013.

PAKISTAN

Pakistan Successfully Test Fires Hatf IX

NASR, with a range of 60 Kilometers and in-flight maneuver capability is a quick response system equipped with shoot and scoot attributes. Pakistan conducted a successful test fire of Short Range Surface to Surface Missile Hatf IX (Nasr), according to the Inter Services Public Relations (ISPR) website.

The test fire was conducted with successive launches of 4 x missiles (Salvo) from a state of the art multi tube launcher. Nasr, with a range of 60 Kilometers and in-flight maneuver capability is a quick response system equipped with shoot and scoot attributes.

The test was witnessed by the Chief of Army Staff, General Ashfaq Parvez Kayani, Director General Strategic Plans Division, Lieutenant General (Retd) Khalid Ahmed Kidwai, Chairman NESCOM, Mr Muhammad Irfan Burney, Commander Army Strategic Forces Command, Lieutenant General Tariq Nadeem Gilani, senior officers from the strategic forces and scientists and engineers of strategic organisations...

Source: The Dawn, 05 November, 2013.

RUSSIA

Russia to Deploy More Yars Ballistic Missiles by Year-End

Russia will arm two more regiments of the Strategic Missile Forces with Yars mobile ballistic missile systems by the end of 2013, Defense Minister Sergei Shoigu said..."We are facing an important task – to preserve the balance of the strategic deterrence system, which makes the maintenance and timely re-equipment of the strategic nuclear forces a key area of military development," Shoigu said. The SMF has so far fully equipped two regiments of the Teikovo Missile Division in central Russia with Yars systems.

The two regiments consist of a total of 18 missile systems and several mobile command posts, according to the Defense Ministry. Shoigu did not say where the new missiles will be deployed, but mentioned that they will be first tested in the Novosibirsk

The Yars missile system is armed with the RS-24 intercontinental ballistic missile, which has considerably better combat and operational capabilities than the Topol-M (SS-27 Stalin).

Missile Division, based in Siberia. According to plans announced earlier by the Defense Ministry, the Novosibirsk division is expected to receive mobile Yars systems, while the Kozelsk division in central Russia will be armed with the silo-based version of the system. The Yars missile system is armed with the RS-24 intercontinental ballistic missile, which has considerably better combat and operational capabilities than the Topol-M (SS-27 Stalin).

The SMF previously said the Topol-M and RS-24 ballistic missiles would be the mainstays of the ground-based component of Russia's nuclear triad and would account for no less than 80 percent of the SMF's arsenal by 2016.

Source: RIA Novosti, 06 November 2013

UAE

Gulf Arabs Boost Missile Defenses Despite US Thaw With Iran

Arab monarchies of the Persian Gulf are pressing ahead with boosting their defenses against missile attacks from Iran, even as the US appears to be moving toward a rapprochement with Tehran. The UAE is acquiring Lockheed Martin's Terminal High Altitude Area Defense missile system, THAAD, under a \$1.9 billion contract; Kuwait placed a \$308 million order for 244 Lockheed Martin Patriot missiles in August; and Qatar is seeking Raytheon's AN-FPS-132 early-warning radar for \$1.1 billion.

"An agreement between Western governments and Iran over its nuclear program and Syria would allay some gulf concerns over Iran's regional posture," Oxford Analytica observed. "Yet gulf countries will still point to Iran's alleged incitement of Shiite populations in Bahrain and Saudi Arabia's Eastern Province, and its support for Shiite parties in Iraq and Houthi rebels in Yemen as proof that Iran is attempting to undermine regional stability." The International Institute for Strategic Studies, a London think tank, noted that "Tehran's emphasis on ballistic missile development, as well as the range of conventionally armed short- and medium-range ballistic missiles that

The US National Air and Space Intelligence Center estimates Iran has as many as 100 launch vehicles in its inventory of short-range ballistic missiles. It says Iran's medium-range weapons include as many as 50 Shehab-3, range 1,250 miles, and an unknown number of the more advanced Sejil-2, range 1,500 miles.

it already possesses, has made missile defense a priority for regional governments."

...The Emirates' al-Minhad air base is 110 miles from Iran on the gulf's eastern shore and the al-Dhafra base is 160 miles away, while the Saudi

capital Riyadh is 370 miles away, well within Iran's missile reach. Despite Iran's vast manpower advantage, the primary threat to the six Gulf Cooperation Council states Saudi Arabia, the UAE Emirates, Kuwait, Qatar, Oman and Bahrain is its missile force.

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Israeli Estimates are Much Higher.

Along with the Emirates' acquisition of six THAAD launch vehicles, 48 missiles, radar, fire-control and communications systems, the seven-state federation is also getting 10 Lockheed Patriot PAC-3 fire units, with 172 missiles, under a \$3 billion contract signed in 2009. These MIM104 systems will replace the Emirates' three battalions of aging I-HAWK MIM-23B weapons. The AN/FPS-132 Block 5 radar Qatar wants has greater range than the TPY-2 currently in service and can detect ballistic missile launches anywhere in Iran. "Qatar and Oman are also discussing the acquisition of THAAD batteries," the IISS reported.

The institute acknowledged that despite the growing focus on missile defense, the GCC states still have not yet been able to set up a joint air-defense and early-warning system to cover the western shore of the gulf because of deep-rooted dynastic rivalries within the alliance that have persisted since the GCC was established in 1980 early in the eight-year Iran-Iraq war.

Even these states' acquisitions in this regard, while often involving the same weapons systems, are done on an individual basis, rather than a through "a shared procurement strategy underpinned by a collective security outlook."...."The Hizam al-Taawun project, which provides links between GCC national air-defense centers, was viewed by some as a step in the right direction when it

went into operation in 2001, but the system remains limited.

"The US advocates air- and missile-defense integration within the GCC, but meanwhile is using its own command-and-control and battle-management capacity as the hub." Saudi Arabia and the Emirates have also been building up their air power. Indeed, the Emirates' air force is now arguably the most effective within the GCC...

Source: <http://www.upi.com/>, 08 November 2013.

NUCLEAR ENERGY

AZERBAIJAN

Nuclear Research Reactor Project Suspended In Azerbaijan

Implementation of a joint project on the nuclear research reactor construction's feasibility in Azerbaijan, by the Institute of Radiation Problems of the Azerbaijan National Academy of Sciences (ANAS) and the IAEA has been suspended. The project, which began in 2009, was supposed to be completed in 2011," Director of the institute Adil Garibov said. "However, it was extended for another two years."

Implementation of the project cannot go forward without a political decision by the state and there is no final decision on the project yet, he said. In addition, Garibov said that construction of the nuclear research reactor needs large financial resources. Construction will cost at least 250-300 million manats (US \$1 is 0.7814), and the Azerbaijan government will finance the project....Garibov noted that staff training in the nuclear field is underway by means of the IAEA and Azerbaijan already has its staff working at the reactor. Construction of the reactor is in an area near Baku.... Currently, there is no need for a nuclear power plant in Azerbaijan with its plentiful supply of oil and gas. However, there is a high possibility of construction of such plant in the future.

In the field of nuclear energy, Azerbaijan cooperates with South Korea, France, Russia and other countries. It conducts joint research with specialists of these countries to study innovations in nuclear technology.

Source: www.azernews.az/azerbaijan/61420.html, 08 November 2013.

BOLIVIA

Bolivia Ready for Nuclear Power: Evo Morales

Bolivia's President Evo Morales said 28 October 2013 that his country has achieved the conditions to obtain nuclear power for "pacific ends," and that Argentina and France would help "with their knowledge." He made his

comments at the opening of a "Hydrocarbon Sovereignty" conference in Tarija. In May 2013, Bolivia and Argentina signed an accord on nuclear cooperation. In an obvious reference to the US, Morales anticipated political obstacles, saying that "some countries have [nuclear energy] but don't want to let others."

Morales also took aim at "ecologist fundamentalism" that stands in the way of development projects. "[S]ome NGOs oppose everything, they will not let us work, they will not let us explore, they will not let us industrialize, not even to develop hydroelectric plants." He emphasized that industrialization of the hydrocarbon sector would advance, with development of petrochemical capacity foreseen...

...The Morales government recently announced the development of uranium reserves in Potosí department, ironically echoing President Obama in promoting "clean nuclear power."....

Source: <http://www.ww4report.com/>, 07 November 2013.

INDIA

Power Generation at Kudankulam Nuclear Plant Resumes

Power generation at the Kudankulam Nuclear Power Plant in Tamil Nadu which was temporarily suspended last week, resumed on 04 November 2013, a senior official of the plant said. "Power generation resumed at 4.11 pm with the 1000MWe Unit-1 producing around 220MW of electricity," he said.

The 1000MWe first unit was shut down, the second such exercise undertaken by the authorities after it was synchronised with the southern grid on 25 October 2013. Unit-1 had attained criticality on 13 July 2013 after much delay following protests against the project by anti-nuclear activists in areas around the complex, citing safety reasons.

Power generation would be increased gradually towards 1000MWe by December 2013 once the unit attains operational stability. NPCIL is constructing two 1,000MW units at KNPP jointly with Russia at Kudankulam in Tirunelveli district, about 650km from here

Source: <http://articles.economictimes.indiatimes.com>, 04 November 2013.

JORDAN

Jordan Plans To Build Several Small Nuclear Reactors

Jordan on 05 November 2013 said it plans to build several nuclear reactors with small capacities for power generation, the state-run Petra news agency reported. "We plan to build several small nuclear reactors after the

country's first large reactor is built," Khaled Toukan, head of the Jordan Atomic Energy Commission,..., Jordan selected Russia's Rosatom to build the country's first large nuclear reactor that has a total capacity of 2,000 megawatts. The large reactor, which costs about 10 billion US dollars, will be ready in 2020.

After the reactor, to be built by the Russians, is ready, Jordan will build several small reactors. Each of the small reactors will have two power plants with each having a capacity of 180 megawatts, said Toukan. Jordan, which imports about 96 percent of its energy needs annually, seeks to build several nuclear plants for power generation...

Source: <http://news.xinhuanet.com/>, 06 November 2013.

USA

6 Nuclear Plants That Could Be Next To Shut Down

"In the last year, US utilities have closed or announced plans to close five nuclear reactors in addition to the cancelled development plans," according to Morningstar's Utilities Observer report for November 2013, "leading to speculation that prolonged low gas prices could drive more plant closures given the high maintenance capital investment requirements."...

But what are those select situations?

Below is a list of operating nuclear plants that Morningstar analysts believe are most exposed to the possibility of closure. The list does not include disabled plants, like Fort Calhoun in Nebraska, that are offline and may never reopen. And it does not include plants already scheduled for closure, like Exelon's Oyster Creek plant in New Jersey.

1. **Indian Point:** Less than 50 miles north of Manhattan, the reactors at Entergy's Indian Point Energy Center face a tough political fight for relicensing. One license has expired, and that reactor is operating under an allowance from the Nuclear Regulatory Commission. Another license is due to expire in 2015. New York Gov. Andrew Cuomo opposes relicensing. Outgoing New York Mayor Michael Bloomberg has defended the plant, based on the impact closure could have on New Yorkers' electric bills. Mayor-elect Bill DeBlasio has called for a gradual decommissioning as alternative power sources come online, which isn't how the process works. Ultimately, the decision rests not with local officials, but with the NRC.

2. **GINNA Nuclear Generating Station:** On the south shore of Lake Ontario near Rochester, NY, Ginna is a single-reactor plant that faces fresh competition from wind turbines, falling power prices, and, like Indian Point, a political climate hostile to nuclear reactors. "Upstate New York off-peak power prices have fallen to \$32 per megawatt hour as of mid-2013 from \$55/MWh in 2008," according to Morningstar. Ginna is owned jointly by Exelon and Électricité de France.

3. **James A. Fitzpatrick Nuclear Power Plant:** Another plant on the south shore of Lake Ontario in New York, FitzPatrick faces the same challenges as Ginna, but it's also an older boiling-water reactor that may need upgrades. "Fitzpatrick's operating license expires in 2034, but its revenue-sharing agreement with the New York Power Authority expires in December 2014, and unfavorable contract renewal negotiations could lead Entergy to shut the plant."

4. **Three Mile Island:** Most of the shale gas boom in America is happening in the Marcellus region of Western Pennsylvania, according to the Energy Information Agency, which means Exelon's infamous Three Mile Island plant now has to compete with an abundance of gas never before seen in its lifetime. Several large, high-efficiency gas power plants are planned for the region.

5. **Davis Besse Nuclear Power Station:** FirstEnergy's plant near Toledo is not far from the Marcellus Shale formation and all that cheap natural gas. After Indian Point, it's the next power plant up for license renewal in 2017. "We expect strong opposition from some parties," says Morningstar. "It has a tarnished reputation after an extended outage in 2002-04 due to corrosion in the reactor vessel head and several smaller issues since then."

6. **Pilgrim Nuclear Generating Station:** Entergy's Pilgrim plant in Plymouth, Mass., just survived a contentious license renewal process and was granted a new lease on life through 2032. But it may not survive the energy economy in which it now must compete. "Entergy is not obligated to operate it for that long and could exit if power prices sink much further," Morningstar says. The old boiling water reactor is more expensive to operate than newer designs.

Most existing nuclear plants will survive because they provide power without producing carbon emissions,

Jordan selected Russia's Rosatom to build the country's first large nuclear reactor that has a total capacity of 2,000 megawatts. The large reactor, which costs about 10 billion US dollars, will be ready in 2020.

Morningstar says, because coal will suffer with greenhouse gas regulations, and because power prices should recover from their current trough. But most of all, because of nuclear's low variable cost.

"No emissions, coal closures, and improving power prices are certainly favorable aspects of nuclear stations but the low variable cost is far and away the primary reason that most are not at risk of closure despite a difficult market environment," said analyst Mark Barnett.

Source: www.forbes.com/, 07 November 2013.

VIETNAM

Vietnam Pushing Ahead With Nuclear Power Expansion

Vietnam is more committed than ever to meet its growing energy needs with nuclear power while its energy-hungry neighbors have become more cautious of the energy source after the Fukushima meltdown.

...Vietnam is working with Russian utility and energy company Rosatom on its first two-reactor nuclear power station in the south-central province of Ninh Thuan, whose construction has been delayed by three years, from 2014 to 2017. October 2013, the US and Vietnam also inked a deal allowing American companies to develop civilian nuclear power here. Japan and South Korea have also exhibited interests in gaining a foothold in an industry that could be worth US\$50 billion by 2030, according to US estimates.

Talks about funding the construction of the second nuclear power plant, also in Ninh Thuan, have been underway between Japan and Vietnam. Meanwhile, during her visit to Vietnam last September, South Korean President Park Geun-hye said her country was interested in introducing its nuclear power technology here, adding that a joint study on a project to build a nuclear power plant in Vietnam had been launched,...

Facing a chronic power shortage, Vietnam has chalked out an ambitious plan to supply at least six percent of its electricity needs from nuclear power by the year 2030. With the first nuclear plant set to come on-stream in 2020, the country envisages building eight nuclear plants and 13 reactors by 2030.

...If things go as planned, Vietnam will be the first Southeast Asian nation to commission a working

Vietnam is working with Russian utility and energy company Rosatom on its first two-reactor nuclear power station in the south-central province of Ninh Thuan, whose construction has been delayed by three years, from 2014 to 2017.

nuclear plant, though other neighbors have talked about the idea for years. Southeast Asia has no working nuclear power plants, but more than half of the countries in the region plan to develop nuclear power as a solution to looming energy shortages. Indonesia, Singapore, Thailand,

Malaysia, and the Philippines are also looking to build nuclear plants or start up non-operational ones in the next few decades.

..."Among the ASEAN countries, it appears that Vietnam possesses the most concrete plans for developing nuclear power, including both a definite timeframe for the construction of nuclear plants and business deals concluded with Russia," Kevin Punzalan, a researcher at De La Salle-College of St. Benilde in the Philippines who has surveyed plans for nuclear energy development across Southeast Asia, told Vietweek. In contrast, Malaysia and Indonesia have set "target dates" for the construction of plants that have not been backed up by more detailed plans. The Philippines has the Bataan NPP, but no government has been willing to rehabilitate it for operation, especially after Fukushima.

...With countries trying to limit greenhouse gas emissions from coal and other fossil-fuel based power plants, and questions over nuclear power, energy-hungry Vietnam, with a population of 90 million, is following its own energy path...

..."Vietnam has still not paid enough attention to energy efficiency," said Trinh Le Nguyen, executive director of People and Nature Reconciliation, one of Vietnam's few locally based conservation groups. "Nuclear, hydropower, and coal will remain the main sources of energy of Vietnam," he said. "Perhaps Vietnam won't plan to invest much in renewable resources itself."

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

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NUCLEAR COOPERATION

AUSTRALIA-INDIA

India, Australia Inching Towards Civil Nuclear Agreement

India moved a step closer to sourcing uranium from Australia, the world's biggest exporter of the radioactive mineral, with the Foreign Ministers of both countries agreeing to hold the third round of talks on a bilateral civil

nuclear agreement towards the end of this November 2013.

External Affairs Minister Salman Khurshid and his Australian counterpart Julie Bishop reaffirmed the commitment of both countries to finalise a Civil Nuclear Cooperation Agreement to enable the sale of Australian uranium to India...

...Having held one round of dialogue, the two countries will be finalising dates for the second interaction on the subject, which will form the fulcrum of a strategic partnership with the imminent addition of uranium to ties in coal and hydrocarbons...

Ms. Bishop, according to an Australian High Commission statement, described advancing relations with India as a priority for the Australian government and felt her discussions with Mr. Khurshid followed the "very productive" talks between PM Manmohan Singh and Australian Premier Tony Abbott at Brunei on October 10. A "high quality CECA would underpin a further significant expansion of the trade and investment relationship to mutual benefit," she added...

Source: <http://www.thehindu.com/>, 02 November 2013.

FRANCE–BRAZIL

Arvea to Support Third Angra 3 Nuclear Reactor Construction

Eletrobras Eletronuclear has awarded a contract to Arvea to support the construction of the Angra 3 nuclear reactor, located in Rio de Janeiro, Brazil. Under the 1.25bn contract, the company will supply engineering services and components, as well as the digital instrumentation and control system for the reactor.

Additional responsibilities include provision of assistance in the supervision of the installation works and the commissioning activities. Arvea president and CEO Luc Oursel said the contract continues the company's partnership with Eletrobras that started with the construction and the supply of reactor services for the Angra 2 reactor...

Initiated in 2006, the construction of the 1,405 MWe Angra 3 pressurized water reactor is expected to help the Brazilian government meet the country's increasing energy demand, and balance the energy mix.

Besides featuring the latest enhancements made to currently

High quality CECA would underpin a further significant expansion of the trade and investment relationship to mutual benefit.

operational reactors, especially in terms of safety, the Angra 3 design also responds to the guidelines of the IAEA and the Brazilian nuclear safety authority's post-Fukushima

standards. Connected to the grid in 1985 and 2001, the Angra 1 and Angra 2 reactors have an output of 640MWe and 1,350MWe, respectively.

Source: <http://nuclear.energy-business-review.com/> 08 November 2013

RUSSIA–BULGARIA

Bulgaria and Russia to Cooperate On Nuclear Regulation

The Council of Ministers approved a draft agreement between the Nuclear Regulatory Agency of Bulgaria and the Federal Environmental, Technological and Nuclear Supervision of Russia on cooperation in the regulation of nuclear and radiation safety in the use of nuclear energy for peaceful purposes. The agreement strengthens the long-standing partnership between the two institutions by promoting the exchange of information on regulatory practices and experiences in the field of occupational licensing for the use of nuclear energy and inspection mechanisms.

The cooperation will be implemented through the exchange of documents, visits of experts to conduct joint seminars and consultations, scientific visits and the implementation of joint projects. Information constituting a state secret of any of the two countries will not be subject to transfer under the agreement.

Source: <http://www.standartnews.com/>, 06 November 2013.

SOUTH KOREA–BRITIAN

S. Korea, Britain Agree to Double Trade, Investment By 2020

South Korean President Park Geun-hye and British PM David Cameron agreed on 06 November 2013 to double

trade and investment volume between the two countries by 2020, strengthen partnership in nuclear energy projects and work closely together to develop future growth engines.

The two sides also signed a whopping 18 memorandums of understanding calling mainly for greater cooperation in financial

The two sides also signed a whopping 18 memorandums of understanding calling mainly for greater cooperation in financial oversight, project financing, nuclear power and renewable energy. The ROK and UK agreed to expand their partnership in the research and development of nuclear energy.

oversight, project financing, nuclear power and renewable energy. Money involved in the project financing deals amounts to US\$3 billion, officials said.

"The ROK and UK share an ambition to double the volume of bilateral trade by 2020 and double bilateral foreign direct investment stock by 2020," the two sides said in a joint statement issued after the summit.

"The ROK and UK agreed to expand their partnership in the research and development of nuclear energy."

...The two sides also signed seven MOUs in nuclear and renewable energy and infrastructure sectors. In particular, the deal on comprehensive nuclear power cooperation between Seoul's industry ministry and Britain's energy and climate change department is seen as a first step toward exporting atomic power plants to the European nation.

Britain plans to dismantle 15 of its 16 aging power-generating nuclear reactors by 2023, and plans to build 10 new ones by 2025, officials said. The two sides also signed an MOU on cooperation in nuclear power plant dismantlement, which officials said would help South Korea learn from the British technology. The sides also adopted a separate statement on climate change. While pledging to jointly tackle the challenge, the sides said nuclear power "provides a safe, consistent and affordable source of energy" and vowed to "expand and strengthen cooperation" in nuclear power generation, safety and research on nuclear decommissioning and nuclear waste management....

Source: Excerpted from <http://www.globalpost.com/>, 06 November 2013.

NUCLEAR PROLIFERATION

IRAN

Fate of Iran Nuclear Talks Hangs In the Balance

The fate of nuclear talks between Iran and six global powers, which unexpectedly entered the third day on 09 November 2013, hangs in the balance as both sides test the limits to which they can compromise their positions, without alienating their domestic constituencies. The high-powered presence of six Foreign Ministers from the US, Russia,

During the current round, Iran has agreed to halt expansion of its nuclear programme. Iran has agreed to suspend production of uranium, enriched to a 20 per cent level. This is in response to western fears that enrichment up to 20 per cent brings Tehran closer to atomic bomb, which requires uranium refined to 90 per cent purity or more.

China, Britain, France and Germany all capable of taking decisions beyond the reach of officials involved in the negotiating process was in itself an illustration that the possibility for a final push to seal a deal was being explored.

Yet, the final outcome of the diplomatic overdrive in Geneva is far from certain, prompting British Foreign Secretary William Hague to

exhort all the parties to "seize the moment". With time running out, negotiations were being held at a frenetic pace. On 06 November 2013, the Foreign Minister of Iran, Javad Zarif, closeted with EU foreign policy chief Catharine Ashton and John Kerry, the US top diplomat, for nearly five hours to breathe fresh life into talks, which seemed to be stalling after a promising start.

With complications arising, Russian Foreign Minister Sergei Lavrov and Chinese Foreign Minister Wang Yi also decided to join the conclave a development that might comfort the Iranians, who have found quality support from Beijing and Moscow in the run up to the talks. The Geneva parleys have been structured to define the starting point as well the endgame of the dialogue, so that a framework accommodating a series of reciprocal steps, culminating in a final deal, probably at the end of six months, can be established.

To kick start a preliminary agreement during the current round, Iran has agreed to halt expansion of its nuclear programme. Russia Today (RT) reported that Iran has agreed to suspend production of uranium, enriched to a 20 per cent level. This is in response to western fears that enrichment up to 20 per cent brings Tehran closer to atomic bomb, which requires uranium refined to 90 per cent purity or more.

However, the definition of an endgame appears to have emerged as a major stumbling block. The Iranians have repeatedly said they would not give up enrichment, which is their "right", in conformity with the terms of the NPT,

which they have signed. RT reported that Iran would be ready to limit enrichment up to five per cent purity, which may be sufficient to run atomic power plants that Tehran wishes to establish, but grossly insufficient to develop a bomb. The Iranians also appear ready to freeze installation, and limit the use of centrifuges used for enrichment

The Iranians also appear ready to freeze installation, and limit the use of centrifuges used for enrichment work, but, it is unlikely that they would commit themselves to scale down the size of their enrichment capability at the beginning of the talks.

work, but, it is unlikely that they would commit themselves to scale down the size of their enrichment capability at the beginning of the talks.

There is also demand on Tehran to halt construction activity at the site of the Arak heavy water reactor, which, when completed, can yield plutonium another source for making a bomb. Iran wants to trade its confidence building steps with a firm commitment from the global powers on significant sanctions relief....

Source: *The Hindu*, 10 November 2013.

Hassan Rouhani Says 'Iran Will not Abandon its Nuclear Rights'

President Rouhani said on 10 November 2013 Iran will not abandon its nuclear rights, including uranium enrichment, media reported a day after a fresh round of talks with world powers. "There are red lines that must not be crossed," Rouhani told the conservative-dominated parliament in remarks quoted by the ISNA news agency.

"The rights of the Iranian nation and our national interests are a red line. So are nuclear rights under the framework of international regulations, which include enrichment on Iranian soil," he said...Rouhani pleaded for parliament's backing. "If we want to succeed in these negotiations, we need the support of the supreme leader and of lawmakers," he told them...Hardliners in Iran had also been sceptical, fearing that the negotiating team led by foreign minister Mohammad Javad Zarif would offer too many concessions. Rouhani said Iran would "not bow to threats from any power", while also insisting that sanctions battering Iran's ailing economy had not forced it to the negotiating table...

Source: <http://timesofindia.indiatimes.com/>, 10 November 2013.

SAUDI ARABIA-PAKISTAN

Saudi Nuclear Weapons 'On Order' From Pakistan

Saudi Arabia has invested in Pakistani nuclear weapons projects, and believes it could obtain atomic bombs at will...While the kingdom's quest has often been set in the context of countering Iran's atomic programme, it is now possible that the Saudis might be able to deploy such devices more quickly than the Islamic republic.

President Rouhani said Iran will not abandon its nuclear rights, including uranium enrichment. Rouhani said Iran would "not bow to threats from any power", while also insisting that sanctions battering Iran's ailing economy had not forced it to the negotiating table.

Major General Feroz Hassan Khan wrote that Prince Sultan's visits to Pakistan's atomic labs were not proof of an agreement between the two countries. But he acknowledged, "Saudi Arabia provided generous financial support to Pakistan that enabled the nuclear program to continue.

...Since 2009, when King Abdullah of Saudi Arabia warned visiting US special envoy to the Middle East Dennis Ross that if Iran crossed the threshold, "we will get nuclear weapons", the kingdom has sent the Americans numerous signals of its intentions....The story of Saudi Arabia's project - including the acquisition of missiles capable of

delivering nuclear warheads over long ranges - goes back decades.

In the late 1980s they secretly bought dozens of CSS-2 ballistic missiles from China.

These rockets, considered by many experts too inaccurate for use as conventional weapons, were deployed 20 years ago. This summer experts at defence publishers Jane's reported the completion of a new Saudi CSS-2 base with missile launch rails aligned with Israel and Iran.

It has also been clear for many years that Saudi Arabia has given generous financial assistance to Pakistan's defence sector, including, western experts allege, to its missile and nuclear labs.

Visits by the then Saudi defence minister Prince Sultan bin Abdulaziz al Saud to the Pakistani nuclear research centre in 1999 and 2002 underlined the closeness of the defence relationship. Defence publisher Jane's revealed the existence of Saudi Arabia's third and undisclosed intermediate-range ballistic missile site, approximately 200 km southwest of Riyadh.

In its quest for a strategic deterrent against India, Pakistan co-operated closely with China which sold them missiles and provided the design for a nuclear warhead. The Pakistani scientist Abdul Qadeer Khan was accused by western intelligence agencies of selling atomic know-how and uranium enrichment centrifuges to Libya and North Korea. AQ Khan is also believed to have passed the Chinese nuclear weapon design to those countries. This blueprint was for a device engineered to fit on the CSS-2 missile, i.e the same type sold to Saudi Arabia.

Because of this circumstantial evidence, allegations of a Saudi-Pakistani nuclear deal started to circulate even in the 1990s, but were denied by Saudi officials.

They noted that their country had signed the NPTy, and called for a nuclear-free Middle East, pointing to Israel's possession of such weapons.

The fact that handing over atom bombs to a foreign government could create huge political difficulties for Pakistan, not least with the World Bank and other donors, added to scepticism about those early claims.

In *Eating the Grass*, his semi-official history of the Pakistani nuclear program, Major General Feroz Hassan Khan wrote that Prince Sultan's visits to Pakistan's atomic labs were not proof of an agreement between the two countries. But he acknowledged, "Saudi Arabia provided generous financial support to Pakistan that enabled the nuclear program to continue."

Whatever understandings did or did not exist between the two countries in the 1990s, it was around 2003 that the kingdom started serious strategic thinking about its changing security environment and the prospect of nuclear proliferation.

A paper leaked that year by senior Saudi officials mapped out three possible responses - to acquire their own nuclear weapons, to enter into an arrangement with another nuclear power to protect the kingdom, or to rely on the establishment of a nuclear-free zone in the Middle East. It was around the same time, following the US invasion of Iraq, that serious strains in the US/Saudi relationship began to show themselves, says Gary Samore.

The Saudis resented the removal of Saddam Hussein, had long been unhappy about US policy on Israel, and were growing increasingly concerned about the Iranian nuclear program.

In the years that followed, diplomatic chatter about Saudi-Pakistani nuclear cooperation began to increase. In 2007, the US mission in Riyadh noted they were being asked questions by Pakistani diplomats about US knowledge of "Saudi-Pakistani nuclear cooperation".

The unnamed Pakistanis opined that "it is logical for the Saudis to step in as the physical 'protector'" of the Arab world by seeking nuclear weapons, according to one of the State Department cables posted by Wikileaks.

By the end of that decade Saudi princes and officials were giving explicit warnings of their intention to acquire nuclear weapons if Iran did. Having warned the Americans in private for years, in 2012 Saudi officials in Riyadh escalated it to a public warning, telling a journalist from the Times "it would be completely

The Saudis resented the removal of Saddam Hussein, had long been unhappy about US policy on Israel, and were growing increasingly concerned about the Iranian nuclear program.

unacceptable to have Iran with a nuclear capability and not the kingdom".

...One senior Pakistani, speaking on background terms, confirmed the broad nature of the deal - probably unwritten - his country had reached

with the kingdom and asked rhetorically "what did we think the Saudis were giving us all that money for? It wasn't charity." Another, a one-time intelligence officer from the same country, said he believed "the Pakistanis certainly maintain a certain number of warheads on the basis that if the Saudis were to ask for them at any given time they would immediately be transferred."

Some think it is a cash-and-carry deal for warheads, the first of those options sketched out by the Saudis back in 2003; others that it is the second, an arrangement under which Pakistani nuclear forces could be deployed in the kingdom.

...This would give a big political advantage to Pakistan since it would allow them to deny that they had simply handed over the weapons, but implies a dual key system in which they would need to agree in order for 'Saudi Arabian' "nukes" to be launched.

Others I have spoken to think this is not credible, since Saudi Arabia, which regards itself as the leader of the broader Sunni Islamic 'ummah' or community, would want complete control of its nuclear deterrent, particularly at this time of worsening sectarian confrontation with Shia Iran.

And it is Israeli information that Saudi Arabia is now ready to take delivery of finished warheads for its long-range missiles - that informs some recent US and NATO intelligence reporting. Israel of course shares Saudi Arabia's motive in wanting to worry the US into containing Iran. ...The US diplomatic thaw with Iran has touched deep insecurities in Riyadh, which fears that any deal to constrain the Islamic republic's nuclear program would be ineffective.

...There is a message here for Pakistan, of Riyadh being ready to replace US military assistance or World Bank loans, if standing with Saudi Arabia causes a country to lose them.

...The Saudi embassy in London has also issued a statement pointing out that the Kingdom is a signatory to the NPT and has worked for a nuclear free Middle East. But it also

It is Israeli information that Saudi Arabia is now ready to take delivery of finished warheads for its long-range missiles - that informs some recent US and NATO intelligence reporting. Israel of course shares Saudi Arabia's motive in wanting to worry the US into containing Iran.

points out that the UN's "failure to make the Middle East a nuclear free zone is one of the reasons the Kingdom of Saudi Arabia rejected the offer of a seat on the UN Security Council".

Pakistan dismissed a report by BBC which claimed that Saudi Arabia had invested in Pakistan's nuclear weapons programme and could obtain the atom bomb at will.

Although Saudi Arabia has denied such reports in the past, the latest resurgence of such rumours comes amid increasing regional tensions with Iran already under international scrutiny for high-level enriching of

It says the Saudi Foreign Minister has stressed that this lack of international action "has put the region under the threat of a time bomb that cannot easily be defused by manoeuvring around it".

Source: BBC News, 06 November 2013.

Nuclear Proliferation: FO Denies Pakistan-S Arabia N-Bomb Deal

Pakistan dismissed a report by BBC which claimed that Saudi Arabia had invested in Pakistan's nuclear weapons programme and could obtain the atom bomb at will... Reacting to the story, foreign ministry spokesperson Aizaz Ahmed Chaudhry termed the report 'baseless and mischievous'.

"Pakistan is a responsible nuclear weapons state with a robust command and control structure and comprehensive export controls. Pakistan supports objectives of non-proliferation as well as nuclear safety and security," said a statement issued by the foreign ministry.

...Pakistan's nuclear programme is purely for its own legitimate self defence and maintenance of a credible, minimum deterrence, he stressed. Aizaz also drew the media's attention to the joint statement by PM Nawaz Sharif and President Obama issued on 24 October 2013, which referred to President Obama's appreciation of Pakistan's constructive engagement with the Nuclear Security Summit process and its cooperation with the IAEA and other international forums.

...PM Sharif affirmed Pakistan's support for the universal objectives of non-proliferation and disarmament...The BBC report had claimed that Saudi officials had already in the past indicated that if Iran obtains the atom bomb the kingdom will get nuclear weapons.

It added, that while the kingdom's quest has often been set in the context of countering Iran's atomic programme, it was now possible that the Saudis might be able to deploy such devices more quickly than Iran.

Pyongyang said if it did not possess nuclear weapons there would be no peace and stability on the Korean Peninsula and that the fate of the Korean people would be placed in jeopardy."The build-up of nuclear deterrence has proven to be a wise choice.

uranium.

Source: <http://tribune.com.pk/>, 08 November 2013.

NORTH KOREA

N. Korea Says Won't Bargain on Nuclear Arms

North Korea said on 30 October 2013 that its nuclear weapons program is not a bargaining tool and slammed South Korean policymakers for challenging the country's sovereign right to defend itself from outside aggression, Seoul's Yonhap News Agency reported.

In an article carried by the Rodong Sinmun, the organ of the ruling Workers' Party of Korea (WPK), Pyongyang said if it did not possess nuclear weapons there would be no peace and stability on the Korean Peninsula and that the fate of the Korean people would be placed in jeopardy."The build-up of nuclear deterrence has proven to be a wise choice," the state-run newspaper claimed.

The North has detonated three nuclear devices since 2006, with the latest test being carried out on 12 February 2013. The paper, which effectively represents the views of the North Korean leadership, also blasted South Korea's Foreign Minister Yun Byung-se and Unification Minister Ryoo Kihl-jae for calling on Pyongyang to give up its nuclear ambitions.

"Remarks by Yun and Ryoo are direct challenges to the country's dignity and independence," the article monitored by Yonhap said, adding that the call for the North to denuclearize is nothing more than foolish wishful thinking." The latest verbal assault comes after the Foreign Minister said in a United Nations event, earlier this month, that the North's strategy of simultaneously building up its economy and its nuclear force is a direct affront to the authority of the international organization. The Unification Minister,

meanwhile, said that the North must first give up its nuclear weapons in order for the inter-Korean factory park in Kaesong to "mature" and contribute to better inter-Korean relations.

Source: <http://www.kuna.net.kw/>, 30 October 2013.

NUCLEAR NON PROLIFERATION

JAPAN

Japan Suggests Iran Finalize Nuclear Non-Proliferation Treaty

Japan's Foreign Minister Fumio Kishida strongly urged Iran to accept the NPT to end a decade-long standoff with world powers. Meeting with President Hassan Rouhani in Tehran, he told the leader that Iran would need to move forward in order to finally reach a nuclear deal, and it involves allowing observers to visit their nuclear facilities.

Under the treaty's additional protocol, the IAEA can conduct unannounced inspections of their nuclear facilities and Iran also needs to provide them with information regarding nuclear fuel cycle activities. The current protocol is that Tehran only has to inform the IAEA three months before it transfers fissile material into the nuclear testing site. They are one of the signatories of the NPT and even voluntarily implemented the additional protocol but stopped when their case was sent to the UN.

Kishida also encouraged Iran to finally ratify the CTBT ... Back in 1996, they were one of the signatories of this agreement but they have not upheld it up to now. He said that these are the crucial steps that Iran needs to take that "would definitely help the process of Iran's nuclear talks". He is also eager to talk to his counterpart Mohammad Javad Zarif and share the same sentiments.

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

NUCLEAR TERRORISM

CANADA

Legislation to Combat Nuclear Terrorism Comes Into Force

The Honourable Peter MacKay,.... for Central Nova, Minister of Justice and Attorney General of Canada, announced that the Nuclear Terrorism Act has come into force. This legislation enhances the domestic legal framework to better respond to the threat of nuclear terrorism and fulfills key international commitments Canada has made in the area of nuclear security...

The Nuclear Terrorism Act creates four new Criminal Code offences related to nuclear terrorism:

a) Making a device, or possessing, using, transferring, exporting, importing, altering or disposing of nuclear or radioactive material or a device, or committing an act

against a nuclear facility or its operations, with the intent to cause death, serious bodily harm or substantial damage to property or the environment;

b) Using or altering nuclear or radioactive material or a device, or committing an act against a nuclear facility or its operation, with the intent to compel a person, a government or a domestic or international organization to do, or refrain from doing, any act;

c) Committing an indictable offence for the purpose of obtaining nuclear or radioactive material or a device, or to obtain access to a nuclear facility;

d) Threatening to commit any of these offences.

The international community, including Canada, has strengthened its cooperation to help prevent the acquisition of nuclear material, radioactive material and devices by individuals or groups with malicious intent.

These amendments will permit Canada to ratify the Amendment to the Convention on the Physical Protection of Nuclear Material and the International Convention for the Suppression of Acts of Nuclear Terrorism....

Source: <http://www.northumberlandview.ca/>, 01 November 2013.

India has co-sponsored the draft resolution on the IAEA report. Sinha said India is committed to implementing the "highest standards for the safety of Indian nuclear power plants and the associated fuel cycle facilities." The country would also continue to participate and assist the IAEA Secretariat in its endeavor to enhance nuclear safety through various measures. Sinha stressed that India.

NUCLEAR SAFETY

INDIA

India Committed to Highest Safety Standards at Its N-Plants

India has said it is committed to implementing the highest safety standards at its nuclear power plants as it seeks to harness the benefits of atomic energy to meet its growing energy requirements. "Nuclear power remains an important option

not only for countries with existing nuclear programmes, but also for developing countries with growing energy requirements," visiting BJP MP Shatrughan Sinha said in his statement to the UN General Assembly on the 2012 annual report of the IAEA.

India has co-sponsored the draft resolution on the IAEA report. Sinha said India is committed to implementing the "highest standards for the safety of Indian nuclear power plants and the associated fuel cycle facilities."

The country would also continue to participate and assist the IAEA Secretariat in its endeavor to enhance nuclear safety through various measures. Sinha stressed that India is committed to harnessing the benefits of nuclear energy

for electricity production while ensuring that highest priority is given to nuclear safety and security.

India will need to rapidly raise the energy production to meet its growing energy requirements to achieve its developmental goals. The energy resources at our disposal make it imperative for us to consider all energy options," he said at the UNGA on 05 November 2013. He said nuclear energy has a crucial role to play in achieving objectives of India's sustainable economic growth.

The country is also extensively engaged in development of nuclear technologies in fields extending beyond nuclear power, including isotope applications for improved crop varieties, crop protection and post-harvest technologies, radio-isotope applications for diagnostic and therapeutic uses in healthcare and technologies for safe drinking water.

He pointed out that currently there are 21 Nuclear Power Plant units operating in India and construction of four units of 700 MWe pressurized heavy-water reactors (PHWRs) is under progress at the Kakrapar and Rawatbhata sites in Rajasthan. India has also setup two Voda Voda Energo Reactor (VVER) based NPPs at Kudankulam in Tamil Nadu, with the co-operation of Russia. The power would be further raised to 1000 MWe in stages, increasing the nuclear power contribution in the country to about 5800 MWe. India is also setting-up 500 MWe Prototype Fast Breeder Reactor at Kalpakkam.

With major equipment such as main vessel and safety vessel, primary-secondary sodium heat exchangers, steam generators, other reactor auxiliaries having been erected, construction at the site is expected to be completed this year, Sinha told the UNGA. He underscored that the nuclear power programme in India is oriented towards maximising the energy potential of available uranium resources and the utilisation of its large Thorium reserve.

"We believe that available global uranium resources cannot sustain the projected expansion of nuclear power in the coming decades, without adopting the closed fuel cycle approach and subsequent adoption of thorium fuel cycle," he said. India continues to carry forward intense development of thorium fuel cycle based technologies for demonstration in its advanced heavy-water reactor (AHWR) programme.

"We feel that the IAEA should take all necessary measures to allay misapprehensions in the public and member states about the safety of nuclear power plants taking into account the current advances in relevant design and technology areas. We would also like to encourage the

IAEA to make concerted efforts for free flow of latest information, technology and equipment pertaining to nuclear safety among the member states," he said. Sinha pointed out that the threat of nuclear terrorism is one of the pressing challenges facing the international community.

"Responsible national action and effective international cooperation are therefore required for strengthening nuclear security to prevent vulnerable nuclear material falling into hands of non-state actors," he added

Source: <http://news.outlookindia.com/>, 07 November 2013.

TAIWAN

Taiwan Nuclear Power Plants Meet Security Standards: Eu Report

Taiwan's nuclear power plants have met security standards and do not have any flaws that warrant immediate shutdowns of reactors, but there are areas where improvements are warranted, according to a report by EU experts.

The Atomic Energy Council (AEC), which oversees Taiwan Power Co., the operator of Taiwan's nuclear power plants, invited a nine-member team from the European Nuclear Safety Regulations Group (ENSREG) to conduct the peer review from 23 September to 03 October 2013 amid public concerns about the safety of the country's nuclear power plants. The report noted that Taiwan is vulnerable to several natural hazards, such as earthquakes, floods, tsunamis and volcanoes, and should adopt precautionary measures in those areas.

Source: focustaiwan.tw/news/asoc/2013110800441.aspx, 08 November 2013

NUCLEAR WASTE MANAGEMENT

JAPAN

Japan OKs Fuel Removal from Pool at Nuclear Plant

Japanese regulators on 30 October 2013 gave final approval for the removal of fuel rods from an uncontained cooling pool at a damaged reactor building considered the highest risk at a crippled nuclear plant.

Removing the fuel rods from the Unit 4 cooling pool is the first major step in a decommissioning process that is expected to last decades at Fukushima No. 1 nuclear power plant, where three reactors melted down after the March 2011 earthquake and tsunami.

The Nuclear Regulation Authority said at its weekly meeting that the proposal by the plant's operator, Tokyo

Electric Power Co., is appropriate and that the removal can start in November as planned.

"It's a major step toward decommissioning," said Toyoshi Fuketa, one of the authority's five commissioners. "Moving the fuel rods out of Unit 4 can significantly reduce the risk at the plant."

The Unit 4 reactor was offline when the plant was hit by the disasters, but the building was damaged by hydrogen explosions and fire. Fuel rods in the pool, however, have since been properly cooled and are safe enough to remove, officials said.

TEPCO has reinforced the structure around the pool and says the Unit 4 building can survive a major earthquake, but the unenclosed pool on the unit's top floor, which contains 1,533 fuel rods, has caused international concern. About 200 of the rods that are unused and safer are expected to be the first to be removed.

The Unit 4 cooling pool has attracted international attention in part because early in the crisis it was suspected to have dried up, when in fact there was enough water to cover the rods, keeping them from melting. TEPCO last year plucked two unused fuel rod units out of the pool and said no major corrosion or damage was found in them.

Nuclear regulatory chairman Shunichi Tanaka, however, warned that removing the fuel rods from Unit 4 would be difficult because of the risk posed by debris that fell into the pool during the explosions.

"It's a totally different operation than removing normal fuel rods from a spent fuel pool," Tanaka said at a regular news conference. "They need to be handled extremely carefully and closely monitored. You should never rush or force them out, or they may break."

He said it would be a disaster if fuel rods are pulled forcibly and are damaged or break open when dropped from the pool, located about 30 meters (100 feet) above ground, releasing highly radioactive material. "I'm much more worried about this than contaminated water," Tanaka said.

TEPCO has prepared a massive steel structure that comes with a remote-controlled crane to remove the fuel rods, which will be placed into a protective cask and transferred to a joint cooling pool inside a nearby building.

The company plans to empty the Unit 4 pool by end of 2014, and remove fuel rods from other pools at three other

wrecked reactors over several years before digging into their melted cores around 2020...

Source: <http://ajw.asahi.com/>, 30 October 2013.

Fukushima Trial Run Begins Dangerous Reactor 4 Clean-Up

Preparations to begin the potentially catastrophic decommissioning of the crippled Reactor 4 at the Fukushima nuclear power plant will begin this week with a test run. The test, which could push back the beginning stages of fuel rod removal by two weeks, includes moving a "protective fuel cask" into and out of the No. 4 storage pool with a crane—before attempts are made to move the spent fuel rods. Japan's Nuclear Regulation Authority gave the final go-ahead last week for TEPCO to begin the decommissioning process, the entirety of which watchdogs say could take decades.

The fuel rod removal, which has never been done before on this scale, could take up to one year, and has been described by anti-nuclear expert and activist Harvey Wasserman as "humankind's most dangerous moment since the Cuban Missile Crisis." Natural disasters such as earthquakes remain a major threat to the stability of the damaged building, and should it be damaged further before it is decommissioned, there could be a global catastrophe, many experts have warned.

The most dangerous step in the process will include the removal of the 1300 "bent, damaged and embrittled" spent fuel rods from the unstable Unit 4 pool. The fuel rod removal, which has never been done before on this scale, could take up to one year, and has been described by anti-nuclear expert and activist Harvey Wasserman as "humankind's most dangerous moment since the Cuban Missile Crisis." While the fuel removal at reactor 4 presents possible dangers, there is also urgency to complete the task.

Natural disasters such as earthquakes remain a major threat to the stability of the damaged building, and should it be damaged further before it is decommissioned, there could be a global catastrophe, many experts have warned.

...According to *Japan Daily*, the agency also urged plant operator TEPCO to have the test evaluated by a group of Japanese and overseas experts recommended by the International Research Institute for Nuclear Decommissioning, "a Tokyo-based organization founded by Japanese government agencies, nuclear facility manufacturers and electric power companies."

However, pressure has been mounting on the Japanese Government and TEPCO to allow an international task force made up of nuclear experts, who are independent of the nuclear power industry, to monitor and assist throughout the entirety of the highly hazardous

NUCLEAR SECURITY: A FORTNIGHTLY NEWSLETTER FROM CAPS

decommissioning process. This coming Thursday, Moveon.org and affiliated organizations are presenting a petition of over 150,000 signatures to UN Secretary-General Ban Ki-Moon and Barack Obama, asking for global intervention at Fukushima. The campaign, organized by Wasserman, argues TEPCO does not have the capability to safely go it alone.

TEPCO president Naomi Hirose agreed last week to accept the help of the US Department of Energy with the fuel rod removal process.

Source: fukushimaupdate.com, 08 November 2013



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

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