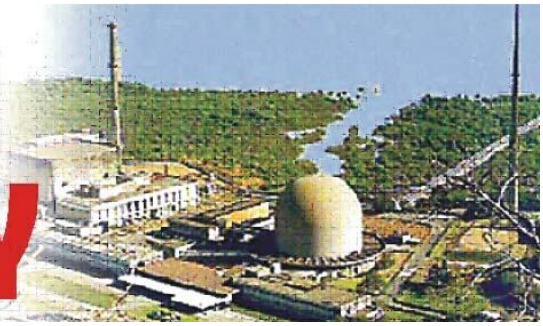
NUCLEAR SECURITY



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

Vol 09, No. 04, 15 Dec. 2014

CONTENTS

OPINION – KS Parthasarathy

How Foreign NGOs Fuel India's Anti-uranium Lobby

How foreign agencies spend funds to influence public opinion in India is an interesting, intriguing and challenging question. The Ploughshares Fund, the anti-nuclear US charity gave $20,000 (about Rs 12 lakh/Rs 1.2 million) to IDPD to 'support public education campaign, policymaker education and media work around the proposed expansion of uranium mining in India for purposes of nuclear energy and weapons expansion and the related public health impacts.' The IDPD, the Indian affiliate of the International Physicians for the Prevention of Nuclear War, conducted a health survey in the villages near the uranium mine and mill at Jadugoda in Jhakhand. It bypassed the peer review process which is essential for such studies and published its 'findings' in newspapers.

How foreign agencies spend funds to influence public opinion in India is an interesting, intriguing and challenging question. The Ploughshares Fund, the anti-nuclear US charity gave $20,000 (about Rs 12 lakh/Rs 1.2 million) to IDPD to 'support public education campaign, policymaker education and media work around the proposed expansion of uranium mining in India for purposes of nuclear energy and weapons expansion and the related public health impacts.

Only vigilant journalists can arrest this lamentable trend. The Ploughshares Fund did not care about such niceties as its aim was to plant seeds of suspicion among the villagers and the public at large. IPPNW published the IDPD 'study' as a presentation on its Web site. On November 9, I asked John Loretz, the programme director, IPPNW, how the agency can justify displaying scientifically unsubstantiated results on its Web site. IPPNW's ultimate objective is to prevent proliferation of nuclear weapons. I asked Loretz whether he thinks any means followed for it is justified, as it is, in his view, for the greater good.

I pointed out that uranium resources in India are used to operate research reactors that produce life-saving radioisotopes and that opposing uranium mining blindly is not justified. Rather

than answering the questions he called me the industry mouthpiece posing as a freelance journalist! Earlier, I asked, Paul Caroll, the programme director, Ploughshares Fund, details of the IDPD project including its full scope and its final report with details of the amounts spent to carry out different elements of the project.

Caroll wrote that he was not at liberty to provide detailed internal information about the expenditures of the project team. 'My own sense is that the project was successful in its goals,' he asserted. That means the project 'educated' the public against expansion of uranium mining in India. Protracted correspondence with him yielded only limited information. He refused to hand over a copy of the final report and the details of how IDPD used the fund. IDPD presented the study at an anti-nuclear seminar in London in 2007 and at the 18th World Congress of the IPPNW at New Delhi on March 10, 2008. It has been presenting the study at several meetings since then. The US charity got value for its money.

The IDPD's paper is a 'cherry picking' analysis. As the US charity expected, IDPD assumed that specific health problems related to uranium mining was affecting the indigenouspeople disproportionately in the study villages compared to the reference villages and then searched for evidence to support the assumption. It sent 34 investigators from the same villages to every household and collected reply to a questionnaire. 'Responses to some of the variables in few of the interview schedules were not found to be satisfactory and such responses were not considered for data analysis,' the authors innocently and brazenly admitted to 'cherry picking' of the data. Lorentz's irritation is understandable.

Another avatar of an anti-uranium mining agency is the International Uranium Film Festival, a foreign organisation founded in 2010 in Brazil. In 2013, anti-uranium mining activists held the IUFF in Mumbai, Shillong, Ranchi, Manipal, Hyderabad, Pune, Bangalore, Chennai and Thrissur. In 2014, it held the IUFF in Mumbai, Ahmedabad, Hyderabad, Manipal, Bangalore and Tatanagar. IUFF claims to make people aware of every aspect of nuclear energy including the risks involved through 'the motion pictures containing soulful human stories.' Never mind, there is no scientific basis for the claims on adverse impacts of nuclear energy or uranium mining. This strategy turns unsuspecting sections of society against nuclear energy.

Another avatar of an anti-uranium mining agency is the International Uranium Film Festival, a foreign organisation founded in 2010 in Brazil.

IUFF wins the emotional game because specialists knowledgeable in the health and safety aspects of uranium mining are mostly in their cocooned existence in the units of the Department of Atomic Energy. IUFF organised photo-exhibitions and presented video documentaries at every venue. 'Documentary' makers vied with each other for the limited pie. IUFF provides a platform to young aspirants to interact with film makers and others working on nuclear issues. Shri Prakash, a videographer of Jadugoda documentaries, is presently the South Asia Director of IUFF. IUFF-2015 may exhibit 60 new (in my view, anti) nuclear films in India.

IUFF claims to make people aware of every aspect of nuclear energy including the risks involved through 'the motion pictures containing soulful human stories.' Never mind, there is no scientific basis for the claims on adverse impacts of nuclear energy or uranium mining.

Indian scientists should call the bluff and wipe out this barrage of disinformation on nuclear energy. During the 1990s, the media reported that individuals residing close to the uranium mines and milling facilities were suffering from several diseases, deformities among children and infertility amongst women. An NGO made the claim that many women in Chattikocha village in Jadugoda had changes in their menstrual cycle and had 'gynecological' problems and infertility. Twenty-six specialists including physicians from outside the DAE did not find any radiation related abnormalities in the villagers in three separate surveys.

The ministry of health and family welfare reviewed the health reports and informed the NHRC that there is no need for any further health survey in Jadugoda. On April 15, 2004, the Supreme Court dismissed a petition (188/1999) demanding judicial intervention to have the necessary steps taken to safeguard the health of the population. Some foreign agencies are attempting to reopen a settled issue. The Uranium Corporation of India Limited must proactively travel an extra mile to explain to the public, how they comply with all applicable safety standards.

We need uranium to fuel our reactors. With the available uranium, the average capacity factor of a group of Indian reactors clocked 94 per cent, far more than most reactors in the world. Our scientists and engineers have been handling uranium safely since 1967. They must not feel disheartened by the activities of well motivated local or foreign agencies.

Source:Dr KS Parthasarathy is a former Secretary of the AERB. http://ksparthasarathy.wordpress.com,05 December 2014.

OPINION – Russ Wellen

The Threshold for Nuclear War between Pakistan and India Keeps Dropping

Most people think that, since the end of the Cold War, chances that a nuclear war will break out are slim to none. Though some nervousness has surfaced since the Ukraine crisis, it's true that, barring an accident, the US and Russia are unlikely to attack each other with nuclear weapons. Southeast Asia is another matter, as Gregory Koblentz warns in a report for the Council of Foreign Relations titled Strategic Stability in the Second Nuclear Age. Interviewed about the report by Deutsche Welle, Koblentz pointed out: "The only four countries currently expanding their nuclear arsenals are China, India, Pakistan and North Korea."

China, for example, is developing mobile ICBM to prevent its stationery ICBMs from becoming sitting ducks, as well as submarines capable of launching ballistic missiles. Meanwhile, by 2020, Pakistan could have enough nuclear material to build 200 nuclear weapons, about as many as Great Britain currently has. Koblentz told Deutsche Welle: Altogether, Pakistan has deployed or is developing eleven different nuclear delivery systems including ballistic missiles, cruise missiles, and aircraft. As if terrorism, such as the Mumbai attacks of 2008, and territorial disputes, such as over Jammu and Kashmir, don't make relations between Pakistan and India volatile enough, a new element has been introduced. Pakistan is now seeking to develop low-yield tactical nuclear weapons (as opposed to strategic – the big ones) to compensate for its inferiority to India in conventional weapons and numbers of armed forces.

What makes tactical weapons so dangerous is that, by blurring the distinction between nuclear and conventional weapons, they turn nuclear weapons from unthinkable to thinkable. Equally as dangerous, Koblentz explains: The introduction of tactical nuclear weapons may lead Pakistan to loosen its highly centralized command and control practices.

Koblentz told Deutsche Welle: Since the conventional military imbalance between India and Pakistan is expected to grow thanks to India's larger economy and higher GDP growth rate, Pakistan's reliance on nuclear weapons to compensate for its conventional inferiority will likely be an enduring feature of the nuclear balance in South Asia.

What makes tactical weapons so dangerous is that, by blurring the distinction between nuclear and conventional weapons, they turn nuclear weapons from unthinkable to thinkable. Equally as dangerous, Koblentz explains: The introduction of tactical nuclear weapons may lead Pakistan to loosen its highly centralized command and control practices. Due to their short-ranges (the Nasr/Hatf-IX has a range of about 60 km), these types of weapons need to be deployed close to the front-lines and ready for use at short-notice. Thus are lower-ranking officers granted "greater authority and capability to arm and launch nuclear weapons"

which "raises the risk of unauthorized actions during a crisis." Another risk … is inadvertent escalation. There is the potential for a conventional conflict to escalate to the nuclear level if the commander of a forward-deployed, nuclear-armed unit finds himself in a 'use it or lose it' situation and launches the nuclear weapons under his control before his unit is overrun."

It's all too vertiginous for words. Some in the US might think that's not our problem. Pakistan and India are digging their own grave ¯ let them lie in it." But, of course, nuclear war in Southeast Asia has the potential to turn the entire world into a grave. To wit: Summary of Consequences of Regional nuclear war between India and Pakistan (from studies done at Rutgers, the University of Colorado-Boulder and UCLA). If …War is fought with 100 Hiroshima-size weapons (currently available in India-Pakistan arsenals), which have half of 1 percent (0.05%) of the total explosive power of all currently operational and deployed US-Russian nuclear weapons 20 million people die from the direct effects of the weapons, which is equal to nearly half the number of people killed during World War II Weapons detonated in the largest cities of India and Pakistan create massive firestorms which produce millions of tons of smoke 1 to 5 million tons of smoke quickly rise 50 km above cloud level into the stratosphere.

The smoke spreads around the world, forming a stratospheric smoke layer that blocks sunlight from reaching the surface of Earth within 10 days following the explosions, temperatures in the Northern Hemisphere would become colder than those experienced during the pre-industrial Little Ice Age…. This cold weather would also cause a 10% decline in average global rainfall and a large reduction in the Asian summer monsoon. 25-40% of the protective ozone layer would be destroyed at the mid-latitudes, and 50-70% would be destroyed at northern high latitudes. Massive increases of harmful UV light would result, with significantly negative effects on human, animal and plant life.

If War is fought with 100 Hiroshima-size weapons (currently available in India-Pakistan arsenals), which have half of 1 percent (0.05%) of the total explosive power of all currently operational and deployed US-Russian nuclear weapons 20 million people die from the direct effects of the weapons, which is equal to nearly half the number of people killed during World War II Weapons detonated in the largest cities of India and Pakistan.

These changes in global climate would cause significantly shortened growing seasons in the Northern Hemisphere for at least years. It would be too cold to grow wheat in most of Canada. World grain stocks, which already are at historically low levels, would be completely depleted. Grain exporting nations would likely cease exports in order to meet their own food needs. Some medical experts predict that ensuing food shortages would cause hundreds of millions of already hungry people, who now depend upon food imports, to starve to death during the years following the nuclear conflict.

When it comes to nuclear weapons, we truly are all in it together. Many claim that whatever leadership the US and the West might demonstrate in disarmament would be lost on Asian nuclear-weapon states. But they fail to take into account how disarmament is becoming a norm all over the world including in Asia.

Source: http://www.businessinsider.com, 09 December 2014.

OPINION – Jacques E. C. Hymans

Don't Fear a Sneak-Out Why Iran Can't Secretly Build the Bomb

In the recently extended negotiations over the future of Iran's nuclear program, the main sticking point has always been the number of centrifuges that Tehran will be allowed to keep for enriching uranium. This number is important because the more working centrifuges Iran has, the faster it could achieve a nuclear breakout. According to

standard estimates, Iran's current inventory of approximately 10,000 operational centrifuges could allow it to amass enough weapons-grade uranium for a single bomb in just a few months. The Barack Obama administration believes that it can convince Iran to roll back that timeline far enough to defuse the current crisis, allowing both sides to develop a more normal relationship.

Critics of the negotiations have argued that the United States and other P5+1 have a misplaced focus on the number of centrifuges at Iran's known nuclear facilities. According to them, the "breakout" scenario that has been keeping the negotiators up at night is not nearly as dangerous as the alternative scenario of an Iranian nuclear "sneak-out." An Iran that had decided to sneak out rather than break out would play by the rules at closely monitored enrichment plants and other known facilities, while secretly building a bomb elsewhere. Thus, to be effective, a comprehensive nuclear agreement with Iran would have to flood Iran with international inspectors—something no self-respecting government in Tehran could ever accept. In short, the higher the chances of the sneak-out scenario, the lower the chances of a halfway decent settlement with Iran.

An Iran that had decided to sneak out rather than break out would play by the rules at closely monitored enrichment plants and other known facilities, while secretly building a bomb elsewhere. Thus, to be effective, a comprehensive nuclear agreement with Iran would have to flood Iran with international inspectors—something no self-respecting government in Tehran could ever accept. In short, the higher the chances of the sneak-out scenario, the lower the chances of a halfway decent settlement with Iran.

Washington and its partners certainly need to be on guard for all sorts of contingencies. Although it is debatable whether or not Iran really wants the bomb, the country has a demonstrated penchant for secret nuclear activities. It acknowledged the existence of its two enrichment facilities, for example, only after outside intelligence agencies discovered the first in 2002 and the second in 2009. Even today, when international investigators demand access to suspect sites or key individuals, it often seems that Tehran's first instinct is to stonewall.

Although the chances of an Iranian sneak-out attempt are relatively great, however, its odds of success are extremely low. With the world's spy agencies devoting huge resources to tracking events inside Iran, any serious attempt at cheating under a new nuclear deal would probably get caught. If Tehran somehow did manage to cheat without notice, its secret program would nonetheless advance slowly. Moreover, even in the unlikely eventuality of a highly efficient secret effort, Iran would still fall short of a bona fide nuclear weapons arsenal. The major powers, then, are right to focus on getting an agreement that limits Iran's genuine breakout potential, not its highly questionable sneak-out potential.

Iran has often tried to build advanced nuclear capabilities in secret. But time and again, it has gotten caught in the act. Both of Iran's uranium enrichment plants, for example, were discovered at early stages of construction. Pessimists point to this past cheating as evidence of Tehran's untrustworthiness, but that same track record also demonstrates that the United States and its partners cannot be easily duped. Moreover, a diplomatic accord with Iran would not stop Western intelligence agencies from looking out for possible Iranian malfeasance. And the more access the IAEA's inspectors have to Iran's nuclear program, the easier it will be to detect any covert activities.

Even if Iran were to cheat and somehow elude detection for more than a few months, it would not be able to progress nearly as far toward the bomb as it could if it were using its existing facilities. Any state's nuclear timeline naturally becomes much longer if it has to build an entirely new program, and longer still if it has to do so in total secrecy.

The drawbacks of overestimating how far countries may get by cheating are made clear by the case of North Korea. The Bill Clinton administration's 1994 deal to halt Pyongyang's plutonium stockpiling, known as the Agreed Framework, is often criticized because it did not prevent North Korea from secretly trying to enrich uranium on the side. But the George W. Bush administration was wrong to rip up the agreement, even after it discovered cheating. This is because Pyongyang's secret uranium enrichment effort had progressed slowly and was far from capable of producing enough fissile material for a bomb, in contrast to its frozen but still functional plutonium production line. Indeed, it was with evident relief that the regime of Kim Jong Il started up its plutonium production facilities again in the wake of US accusations against its uranium enrichment work. The regime's nuclear tests in 2006 and 2009 made use of plutonium from known facilities—not enriched uranium from secret ones. Even today, some two decades after North Korea launched its secret enrichment program, it remains unclear if North Korea is capable of producing a significant quantity of highly enriched uranium.

The drawbacks of overestimating how far countries may get by cheating are made clear by the case of North Korea. The Bill Clinton administration's 1994 deal to halt Pyongyang's plutonium stockpiling, known as the Agreed Framework, is often criticized because it did not prevent North Korea from secretly trying to enrich uranium on the side.

The ultimate fear is that an Iranian sneak-out could result in not just a secret stockpile of weapons-grade uranium but also functional nuclear bombs. Yet this scenario is even more far-fetched than the proposition that Iran might be able to mount a huge parallel nuclear program without anyone noticing.

Iran's propensity to test its developing strategic weapons capabilities is reflected in the history of its ballistic missile program. Iran has fired test missiles dozens of times for all sorts of reasons, and many of those tests have flopped, giving the world a clear picture of its growing but still limited capabilities.

The vast majority of nuclear weapons states have conducted an explosive test prior to the construction of operational nuclear weapons. Typically, this first test has preceded the birth of a genuine military arsenal by several months or more. Such tests may not be strictly necessary from an engineering point of view, but they are almost always necessary for political reasons. And thanks to advances in seismic monitoring technology, nuclear tests can't be concealed anymore. If Iran were to go for the bomb, then, its nuclear test would open a clear window for a preemptive strike by the United States.

Skeptics of this argument may point to the unique case of Israel, which was able to develop an untested but fearsome nuclear arsenal in the 1960s and 1970s. But as the political scientist Matthew Gratias and I have detailed, Israel's achievement depended on several key factors that are not present in the Iranian case. Israel was able to keep its march to nuclear status under wraps because it did not face an existing nuclear threat in the region, because the United States was complicit with its decision to keep quiet, because it had a highly disciplined state apparatus that could keep a secret, and because the country's politicians trusted its scientists. Iran, by contrast, faces hostile nuclear powers in its own neighborhood and beyond, and neither Israel nor the United States would remain silent in the face of mounting evidence of an Iranian nuclear weapons capability. Moreover, the Iranian state remains riddled with competing political factions, and the country's leaders have demonstrated little trust in their scientific and technical professionals.

Iran's propensity to test its developing strategic weapons capabilities is reflected in the history of its ballistic missile program. Iran has fired test

missiles dozens of times for all sorts of reasons, and many of those tests have flopped, giving the world a clear picture of its growing but still limited capabilities. One can expect the same in the nuclear field. If Iran sprinted toward the bomb, the world would know before it reached the finish line. The scenario of a devastating Iranian sneak-out is nothing more than a fanciful hypothetical. Washington and its partners should not let the fear of such a low-probability event divert their attention from what remains an attainable and worthy goal: a comprehensive agreement that brings about a substantial cut in Iran's actual uranium enrichment capabilities while showing due respect for Iran's legitimate desires for economic development and national scientific achievement.

Source: http://www.foreignaffairs.com, 09 December 2014.

OPINION – Dianne Feinstein

America's Nuclear Arsenal is Too Big

During the Cold War, the US and the Soviet Union were mired in an arms race. The antagonism led each side to stockpile more than 30,000 nuclear weapons to prevent the other from gaining an advantage. Today, however, nuclear weapons are seen as a financial burden and a threat to global security. Furthermore, our nuclear stockpile is competing for limited defense spending, money that could be used to address more pressing challenges such as the fight against the Islamic State and defending against cyber attacks. That's why the amount the US spends to maintain and modernize its nuclear arsenal is so staggering. Over the next decade, the Congressional Budget Office reports that the US will spend $355 billion on nuclear weapons.

We're holding far more nuclear weapons than are necessary, and the cost is undermining other national security priorities. It's time we take a long look at how we can responsibly reduce our stockpile. The US currently maintains 4,804 nuclear weapons. If you include retired weapons that are awaiting dismantlement and the thousands of components in storage, the US has the equivalent of around 10,000 weapons. When you consider that the weapons we maintain today are up to 100 times more destructive than the ones used in Hiroshima and Nagasaki, it becomes clear that the only value they offer is in deterring a nuclear attack.

Meanwhile, efforts to reduce the stockpile are faltering. Over the past five years, the US stockpile has been reduced by only 309 warheads, the slowest five-year reduction in more than two decades. More worrisome is the staggering cost of these weapons. In just the past three years, the budget for simply maintaining nuclear warheads and production facilities has grown from $6.9 billion to $8 billion a year, almost a 16 percent increase.

Meanwhile, efforts to reduce the stockpile are faltering. Over the past five years, the US stockpile has been reduced by only 309 warheads, the slowest five-year reduction in more than two decades. More worrisome is the staggering cost of these weapons. In just the past three years, the budget for simply maintaining nuclear warheads and production facilities has grown from $6.9 billion to $8 billion a year, almost a 16 percent increase. In an era of budget "sequestration," when we're supposed to cut the defense budget by about $29 billion per year, our nuclear modernization plans are taking us in the opposite direction.

We stand to spend $1 trillion on the program (including the cost of new nuclear-capable submarines and long-range bombers) over the next three decades, according to a study by the James Martin Center for Nonproliferation Studies. The US nuclear program hasn't seen this level of funding since the 1980s, when we were designing, testing and building new nuclear weapons and the stockpile was three times larger than it is today. Put simply, the current level of spending on nuclear weapons is unnecessary and unsustainable.

The New START treaty between the US and Russia, which will bring both countries down to 1,550

deployed nuclear weapons by 2018, is a good first step toward reducing our stockpile. But we need additional action, as the treaty addresses only deployed weapons and not what is known as the hedge, the collection of spare nuclear weapons. Of our stockpile of 4,804 weapons, only 1,600 are currently deployed, which means there are 3,204 backup weapons. We maintain this hedge in case of problems with the deployed weapons or if world events require additional deployments. Having reserve weapons may be smart policy, but maintaining two spares for each deployed weapon is excessive.

Even our generals are telling us we have too many nuclear weapons. We can reduce these reserve weapons without the painstaking task of negotiating further arms-control treaties. We can do so without negatively affecting our national security or our global deterrence. And doing so could save hundreds of millions of dollars a year. If we want our nuclear stockpile to truly serve the interests of our country in a strategic, balanced manner, we have to change course. That means pursuing creative options such as reducing the weapons held in reserve. We also have to realign our budget priorities for the decades ahead to reflect today's realities. We live in 2014, not 1980. The world is a very different place, and we need to plan accordingly.

Emission free nuclear power along with wind and solar must be part of an effective national energy policy that replaces oil, coal and natural gas in electricity production. This policy is certain to run up against political opposition from those unwilling to change our current course. But action is urgently needed.

Source: http://scvnews.com, 08 December 2014.

OPINION – Bob Leach

Nuclear is Carbon Free

As climate change unfolds, the US needs to be on the frontier of response. The recent agreement with China on carbon reduction was a welcome takeoff. But the Obama administration must do far more to demonstrate that the US is already making progress in reducing carbon dioxide emissions to safe and acceptable levels. Nuclear power is an emission-free source of electricity and is currently supplying two thirds of the nation's zero-carbon free energy, five times more than wind or solar energy. This country's carbon foot print was steadily decreasing largely because nuclear power was increasing in output. But during the past few years minor increases occurred. Those increases can be attributed largely to the removal of several nuclear power plants from the grid.

Emission free nuclear power along with wind and solar must be part of an effective national energy policy that replaces oil, coal and natural gas in electricity production. This policy is certain to run up against political opposition from those unwilling to change our current course. But action is urgently needed.

The administration needs to be more supportive of nuclear power. Every effort should be made to keep nuclear plants online because the US portfolio of nuclear plants produces electricity on average 90 percent of the time, reliably and safely. To avoid the lamentable loss of more nuclear units such as Vermont Yankee and Kewaunee in Wisconsin, the administration should encourage the continued operation of existing nuclear plants by persuading EPA to attach 100 percent value to nuclear power in its carbon reduction plan. More than 3 million tons of carbon dioxide will be put into the air each year to replace the power lost with the shutdown of Vermont Yankee (assuming natural gas produced electricity, this number will about double with coal or oil). The recognition of nuclear power as an emission-free source would send an important signal to state public utility commissions.

Most consequentially, marshalling nuclear power to help prevent an irreversible degradation of the environment would show that the US is determined to prevent the worst effects of climate change. It would go a long way toward the US Government's goal of being on the vanguard of fighting global

warming and it would leave little doubt at the UN climate change conference in Lima that the US has the technology and expertise to do the job.

Source: http://www.rutlandherald.com, 10 December 2014.

NUCLEAR STRATEGY

CHINA

China Takes Nuclear Weapons Undersea Away from Prying Eyes

China is preparing to arm its stealthiest submarines with nuclear missiles that could reach the US, cloaking its arsenal with the invisibility needed to retaliate in the event of an enemy strike. Fifty years after China carried out its first nuclear test, patrols by the almost impossible-to-detect JIN class submarines armed with nuclear JL-2 ballistic missiles will give President Xi Jinping greater agility to respond to an attack. The nuclear-powered subs will probably conduct initial patrols with the missiles by the end of 2014, "giving China its first credible sea-based nuclear deterrent," according to an annual report to the US Congress submitted in November by the US-China Economic and Security Review Commission.

The nuclear-powered subs will probably conduct initial patrols with the missiles by the end of 2014, "giving China its first credible sea-based nuclear deterrent," according to an annual report to the US Congress submitted in November by the US-China Economic and Security Review Commission.

Deploying the vessels will burnish China's prestige as Mr Xi seeks to end what he calls the "cold war" mentality that resulted in US dominance of Asia-Pacific security. Since coming to power, Mr Xi has increased military spending with a focus on longer-range capacity, including plans to add to the country's tally of a single aircraft carrier. "For the first time in history, China's nuclear arsenal will be invulnerable to a first strike," said independent strategist Nicolas Giacometti, who has written analysis for *The Diplomat* and the CSIS. "It's the last leap toward China's assured nuclear-retaliation capability."

China's nuclear-defence strategy is engineered to provide retaliation capability in the event of attack from nuclear powered nations as far away as the US and also from Russia and India, according to Felix Chang, a senior fellow at the FPRI in Philadelphia. Although China doesn't view North Korea as a direct nuclear risk, officials are concerned about what could happen if North Korea threatened South Korea or Japan and the region became unstable, Mr Chang said. China's nuclear-armed submarines will be "useful as a hedge to any potential nuclear threats, including those from North Korea, even if they are relatively small", he said.

The deployment of the submarines could pressure China to assure foreign militaries that its navy chiefs and political leaders can communicate with and control them. Chinese and US ships and planes are coming into greater proximity in the Pacific as China asserts its claims to territory in the South China Sea and East China Sea, risking near misses or a clash. Former US Defence Secretary Robert Gates said in an interview in January that ex-President Hu Jintao "did not have strong control" of the PLA. The "best example," Mr Gates said, was China's roll out of its J-20 stealth fighter jet during a visit he made in January 2010. The event seemed to catch Mr Hu unaware, Mr Gates said.

Since coming to power Mr Xi has tightened his grip on the military, taking over as head of the CMC in November 2012, when he became Communist Party chief. Mr Hu waited about two years before becoming chairman of the commission. "China is going to have to reassure their adversaries that those submarines are under positive control at all times.

Since coming to power Mr Xi has tightened his grip on the military, taking over as head of the CMC in November 2012, when he became Communist Party chief. Mr Hu waited about two years before becoming chairman of the

commission. "China is going to have to reassure their adversaries that those submarines are under positive control at all times," said Malcolm Davis, an assistant professor of China-Western relations at Bond University on Australia's Gold Coast.

"Positive control" refers to the procedures to ensure the commission's absolute control of its nuclear assets, such as the authorisation codes it would send to submarines, where, after verification by the commander and probably two other officers, missiles would be launched. "It demands that China set up appropriate command and control infrastructure to ensure that the [commission] can keep in touch with the submarines, even when they are at sea and under the water," said Mr Davis. "The US, UK, France and Russia all maintain such communications capabilities for ensuring positive control" of their submarines at sea.

By assuring potential enemies that weapons will be fired only if ordered by central command, China's military would increase the deterrent value of its nuclear-armed submarines, he said. "Those assurances are likely to be made at the highest level military-to-military meetings behind closed doors," Mr Davis said. Otherwise China is largely expected to keep its nuclear capabilities secret. "High-confidence assessments of the numbers of Chinese nuclear capable ballistic missiles and nuclear warheads are not possible due to China's lack of transparency about its nuclear program," the US report to Congress said. The Pentagon hasn't provided an estimate of the size of China's nuclear warhead stockpile since 2006, according to the report.

China's defence ministry did not reply to faxed questions about when regular patrols by nuclear-armed JIN-class submarines would begin, or China's nuclear strategy. The modernisation of China's nuclear forces is focused on improving the capacity to deter other nuclear powers, said Mr Giacometti, speaking by phone from Brussels. Until 2006, its only ballistic missile able to deliver a nuclear warhead to the continental US was the liquid-fuelled, silo-based DF-5A, he said. These were considered vulnerable because fuelling takes a few hours, during which the missile must remain in its silo. To protect them, China built mock silos and adopted a policy of secrecy that made a disarming first strike harder to execute.

Source: http://www.theage.com.au, 10 December 2014.

FRANCE

France Studies Nuclear Missile Replacement

France has launched studies for an airborne nuclear-tipped missile to replace the current weapon, with the focus on stealth and hypersonic technology on the next-generation atomic arms, Defense Minister Jean-Yves Le Drian said. The Air Force flies the Dassault Mirage 2000N and Rafale F3 fighters armed with the ASMP-A nuclear missile, respectively on the Gascogne and La Fayette squadrons. These are the airborne systems in addition to the four ballistic nuclear missile submarines. "The studies for the successor to the ASMP-A missile, dubbed ASN4G, have already begun," Le Drian told a high-level conference on the French nuclear deterrent on Nov. 20. ASN4G is understood to refer to ASMP-A fourth-generation, an industry executive said.

France has launched studies for an airborne nuclear-tipped missile to replace the current weapon, with the focus on stealth and hypersonic technology on the next-generation atomic arms, Defense Minister Jean-Yves Le Drian said. The Air Force flies the Dassault Mirage 2000N and Rafale F3 fighters armed with the ASMP-A nuclear missile, respectively on the Gascogne and La Fayette squadrons.

The sensitivity of the deterrent was such that the conference organizer showed an extended video clip of a training mission that obscured an ASMP-A missile carried under the fuselage of a Rafale. A special edition of specialist magazine Air & Cosmos carried a cover picture of a weapon marked ASMP-A under a Rafale. The published

pictures are understood to have been adapted by the Air Force to avoid giving too much detail. Air & Cosmos was not available for comment. Copies of the magazine were distributed at the conference.

"The daring concepts, for example, based on stealth and hypersonic technologies, at the forefront of technological development, will be explored," Le Drian said. The projects are key to overcoming the enemy's interdiction and also for the domestic industrial and technology base, he said. "The choice of the future weapon system, comprising the ASN4G missile and a platform to be decided, is therefore a major issue for the services," he said. The project is closely tied to the future format of the Air Force, he said.

Agni-IV is a two-stage nuclear capable intermediate range ballistic missile equipped with advanced avionics, including a fifth-generation computer and distributed architecture. The missile has a maximum range of 3,500 kilometers and is capable of carrying a payload of 800 kg.

Work began in the summer on the ASMP-A, intended to allow the air-breathing missile to defeat future air defense systems out to 2035, Le Drian said. The work consists of design and development studies for the mid-life upgrade, a source said. Chief of the Air Staff Gen. Denis Mercier previously gave a glimpse of the technology studies on the future airborne weapon, which will call for a choice between stealth or speed.

A stealth study and one on hypersonic speed are underway for the successor to the ASMP-A, Mercier told the defense committee of the lower-house National Assembly in April. The hypersonic weapon might be capable of Mach 7 or 8, he said. MBDA is prime contractor on the ASMP-A. Mercier told the parliamentarians he preferred the hypersonic missile. "It's the second solution that I prefer," he said. Mastery of the hypersonic is already a given factor, he said. The US, Russia, China, India are looking at the hypersonic technology as they consider a modernization of the airborne nuclear element, with experimental work conducted, he said.

On the future platform carrying the atomic weapon, a choice had to be made on the architecture and performance of the missile, he said. Two options are under study: a new generation fighter, and a bomber. "The challenge is to select a system able to penetrate defense systems which will be deployed in 20 to 50 years," he said. The work was also important for the industrial base, he said. Anti-missile defense has made much progress against ballistic and cruise weapons, he said. The work on the stealth or hypersonic missile technology will influence development of the future aircraft. For instance, if a hypersonic missile were capable of flying at Mach 7 and were 20 meters long, the aircraft would need to be a large plane, such an Airbus A400M, rather than a fighter such as the Rafale.

Source: http://www.defensenews.com, 29 November 2014.

INDIA

India Successfully Test Fires Nuclear Capable Ballistic Missile: Reports

India has successfully conducted the first user trial of the Agni-IV IRBM, *The Times of India* reported on 02 December. The Agni-IV was tested from Wheeler Island off the eastern Indian state of Odisha by the Indian army's SFC. The entire flight from the missile's lift-off till the splashdown in the Indian Ocean lasted 15 minutes. Agni-IV is a two-stage nuclear capable intermediate range ballistic missile equipped with advanced avionics, including a fifth-generation computer and distributed architecture. The missile has a maximum range of 3,500 kilometers and is capable of carrying a payload of 800 kg. The Agni missiles are a group of medium to intercontinental range ballistic missiles designed in India. The first missile of the series, Agni-I was developed and tested in 1991.

Source: http://sputniknews.com/military/20141202/1015417616.html, 02 December 2014.

NORTH KOREA

North Korea 'to have 20 Nuclear Warheads by 2016'

North Korea is likely to have 20 nuclear warheads by 2016 and can be expected to carry out a number of new test detonations as it seeks to miniaturise the devices, according to a leading US nuclear scientist. Siegfried Hecker, the former director of the Los Alamos National Laboratory in the US and now a professor at Stanford University, has expressed his concerns about Pyongyang's nuclear capabilities during meetings with senior South Korean government officials.

Yoo Ki-june, a member of South Korea's ruling Saenuri Party, quoted Professor Hecker as saying "North Korea is presumed to have the capability of producing some four nuclear bombs per year and it appears that the North will possess some 20 nuclear bombs by 2016." Quoted by Yonhap News, Mr Yoo said that Professor Hecker believes North Korea has not yet perfected the miniaturisation process, which would permit the regime to attach warheads to ballistic missiles, and will conduct more underground nuclear tests.

That assessment is supported by analysts in China. Beijing was formerly a close ally of the regime in Pyongyang but has become exasperated by the belligerence of Kim Jong-un, the North Korean dictator. In Wednesday's edition of The Global Times state-run newspaper, a Chinese academic claimed that North Korea "would not hesitate" to follow through on threats to carry out a fourth nuclear test if its demands for talks were not met.

North Korea is also stepping up the preparations of its conventional forces with "extraordinarily active" winter training for its military, according to intelligence sources in Seoul. Most notably, the North is conducting unprecedented manoeuvres for its special forces, including paratroop units. The sources claimed there have been 20 times more parachute drops using Antonov An-2 transport aircraft this year. Small and largely made of wood, the An-2 is difficult to detect on radar and is considered an excellent vehicle for delivering small teams of infiltrators across the border.

North Korea has also increased its artillery drills and is close to completing an extension to its missile launch site close to the Chinese border, Yonhap reported. South Korea and the US are closely monitoring the exercise and Seoul has warned Pyongyang not to attempt any "provocations" along the border as the holiday season approaches.

Source: Julian Ryall, The Telegraph, 11 December 2014.

RUSSIA

Russia Deploys Tactical Ballistic Missile System, Pounding Ukraine 33 Times in 24 Hours

Russia sent in its Iskander missiles to Crimea, according to a representative of the Ukrainian Armed Forces' General Staff who had spoken with the Ukraine. These short-range missiles are capable of carrying nuclear warheads, according to the report. The missiles have a range of about 500 kilometres and each missile unit is manned by 108 personnel, according to the analysis of the Ukraine Crisis Media Centre.

Russia sent in its Iskander missiles to Crimea, according to a representative of the Ukrainian Armed Forces' General Staff who had spoken with the Ukraine. These short-range missiles are capable of carrying nuclear warheads, according to the report. The missiles have a range of about 500 kilometres and each missile unit is manned by 108 personnel, according to the analysis of the Ukraine Crisis Media Centre. The Iskander missile system has two separate short-range ballistic missiles measuring 7.3 metres and 0.92 in body diameter, weighting 3,800kg. The missiles can be adjusted to target a moving object. Russia had already bought six Iskander systems in 2010 with the first system deployed in

the Western Military District, according to Army Technology. The Russian Defence Ministry is said to be buying up to 120 Iskander tactical missile systems by 2016.

Meanwhile, Ukraine's Defence Ministry said that pro-Russia separatists had been pounding Ukraine's forces about 33 times from the evening of Dec 7 to Dec 8. While this is considerably alarming, the Defence Ministry said that this figure went down as compared to 58 times of shelling in the night of Dec 6. "The overall activity of the rebels has fallen along the whole length of the front line compared to 7 December. Activities to strengthen fortifications are under way," the ministry told Bloomberg.

Russia's Aerospace Defense Forces have detected the launch of three foreign ballistic missiles, Major General Anatoly Nestechuk, the deputy chief of the Space Command, said.

The Ukraine crisis had been the worst conflict among Russia, the US and the European Union since the end of the Cold War, Bloomberg noted. The US and the European Union, even Australia, are vocal with their accusations that Russian President Vladimir Putin is supplying weapons to the rebels to heighten the crisis. The Defence Ministry said that there are about 120 military vehicles that had crossed from Russia into the locations held by the pro-Russian separatists. The Organisation for Security and Cooperation in Europe or OSCE also reported seeing more than 100 anonymous green military vehicles roving towards Donetsk on Dec 5. "The rebels are regularly receiving supplies of ammunitions" and had in fact using multiple missile systems, Ukrainian military spokesman Andriy Lysenko told press as quoted by Bloomberg. Lysenko added that Ukrainian troops are retaliating effectively with its strategic use and deployment of armaments.

Russia was notified about these launches beforehand, but the fact that they were successfully detected illustrates the high combat readiness level and professionalism of the ADF.

Source: http://missilethreat.com, 08 December 2014.

Three Ballistic Missile Launches Detected by Russia's Aerospace Defence

Russia's Aerospace Defense Forces have detected the launch of three foreign ballistic missiles, Major General Anatoly Nestechuk, the deputy chief of the Space Command, said. "We've detected a foreign ballistic missile launch this morning, and another two similar launches were detected – that is exactly the kind of job our crews perform," Major General Nestechuk said. He also added that Russia was notified about these launches beforehand, but the fact that they were successfully detected illustrates the high combat readiness level and professionalism of the ADF. Russia's Aerospace Defense Forces were formed on December 1, 2011. They are responsible for air and missile defense, as well as for launches and the control of satellites.

Source: http://sputniknews.com, 29 November 2014.

BALLISTIC MISSILE DEFENCE

ISRAEL

Israel to Start Advanced Trials of David's Sling Missile Defence System

Israel's David's Sling missile defence system will be put through advanced trials, before being made operational, media reported. The system, also known as the "Magic Wand", is being jointly developed by Israel's Rafael Advanced Defense Systems Ltd. and the US firm Raytheon Co, and is designed to intercept various aerial threats, including rockets, aircrafts and cruise missiles, at distances ranging from 40 km to 300 km, Xinhua reported. The interceptor, known as "Stunner," is a two-stage missile that can reach a top speed of Mach 7.5 and consists

of a "kill vehicle" with advanced steering for super manoeuvrability during the kill phase.

Once operational, the system will comprise the middle tier of Israel's multi-layered missile shield and would dramatically enhance its ability to confront the increasing threat of rockets and missiles in the inventories of the Hamas, Hezbollah, Syria and Iran. Initial trials will focus on the ability of the David's Sling to shoot down rockets and missiles with a range three times greater than the Iron Dome anti-rocket defence system, which, since entering service in 2011, has intercepted hundreds of Qassam-type and other rockets fired by militants.

Once operational, the system will comprise the middle tier of Israel's multi-layered missile shield and would dramatically enhance its ability to confront the increasing threat of rockets and missiles in the inventories of the Hamas, Hezbollah, Syria and Iran. Initial trials will focus on the ability of the David's Sling to shoot down rockets and missiles with a range three times greater than the Iron Dome anti-rocket defence system.

The initial tests will be followed by two further trials, in which the system will be pitted against aircrafts and longer-range threats, including cruise missiles. In a test held by Israel's defence ministry and the US missile defence agency in November, 2013, a "Stunner" interceptor successfully destroyed a ballistic missile in mid-air, sparking optimism among officials who attended the trial that Israel would soon be able to defend itself against more potent threats posed by its foes. "What's special about it is that it knows how to intercept from a low altitude to a fairly high altitude in the atmosphere, covering a wide area, which I can't disclose," said Yair Ramati, head of the Israel Missile Defense Organisation.

Source: http://zeenews.india.com, 05 December 2014.

RUSSIA

Russia Develops US-Like Ballistic GMD, THAAD Missile Defense Systems; Fears US' Cruise Missile Rearmament Program

Russia has started to develop a line of defense systems similar to the US' THAAD and GMD systems, local media reports announced. The country has also come up with an early warning system it will put in space that will enable it to detect ballistic missile launches. All will be online before 2020.

Russia is fast tracking the deployment of such ballistic missile systems in response to the US' aggressive rearmament program of its cruise missiles. President Vladimir Putin's bailiwick believed its archenemy can launch against it a barrage of up to 7,000 missiles on just the first strike in 2015-2016. Quoting Pavel Sozinov, the chief engineer of the Almaz-Antey defense corporation, local media said on 08 December that the Russian system akin to the THAAD will enable Russia to "intercept medium-range ballistic missiles and intercontinental ballistic missiles." However, these will be only on a limited scale. Trials are expected to commence soon, Sozinov said.

The configurations on the Russian GMD, he said, are being developed to make it more mobile over than that of the US Russian military wanted it to have "substantially more efficient interception than the Americans." Previously known as NMD, the GMD is the US' system for intercepting incoming warheads in space.

The configurations on the Russian GMD, he said, are being developed to make it more mobile over than that of the US Russian military wanted it to have "substantially more efficient interception than the Americans." Previously known as NMD, the GMD is the US' system for intercepting incoming warheads in space. It is a major component of the American missile defense strategy to counter ballistic missiles, including ICBMs carrying nuclear, chemical, biological or

conventional warheads in a ballistic flight trajectory.

The THAAD, on the hand, is an anti-ballistic missile system designed to shoot down short, medium, and intermediate ballistic missiles in their terminal phase using a hit-to-kill approach. The missile carries no warhead but relies on the kinetic energy of the impact to destroy the incoming missile. Sozinov also said on 08 December that Russia's upgraded space-based missile attack warning system is on track to become operational by 2020, or even earlier. The system will help Russia detect moving targets at medium and high altitudes. According to TASS, Russia has achieved significant success in developing fuel for missile interceptors and heat-resistant coatings not easily destroyed by heat of up to 3,500 degrees Centigrade. It added Russian scientists continue to work on coatings for warheads that will resist "heat of thousands of degrees."

Sozinov said that of the 7,000 missiles, 5,000 of those will be launched by the US from submarines. He claimed this is the reason why the US redesigned three Ohio-class nuclear submarines. Instead of ICBM, each submarine will now be armed with cruise missiles, maximum of up to 154. "This is a huge potential of the first stage massive strike, which must be taken into account while building (Russian) anti-missile defense," Sozinov told a conference marking the 100th anniversary of the Russian air defese troops. He added the first stage massive strike could damage Russia's strategic nuclear force. In the same conference, Viktor Bondarev, Air Force Commander, said Russia's Aerospace Defense Forces is awaiting now the delivery of at least five S-400 air defense missile regiments and over 20 Pantsir-S air defense artillery and missile battalions, including fighter aircraft capable of destroying hypersonic and ballistic missiles such as the SU-35S.

Source: http://au.ibtimes.com,09 December 2014.

UAE became the first country outside the US to order two Thaad Weapon Systems and additional maintenance and support equipment. Thaad is a system that intercepts short and mid-range ballistic missiles. The UAE already deploys Lockheed's short range PAC-3) defence system. In 2012 the UAE ordered 48 THAAD missiles, parts and logistical support at an estimated cost of $1.13 billion.

UAE

Lockheed Martin Set to Deliver Missile Defence System to UAE

Lockheed Martin expects to begin delivery of its THAAD system to the UAE by the end of 2015, making the Emirates the first country to deploy this technology outside the US. Dan Lin, an official at the international business development unit of Lockheed Martin Space Systems, was speaking at the opening of Lockheed Martin's Centre for Innovation and Security Solutions, located in Abu Dhabi's green energy Masdar City. The centre, at Masdar Institute's building, is expected to boost collaboration with the Maryland-based firm and various UAE agencies.

"They will start deliveries in the UAE late 2015," said Mr Lin. In 2011 the UAE became the first country outside the US to order two Thaad Weapon Systems and additional maintenance and support equipment. Thaad is a system that intercepts short and mid-range ballistic missiles. The UAE already deploys Lockheed's short range PAC-3) defence system. In 2012 the UAE ordered 48 THAAD missiles, parts and logistical support at an estimated cost of $1.13 billion. The country also placed an order in 2013. The UAE is in talks with Lockheed Martin over the multibillion-dollar sale of 30 F-16 Block 61 aircraft.

Arabian Gulf countries, including the UAE, are boosting defence spending as terrorism threats intensify amid the political upheaval in the Middle East and North Africa region. The UAE is expected to more than double spending on military imports by 2015, according to a study released in February by UK-based IHS Jane's, an intelligence provider to militaries, government, intelligence agencies and industries. The country was ranked the second-biggest defence importer

in the Middle East, behind Saudi Arabia and is forecast to be the world's No 3 defence importer in 2015, according to IHS Jane's.

In addition to their collaboration in defence, Lockheed Martin is eyeing a deal with the UAE space agency, which is planning to launch an unmanned mission to Mars by 2021. Lockheed Martin has collaborated with every Mars mission NASA has conducted, according to Maria Ruess, a vice president at the international business development of Lockheed Martin Space Systems Company. "We know that the UAE has now created a UAE space agency with a target by 2021 to send an unmanned probe to Mars," said Ms Ruess.

Lockheed Martin built the Orion spacecraft, which fell into the Pacific Ocean on 05 December after completing its first test flight of Nasa's deep space exploration capsule. The US company is also talking to satellite communications companies in the UAE, such as Dubai-based Thuraya and Abu Dhabi-based Al Yahsat, which is owned by Mubadala, for satellite technology, she added. Lockheed Martin is co-operating with Masdar Institute to manufacture a membrane that will get rid of bacteria in desalination plants. ... Lockheed Martin is also working with Masdar Institute on producing solid electrolyte to build the world's first solid-state lithium battery. Currently, lithium batteries contain liquid electrolyte, he said. Unlike the liquid lithium battery, the solid lithium battery lasts longer and dissipates heat, he added. ...

Source: http://www.thenational.ae,07 December 2014.

NUCLEAR ENERGY

CHINA

High-Speed Train Success Fires China's Nuclear Export Drive

After successfully competing for high-speed rail links abroad, China now wants to develop world class nuclear technology — a move that would not only lighten its carbon footprint, but also help it emerge as a major exporter of atomic power.

China decided to set up an undisclosed number of shore based nuclear power plants, lifting the bar on new ventures, that was imposed in the aftermath of the March 2011 Fukushima nuclear disaster in Japan. The London based World Nuclear News website is reporting that days after the Fukushima accident, China's State Council decided to halt approvals and licencing for new reactors until a safety plan was in place. It also sought assurances that existing plants were adequately designed, sited, protected and managed. Li Pumin, the spokesman of the NDRC, China's top economic planner, announced that all projects will comply with the highest international security standards.

China decided to set up an undisclosed number of shore based nuclear power plants, lifting the bar on new ventures, that was imposed in the aftermath of the March 2011 Fukushima nuclear disaster in Japan. The London based World Nuclear News website is reporting that days after the Fukushima accident, China's State Council decided to halt approvals and licencing for new reactors until a safety plan was in place.

Currently China runs 21 nuclear power reactors, generating 19,095 MW of power. An additional 27 units are under construction, which would yield around 30,000 MW of electricity, when completed. Yet, it is estimated that China would need to set up another 13 reactors, if it is to meet its 2020 target of generating 58 gigawatts of atomic power. The post-Fukushima drive for nuclear energy has been significantly spurred by the clean-energy target set by President Xi Ping, who had announced that China is focusing on peaking its emissions by 2030, before its carbon footprint begins to slide.

Nuclear power generation has come into sharper focus, because of some of the problems that China has recently encountered with renewables. 2013, China, the world's largest producer of wind energy and solar power, was unable to utilise 11 percent of wind power capacity, because of grid problems. A study by researchers at Tsinghua University has also advocated that China needs to stress on nuclear energy on account of environmental considerations. "After 2030 if

there is not support for a large scale increase in new nuclear plants, the speed of energy structure adjustment will slow, which means the use of fossil energy will increase and the peak in CO2 emissions will be delayed by five to 10 years," the report titled, China and the New Climate Economy observed.

Buoyed by its successes in developing relatively cheaper, but first rate, high-speed trains, Chinese planners are now looking at replicating that experience in the field of nuclear exports. A magazine article published by the China National Nuclear Corporation (CNNC), proposed structural changes, capped by the formation of a new state-run investment company that would steer investments in overseas nuclear power projects. November, the China Nuclear Engineering Corporation (CNECC) and the China General Nuclear Power Group (CGN) have been given a go-ahead to jointly develop the home-grown Hualong One power plant. Its developers say that the plant has exciting export potential, especially in the Global South. On December 4, China and South Africa signed a financing framework agreement for the construction of a new nuclear power plant in South Africa, as well as an agreement on nuclear personnel training.

Beijing has promised to adhere to the highest possible safety standards when approving new projects. It has rested much of its hopes on the success of the third-generation AP1000 reactor designed by US-based Westinghouse, with the world's first due to go into operation at the end of next year in Zhejiang, two years later than originally scheduled.

On 10 December, CGN is hoping to raise $ 3.16 billion US dollars from its Initial Public Offering (IPO) in Hong Kong—a move that underscores the growing confidence among Chinese companies to raise their domestic nuclear profile and compete in overseas markets.

Source: http://www.thehindu.com, 09 December 2014.

China's New Nuclear Technology Not Yet Fully Up to Standard, Energy Official Says

Key technology and equipment being deployed as the mainland shifts towards advanced nuclear reactors were "still not completely up to standard", an official with the country's energy regulator said on 4 December. Liu Baohua, the head of the nuclear office at the National Energy Administration, said the mainland also needed to improve its regulatory and legislative environment for nuclear power. The mainland aims to raise its nuclear capacity to 58 GW by 2020 from 19GW now, but experts say it will struggle to meet its target amid approval delays.

Beijing has promised to adhere to the highest possible safety standards when approving new projects. It has rested much of its hopes on the success of the third-generation AP1000 reactor designed by US-based Westinghouse, with the world's first due to go into operation at the end of next year in Zhejiang, two years later than originally scheduled. "The third-generation reactors now under construction still have problems with the pumps and valves, and with the inflexibility of the design," Liu said. "We are working to resolve these problems and the overall situation is still under control." He said more work needed to be done to improve the regulatory framework for the industry, to train nuclear personnel and to convince the public that nuclear power was clean and safe.

Source: http://www.scmp.com, 05 December 2014.

GENERAL

500 Nuclear Plants across the World by 2030: Russian Expert

A total of 500 nuclear power units would be operated across the world by the end of 2030 as more number of countries have now recognised the "necessity" of atomic energy, a senior Russian nuclear scientist claimed. "

Most reserved forecasts suggest that by 2030 a total of 500 nuclear power units will be operated on the planet. An increasing number of countries now recognise the necessity in nuclear energy," Oleg Tashlykov, leading professor and reader from Russian Federal University Nuclear Energy Department said.

Most reserved forecasts suggest that by 2030 a total of 500 nuclear power units will be operated on the planet. An increasing number of countries now recognise the necessity in nuclear energy," Oleg Tashlykov, leading professor and reader from Russian Federal University Nuclear Energy Department said.

Addressing students of Anna University, he said some of the objectives of nuclear power development was to improve the country's fuel balance, increase the share of high-tech products in GDP and exports and radical solution to the problem of greenhouse gas emissions. "In order to achieve these goals, it is planned to actively increase the share of nuclear power in the country, to form the leading position of the Russian power complex in the structure of the global nuclear power and its fuel cycle to introduce nuclear energy in the long term in the energy- intensive industrial technologies," he said.

A brief surge in uranium prices earlier December offered a glimmer of hope to Wyoming's long-suffering yellowcake miners, but a subsequent plunge illustrated the lingering uncertainty facing the sector. The price roller coaster follows a dismal summer for the state's uranium producers, which saw prices plunge below $30 per pound and

Contending that Fukushima Dai Ichi accident had not changed the global plans for nuclear power development, he elaborated on the Russian experience with nuclear power engineering, including the specifics of certain Russian reactors (such as VVER-1000 and AES-2006). Talking about safety of nuclear power, he said, "During manufacturing of equipment and construction of nuclear power plant, safety problem is addressed by using proven technologies, compliance with design requirements, special requirements documentation and execution of work at a high level of quality." ...

Source: The Economic Times, 11 December 2014.

SOUTH KOREA

South Korea Increases Nuclear Liability

South Korea's nuclear power operator Korea Hydro and Nuclear Power (KHNP) will need to take out over $2 billion-worth of insurance after nuclear regulators announced a ten-fold increase in the liability limit in the event of a nuclear accident. The Nuclear Safety and Security Commission (NSSC) is increasing the amount that must be covered by liability insurance from KRW50 billion (worth approximately $50 million) to KRW500 billion ($500 million) per site in a revision to the enforcement decree of South Korea's Nuclear Liability Act. The revised decree will take effect on 1 July 2015.

KHNP will be required to sign up for the insurance for each of its five nuclear power plant sites: Kori, Shin Kori, Wolsong, Shin Wolsong and Hanbit. Up to six units on one site can be covered by the same policy. NSSC chairman Lee Unchul said the revision to the decree would ensure that the nuclear licensee would have more financial resources "to quickly and properly compensate victims in case of nuclear accident." Operators of nuclear power plants are liable for any damage caused by them, regardless of fault, and normally take out insurance for third-party liability to cover this. Liability is limited by both international conventions and by national legislation.

Source: http://www.world-nuclear-news.org, 12 December 2014.

URANIUM PRODUCTION

CHINA

Yellowcake Roller Coaster: Wyoming Uranium Miners Ride Rapid Rise and Fall in Price

A brief surge in uranium prices earlier December offered a glimmer of hope to Wyoming's long-suffering yellowcake miners, but a subsequent plunge illustrated the lingering uncertainty facing the sector. The price roller coaster follows a dismal summer for the state's uranium producers, which

saw prices plunge below $30 per pound and prompted some companies to lay off employees, mothball expansion programs and consolidate operations. Prices rebounded again. Spot prices on U-308, the yellowcake uranium used to fuel nuclear power plants, ended Nov. 25 trading at $40.38 per pound. That was up from the $38 per pound recorded Nov. 21 but down from the high of $44 per pound registered earlier that week.

Some of the state's uranium firms were taking a cautious approach to the recent price fluctuations, saying they would wait for prices to stabilize before boosting production. ... The company laid off eight employees and reduced production estimates at its Willow Creek in situ mine after prices hit $28 per pound over the summer. Others said they sensed a positive turn in a market that has sputtered since Japan witnessed a triple meltdown at the Fukushima Dai-ichi nuclear power plant in 2011.

Wayne Heili, CEO of Casper-based UR-Energy, said the low cost structure of his company's in situ operation allowed the firm to weather the summer price soaking. Now the company will begin assessing whether to boost production, he said. ... UR-Energy opened its Lost Creek in situ mine in 2013. The company has sold uranium from the facility on long-term contracts, where prices generally hover around $50 per pound. But the company may begin producing for the spot market if prices remain in the $40-per-pound range, he said.

Lost Creek is currently operating at around 60 percent of its annual 1 million-pound capacity, Heili said. The summer's low prices were due, in part, to a pair of producers who continued to flood an already oversupplied market with more uranium, said Rob Chang, an analyst at Cantor Fitzgerald, an investment bank. But Japan's plans to restart two of its shuttered nuclear reactors, coupled with a buying binge from a collection of utilities, helped lift prices above the $40 threshold in November, he said. The conclusion of the buying binge produced the drop in price on Nov. 21, though the subsequent rebound suggests that another buyer entered the market, Chang said.

Finland 05 December approved the construction of a controversial Russian-backed nuclear power plant in Pyhäjoki in a plan that strengthens energy ties between Helsinki and Moscow while many western governments are seeking to isolate Russia over military intervention in Ukraine. The Finnish parliament voted by 115 to 74 in favor of the cabinet's decision to approve a plan submitted by the Finnish-Russian consortium Fennovoima to build a new nuclear power plant on the northwest coast of Finland that will cost an estimated €4 billion to €6 billion.

The price fluctuations illustrate the small size of the uranium sector. Uranium is more like real estate, with several buyers engaging one seller, than copper, where the pool of customers is larger, he said. ... Widespread optimism remains over uranium's long-term prospects. Construction of new reactors in China and Russia, along with the revival of Japan's nuclear fleet, means demand will outstrip supply in the long term, analysts and executives said. Yet when demand will overtake supply remains a matter of considerable speculation. Cameco Corp. closed its Cheyenne office this summer, consolidating its operations in Casper, and eliminated 12 local jobs because of the weak market, said Ken Vaughn, a company spokesman.

Source: http://trib.com, 01, December 2014.

NUCLEAR COOPERATION

FINLAND–RUSSIA

Finnish Parliament Approves Russian Nuclear Plant Backing, Tying it to Moscow's Technology

Finland 05 December approved the construction of a controversial Russian-backed nuclear power plant in Pyhäjoki in a plan that strengthens energy ties between Helsinki and Moscow while many western governments are seeking to isolate Russia over military intervention in Ukraine. The Finnish parliament voted by 115 to 74 in favor of

the cabinet's decision to approve a plan submitted by the Finnish-Russian consortium Fennovoima to build a new nuclear power plant on the northwest coast of Finland that will cost an estimated €4 billion to €6 billion. Russian state nuclear corporation Rosatom holds a 34 % stake in the group, and has vowed to drum up financing for the new plant.

Fennovoima has meanwhile been trumpeting that 60 % of the plant will be owned domestically or by other European Union stakeholders. According to Rosatom, who seems to be taking the lead voice on the matter in much media, has said the plant will go online in 2024, but only after strict environmental tests. It will be Finland's third nuclear power plant, and the only the second to be located in the Barents Region. The other is Russia's Kola Nuclear Power Plant near Murmansk. The Pyhäjoki plant, south of Oulu in Northern Finland, will consist of a 1200 MW AES-2006 reactor, the first of its type to go into operation.

That the plant passed parliamentary muster is not a surprise, but it is frustrating to many. In September, Finland's cabinet voted to back the plant, prompting a walkout of the government's Greens of Finland. Ville Niinistö, the leader of the party, said Russia could spin the Fennovoima deal to create a perception, especially domestically, that Moscow hasn't been isolated because of its Ukraine policy, The Wall Street Journal reported. In October 2014, a group of demonstrators from Helsinki's Hyokyaalto (Tsunami) environmental organization bound themselves to one another with ropes and chains, blocked roadwork at the Pyhäjoki construction site. Nine demonstrators were arrested, but Hyokyaalto promises further disruptions in the plant's construction.

Nils Bøhmer, Bellona's executive director and nuclear physicist immediately called the Finish Parliament's decision "very sad," though voiced skepticism the plant would ever be built. "A political majority is for the plant, but that doesn't mean they actually will ever have the money to ultimately build it," said Bøhmer. Despite the large parliamentary margin voting in favor of the joint venture, Fennovoima's reliance on Russian backing has some Finnish politicians, environmentalists and the general public ill over the deal's cow-towing to Russia's uncertain geopolitical ambitions and shaky environmental policies, especially in the nuclear sphere. ... Other European countries have looked askance at the deal, most vociferously Sweden. The planned plant would go up 150 kilometers from the northerly Swedish municipalities of Luleå, Piteå and Skellefteå, the Local.se news portal reported. Per Holmqvist of the nuclear free Bothian Bay activist group lamented the decision and echoed that it was "sad."

Fennovoima received an initial approval for the project in 2010 but has struggled to attract funding as doubts over nuclear power's profitability and safety have grown. The project was circling the drain before Rosatom's entry in late 2013. Despite Rosatom's backing, Fennovoima's future remained doubtful when the Finnish energy utility Fortum said it would take up to a 15 percent stake in Fennovoima, ensuring the project will meet a 60 % indigenous ownership requirement set by the Finnish government, said The Wall Street Journal.

Russia and India are ramping up energy ties and will construct at least 12 new nuclear reactors by 2035. Two will be completed by 2016 at the Kudankulam Nuclear Power Plant, Russian state-owned power company Rosatom confirmed.

Fortum's investment is contingent on the utility getting a majority ownership of a sizable number of hydropower plants in Russia as part of an asset swap involving Rosatom and the natural gas giant Gazprom, the paper reported. Russia has been perceived as trying to increase its influence in Europe through energy – and threats to withhold it – and Rosatom's export efforts as a state corporation are influenced as much by business prerogatives as they are by political ones.

Source: http://bellona.org,08 December 2014.

INDIA–RUSSIA

Russia and India Agree to Build 12 Power Reactors by 2035

Russia and India are ramping up energy ties and will construct at least 12 new nuclear reactors by 2035. Two will be completed by 2016 at the

Kudankulam Nuclear Power Plant, Russian state-owned power company Rosatom confirmed. ... Talking at a press briefing in India President Putin said the two countries had signed 'a very important' agreement to construct the total of more than 20 nuclear reactors. "We have reached a new level of cooperation. This isn't just about trade and services, but this is the creation of the new industrial branch," he went on to say. Nuclear cooperation between Russia and India has been on the rise, and has been a main topic of discussion during Russian President Vladimir Putin's official visit to New Delhi December 10 -11. Putin and Indian Prime Minister Narendra Modi will also discuss at $3 billion helicopter deal, oil exploration and supply, infrastructure projects, and diamond sales by Alrosa, the Russian state-owned diamond company, to India. ...

Source: http://rt.com/business/213411-going-nuclear-russia-india/, 11 December 2014.

INDIA–USA

US Hopeful of Resolving Nuclear Liability Issue with India

The US is hopeful of resolving the contentious nuclear liability issue with India so that the process of implementation of the Indo-US civilian nuclear deal can be accelerated, Richard Verma, the nominee for US Ambassador to India, has told Senators.

The Civil Liability for Nuclear Damage Act, which enables operator of nuclear power plants in India to seek partial compensation from suppliers in case of accidents, is hampering projects in the country. Suppliers of nuclear equipment from the US, Canada and other countries see the Nuclear Damage Act as a hurdle in selling nuclear reactors to India. Idaho Senator Jim Risch said Verma comes with excellent qualifications when it comes to nuclear matters. "And know that one of the priorities of the Modi government is to do better as far as providing energy to its people, and that's particularly true with electrical generation," he said. Idaho National Laboratory, he said, is the lead agency when it comes to dealing with India on the nuclear cooperation agreement.

The Civil Liability for Nuclear Damage Act, which enables operator of nuclear power plants in India to seek partial compensation from suppliers in case of accidents, is hampering projects in the country. Suppliers of nuclear equipment from the US, Canada and other countries see the Nuclear Damage Act as a hurdle in selling nuclear reactors to India.

"We still in the US are troubled by the fact that our people who provide nuclear parts, nuclear equipment, nuclear know-how to India are hamstrung because of the laws in India that have stymied really the development of nuclear power," he said. Senator Risch said he is encouraged by the fact that US President Barack Obama and PM Narendra Modi came together and discussed this issue in great detail in September. "I have no doubt it will come up again, but one of the important developments that came up out of their meetings was the establishment of a contact group to try to press this issue forward and get to a solution. It has to come to a resolution," he said.

Source: http://articles.economictimes.indiatimes.com, 03 December 2014.

NUCLEAR PROLIFERATION

IRAN

US Privately Admits Iran Nuke Violations but Publicly Denies

The US government is privately telling the UN that Iran is violating the interim nuclear agreement, even as US says publicly that Iran is in compliance. The State Department is playing word games by saying its expressed "concerns" don't mean a breach has happened. On November 24, Secretary of State John Kerry said, "Many said that Iran would not hold up its end of the bargain.... But guess what? The interim agreement has not been violated. Iran has held up its end of the bargain." On December 7, Kerry predicted that a final

nuclear deal would be reached with Iran within four months, significantly before the time when the seven-month extension expires on June 30. He reiterated that "Iran has lived up to every commitment it made in the interim agreement."

Now it is known that a US delegation to the UN accused Iran in a secret report on November 7. It stated that Iran has dispatched agents to illegally obtain parts for its heavy water reactor at Arak. The site could allow Iran to pursue plutonium-based nuclear weapons as its North Korean ally has done. Iran is also violating the agreement by increasing the size of its uranium stockpile and exporting oil to four Asian countries above the one million barrels per day limit. The State Department is responding to these reports by maintaining that Iran is still in compliance and that the expression of "concerns" is not an accusation of non-compliance.

Iran has dispatched agents to illegally obtain parts for its heavy water reactor at Arak. The site could allow Iran to pursue plutonium-based nuclear weapons as its North Korean ally has done. Iran is also violating the agreement by increasing the size of its uranium stockpile and exporting oil to four Asian countries above the one million barrels per day limit. The State Department is responding to these reports by maintaining that Iran is still in compliance and that the expression of "concerns" is not an accusation of non-compliance.

The IAEA report of September 5 stated that Iran failed to disclose two of five obligations in order to prove its nuclear program is not intended for bombs. Specifically, Iran continues to deny access to the Parchin site where it is believed that tests related to nuclear explosions were carried out. Iran has also not addressed evidence of work on nuclear warheads. The Institute for Science and International Security also pointed outthat Iran apparently violated the agreement by inserting gaseous uranium into an advanced centrifuge at the Natanz site. The US subsequently confronted Iran about it and they stopped. Iran said its "tests" were not a violation. The Arak site has elicited concern because it could produce enough plutonium for one or two nuclear bombs annually. In addition, Iran's nuclear partners in North Korea have used that process successfully. Once online, bombing the site is not an option because of the radioactive disaster that would result.

The National Council of Resistance in Iran held a press conference on November 7 revealing very specific intelligence its sources obtained from inside Iran about the Parchin site. The group revealed identities and a network of fronts used to continue nuclear weapons research. The International Committee in Search of Justice, an organization that supports the Iranian democratic opposition, released an extensively detailed report on November 20 outlining 10 areas where Iran is hiding nuclear weapons activity. The study also identifies current "moderate" Iranian President Rouhani as complicit in cover-ups of nuclear work. He was the Chairman of the Nuclear Committee of the Supreme Security Council when orders were given to demolish the Lavisan-Shian site after it was exposed.

Iran could admit its nuclear weapons work and claim that the halting of it in 2003 was permanent and that all such work was abandoned. This would not clear Iran, but it would at least appear more honest. The regime could use US intelligence reports to its advantage. Instead, it has continuously lied. Iran continues to maintain that it *never* had a nuclear weapons program, even though a founder of the Revolutionary Guards Corps has stated. But, he claims that Supreme Leader Ayatollah Khomeini ordered an end to the activity once informed. It is foolish to believe that Khomeini's most loyal forces would pursue such a sensitive program without his permission. Former Revolutionary Guardsman Reza Kahlili writes that a letter from the late 1980s written by Revolutionary Guards leader Mohsen Razei explicitly states that Khomeini authorized the pursuit of a nuclear bomb.

The statement was made to the Iranian media. This was not a slip-up. It was a thought-out decision. The Iranian regime is setting the stage to blame "rogue" elements of the Revolutionary Guards for pursuing nuclear bombs, just as the regime and its apologists have blamed "rogue" Revolutionary Guards for involvement in terrorism over the past decade. The US is overconfident in declaring that Iran is complying with the agreement. A three-year study by the defense department concluded earlier in 2014 that US intelligence capabilities against secret nuclear activities is "either inadequate, or, more often, do not exist."

The US intelligence community's performance in recent years doesn't leave much room for such optimism: consider the intelligence failures before the 9/11 attacks; the Iraqi weapons of mass destruction threat; the various misunderstandings about the war in Iraq; the Fort Hood shooting and underwear bomb plot; the Boston Marathon bombings; the failure to foresee the Arab Spring; the "non-violence" of the Muslim Brotherhood; the 9/11/2012 attacks in Benghazi; the admitted overestimating of Iraqi security forces; the failure to detect the Islamic State's offensive into Iraq and the underestimating of the Islamic State's strength by 300percent.

The IAEA also admits serious shortcomings in its ability to detect covert nuclear activity. Its published report in September said, "The Agency is not in a position to provide credible assurance about the absence of undeclared nuclear material and activities in Iran, and therefore to conclude that all nuclear material in Iran is in peaceful activities.

The IAEA also admits serious shortcomings in its ability to detect covert nuclear activity. Its published report in September said, "The Agency is not in a position to provide credible assurance about the absence of undeclared nuclear material and activities in Iran, and therefore to conclude that all nuclear material in Iran is in peaceful activities." The US policy of accepting a "peaceful" Iranian nuclear program rests upon our ability to detect covert activity. Shiite Islamists have a doctrine of deception called *taqiyya* that permits lying for the sake of security; a doctrine that the Iranian regime uses regularly. The "moderate" President Rouhani hasboasted of advanced the nuclear program using deception.

As pointed out by Iranian opposition activist Ali Safavi, the regime's founder and original Supreme Leader, Ayatollah Khomeini, preached that all religious rulings become null and void if they jeopardize the country. … Every second that the US spends projecting confidence about Iranian intentions is a second less that we have to take advantage of today's low oil prices and pressure Iran with severe sanctions.

Source: http://www.clarionproject.org, 09 December 2014.

NUCLEAR DISARMAMENT

TURKEY

Turkey Stresses Need for Nuclear Disarmament

Turkey's Permanent Representative to the UN in Vienna Birnur Fertekligil called on the five permanent members of the UNSC to uphold their responsibility towards nuclear disarmament, the *Anadolu Agency* reported. Speaking during the 3rd international Conference on the Humanitarian Impact of Nuclear Weapons, Fertekligil said that Turkey believes nuclear weapons are a major threat, stressing the need for a comprehensive approach to solving the problem of those weapons.

She said: "We are still living with the stark truth that nuclear weapons exist and there is a considerable possibility that they will spread and there is no doubt that these weapons may fall into the hands of unauthorised actors including terrorists, and this is alarming. Therefore, full and irreversible nuclear disarmament is naturally the answer." Fertekligil stressed the need to have practical international cooperation for complete nuclear disarmament, adding: "It is through cooperation and solidarity between countries that we can mitigate the risks of these weapons". …

Source: https://www.middleeastmonitor.com, 10 December 2014.

NUCLEAR TERRORISM

IRAQ

Does ISIS Have A Nuclear Weapon? Islamic State Supporter Claims Militants Have Dirty Bomb

Islamic State group has reportedly developed a nuclear weapon made from radioactive material stolen from an Iraqi university, according to a militant who claims insider knowledge. Hamayun Tariq, a British ISIS member now based in Syria, claimed on social media that the group obtained the uranium from Mosul University and now possesses a "dirty bomb" that it is now considering detonating in a public area.

If true, this would confirm fears voiced by Iraq's UN ambassador back in July following the seizure of 40 kilograms of uranium compounds from Mosul University. In a letter to UN Secretary-General Ban Ki-moon dated July 8, ambassador Mohamed Ali Alhakim warned that these materials "can be used in manufacturing weapons of mass destruction," according to Reuters. ...

The claims by Tariq, who now goes by the nom de guerre Muslim al-Britani, were first reported by the UK newspaper the Mirror, which also reported that militants were boasting about the damage such a weapon could cause if detonated in London. Tariq has reportedly had his British passport canceled by the UK Home Office, according to the Mirror. Nuclear experts, however, have cast doubts about the danger posed by the stolen radioactive material. The uranium that Islamic State is reportedly in possession of likely poses more of a danger as a toxin, former UN nuclear weapons inspector Bob Kelly told NBC. The UN nuclear agency has similarly played down the threat, saying that the material ISIS likely possessed was "low-grade" and did not pose a major threat, according to NBC. It is also unlikely that ISIS would be capable of transporting a nuclear weapon, if it existed, outside of Syria or Iraq, reported the Mirror.

The issue of Islamic State possessing nuclear weapons would have implications for the conflict in Syria as President Barack Obama has specifically designated the scenario as one that would necessitate the involvement of US ground troops. US officials, however, have maintained that there is no indication that ISIS could easily obtain such a weapon, according to ABC.

The issue of Islamic State possessing nuclear weapons would have implications for the conflict in Syria as President Barack Obama has specifically designated the scenario as one that would necessitate the involvement of US ground troops. US officials, however, have maintained that there is no indication that ISIS could easily obtain such a weapon, according to ABC.

Source: http://www.ibtimes.com, 02 Dec 2014.

NUCLEAR SAFETY

RUSSIA

Russian Concessions on Nuclear Safety Put Focus on US Reactors

Russia scaled back opposition to European proposals to improve the safety of nuclear power, leaving the US as the main dissenter to new rules intended to avoid a repeat of Japan's 2011 meltdown in Fukushima. Russia changed its stance at a Dec. 4 meeting of nuclear diplomats, setting out the Moscow government's view of new rules to limit radioactive contamination in the event of a nuclear accident, according to a copy of the 13-page presentation seen by Bloomberg. The move raised the chances of a deal to strengthen the Convention on Nuclear Safety, according to three Western diplomats present at the meeting, who asked not to be identified because the talks were private. The European Union is trying to find a path to tighter safety rules for the world's aging nuclear reactors with its relationship with Russia overshadowed by the conflict in Ukraine.

Yet it's the US, the world's biggest nuclear-power generator, which is proving the biggest obstacle,

the diplomats said, as company investments in reactor safety lag those of European peers. US resistance to the European safety proposals is a "serious concern," Senators Barbara Boxer and Edward Markey said in a Dec. 1 letter to Nuclear Regulatory Commission chairman Allison Macfarlane. The Democrats urged US diplomats to work with "international partners" to amend safety flaws exposed by the 2011 Fukushima Dai-Ichi meltdowns.

Two Proposals: Russia abandoned its opposition to tightening international rules on reactor safety the day after reports of a nuclear accident in Ukraine. The reported mishap — which ultimately proved to be false – roiled markets and sent Ukrainian bond yields to a record high. The 1986 meltdown of a Soviet-built reactor in Chernobyl, about 80 miles north of the capital Kiev, weighed on Ukraine's budget for decades and resulted in a 2,600 kilometer (1,000 miles) exclusion zone.

The European proposal would compel nuclear operators to both prevent accidents and, should they occur, mitigate the effects of radioactive contamination. Most controversially, the treaty change would also force potentially costly upgrades at existing plants. More than half of the world's 438 reactors were built at least 30 years ago and are nearing the age when they'll need special attention, according to IAEA statistics.

The European proposal would compel nuclear operators to both prevent accidents and, should they occur, mitigate the effects of radioactive contamination. Most controversially, the treaty change would also force potentially costly upgrades at existing plants. More than half of the world's 438 reactors were built at least 30 years ago and are nearing the age when they'll need special attention, according to IAEA statistics. The Russian plan would stop short of requiring old nuclear plants to retrofit reactors with costly infrastructure. Such measures would threaten their economic viability, according to Russia's envoy, Yury Ermakov, who delivered the presentation.

US Opposition: "Absolute achievement of this objective is economically unreal at the vast majority of existing nuclear power plants," reads the document. Safety improvements mitigating radiation releases should "be oriented towards these objectives" without over burdening companies, it said. Russian diplomats accredited to the IAEA declined to comment. US diplomats say their opposition to the European initiative is driven by concern that an attempt to amend the convention could weaken the rules, because some governments would be slow to ratify changes. ... The US wants signatories to reaffirm treaty commitments that oblige them to undergo rigorous peer reviews from international nuclear regulators, said a US official who asked not to be identified following diplomatic rules.

French Measures: European diplomats have rejected US charges that their proposed amendment risks undermining safety by creating uneven international regulations. Uneven rules were already created in July when the EU passed legislation forcing nuclear operators to retrofit facilities. "People in the US don't realize that in many ways our nuclear safety standards lag behind those in Europe," former NRC commissioner Victor Gilinsky said in a written reply to questions. "The German and French containment structures are generally more formidable than ours and those reactors generally have more protection systems."

European diplomats have rejected US charges that their proposed amendment risks undermining safety by creating uneven international regulations. Uneven rules were already created in July when the EU passed legislation forcing nuclear operators to retrofit facilities.

In France, engineers are designing reinforced bunkers for back-up power and installing emergency cooling systems to avoid a meltdown.

Europe's biggest atomic-energy producer is also reinforcing the concrete bases of its oldest reactors and creating elite teams of emergency responders. Regulators worldwide have tried to boost safety standards in response to the Fukushima meltdown, which forced 160,000 people to flee radioactive contamination after a tsunami flooded safety back-up systems.

The NRC is still working out the parameters for how much nuclear-plant operators need to spend on backfitting reactors with new safety gear, spokesman Scott Burnell said. The NRC was criticized Dec. 3 by Boxer, chairman of the Senate's Environment and Public Works committee, for being slow to ensure plant safety improvements. "Some reactor operators are still not in compliance with the safety requirements that were in place before the Fukushima disaster," Boxer said. "This is unacceptable."

Source: http://www.businessweek.com, 10 December 2014.

Extra €350m for Chernobyl Nuclear Safety Project

An additional €350 million grant has been approved for the Chernobyl nuclear power plant safety project. The extra cash will be used to complete the construction of a new shell on the damaged Chernobyl site, converting it into a safe and environmentally secure facility, the EBRD said. The total cost of the Shelter Implementation Plan, which provides a step-by-step strategy for making the site of the 1986 nuclear accident safe, is estimated to be around €2.15 billion (£1.7bn).

The EBRD expects the European Commission and the G7 nations to contribute €165 million for the 'New Safe Confinement' project. The Bank said the G7 are also organising a pledging event for other potential donors that is due to take place in the spring of 2015, aiming to raise a further €100 million. Completion of the project is scheduled for the end of 2017.

Source: http://www.energylivenews.com, 04 December 2014.

NUCLEAR WASTE MANAGEMENT

CANADA

Nuclear Waste Site Candidates Down to 13 – Mostly in Ontario

One more community has been dropped from the running to become the homes of Canada's high-level nuclear waste. But two others have completed another stage, leaving 13 communities in the running – 12 of them in Ontario and one in Saskatchewan. Brockton, which includes the towns of Walkerton and Hanover, has been dropped from the list of sites being considered by the NWMO. But the NWMO will do further research in two other Bruce county communities – Huron-Kinloss and South Bruce. That means fieldwork will begin on assessing whether the geology in the two areas is suitable for a long-lived nuclear waste site.

Preliminary work in the two rural communities has determined both have "strong potential to meet site selection requirements," the NWMO said in a release. It is looking for a place to entomb the spent fuel from Canada's nuclear reactors – fuel that remains dangerously radioactive for hundreds of thousands of years, and must be shielded from the environment. Each of the three communities will receive $400,000 from the NWMO for showing leadership in dealing with the radioactive waste. All are still in the early part of a multi-stage process to come up with a permanent disposal site for nuclear waste.

Mayors of the Bruce County municipalities of South Bruce and Huron-Kinloss both said in interviews that their communities haven't taken a final position on whether they'd accept a waste site, even if the geology is found to be suitable. Much of the nuclear waste is already being stored on the surface in Bruce County, at the Bruce nuclear station, said Mayor Robert Buckle of South Bruce. ...

Source: http://www.thestar.com, 02 December 2014.

INDIA

India Generates Around 4 Tonnes/Gw Nuclear Waste Per Year: Govt

India generates around four tonnes of nuclear waste per GW annually, the government said. In a written response to a question in Lok Sabha, Minister of State for Atomic Energy Jitendra Singh said, "The amount of such waste generated in India is around four tonnes per GW (1000 MW) for one year electricity generation, which is similar to the amount of waste generated internationally by other countries." Nuclear waste is generated primarily from two kinds of facilities, such as Nuclear Power Plants and Spent Fuel Processing Facilities. The current installed nuclear power capacity is around 4,780 MW and is expected to reach 10,080 MW by 2019.

India generates around four tonnes of nuclear waste per GW annually, the government said. In a written response to a question in Lok Sabha, Minister of State for Atomic Energy Jitendra Singh said, "The amount of such waste generated in India is around four tonnes per GW (1000 MW) for one year electricity generation, which is similar to the amount of waste generated internationally by other countries.

Singh, however, added that spent fuel is not considered as a waste in India. The country has adopted close fuel cycle option, which involves reprocessing and recycling of the spent fuel. "The spent fuel, as such is not disposed. It is not considered a waste in India. Spent fuel generated from NPPs is cooled for a minimum period of 5 years before taking it up for reprocessing. During the reporcessing of spent fuel for recovering of valuable elements, the very small quantity of radioactive fission products (waste) is isolated. "The waste is immobolised in suitable glass matrix in solid through vitrification and stored in interim storage facility for initial cooling and surveillance prior to their eventual emplacement at a geological disposal facility," Singh added. ...

Source: http://www.hindustantimes.com, 10 December 2014.

Some 72,000 metric tons of nuclear waste has piled up at 75 sites over the past half-century – including at our own San Onofre Nuclear Generating Station – and it can't stay there forever, the GAO said. In a half-century, when all the currently operating reactors are expected to be permanently shut down, they will have generated some 139,000 metric tons of spent nuclear fuel. Where will it go.

USA

Nuclear Waste Disposal is at Critical Stage, Government Warns

A public education push is vital if America is to solve its critical nuclear waste disposal problem that grows more expensive by the day, according to the US GAO. "Used nuclear fuel that has been removed from the reactor core of a nuclear power plant is an extremely harmful substance if not managed properly," the GAO wrote. ...

Some 72,000 metric tons of nuclear waste has piled up at 75 sites over the past half-century – including at our own San Onofre Nuclear Generating Station – and it can't stay there forever, the GAO said. In a half-century, when all the currently operating reactors are expected to be permanently shut down, they will have generated some 139,000 metric tons of spent nuclear fuel. Where will it go? Much rides on the answer. More than 1 in 3 Americans – including nearly 10 million here in Southern California – lives within 50 miles of a nuclear power plant, according to data from the US Census Bureau.

Already, the federal government has paid out $3.7 billion for its failure to accept and dispose of nuclear waste as promised, and taxpayers could fork over another $21 billion to $50 billion before Uncle Sam figures it all out. One key challenge – building and sustaining public acceptance on how to manage spent nuclear fuel – will need to be addressed no matter what path Congress agrees to take on permanent disposal, the GAO said. This will require "a coordinated public outreach strategy regarding spent nuclear fuel

management issues, including perceived risks and benefits. ... Without a better understanding of spent nuclear fuel management issues, the public may be unlikely to support any policy decisions about managing spent nuclear fuel," the GAO said.

***Do More*:** A bipartisan proposal to start work on interim storage was introduced by Sen. Dianne Feinstein in 2013, but didn't get far. It may stand a better chance in 2015, some observers noted. Congress, generally, responds to pressure from the people. But if the people are in an information vacuum – well, one sees the circular nature of the problem. San Clemente Councilwoman Lori Donchak, who lives in the shadow of now-shuttered San Onofre and its some 40 years' worth of accumulated nuclear waste, calls for action.

The issue has been passionately debated by the San Onofre Community Engagement Panel, a group of citizens and experts advising owner Southern California Edison on the decommissioning of the plant. Local activists are deeply concerned about how many decades San Onofre's spent fuel will sit in dry cask storage containers on that salty, scenic bluff above the Pacific while the federal government figures things out. They worry about precisely what kind of casks the waste will be stored in, and how many spent fuel assemblies will be stuffed into each cask, and whether those casks can be safely transported decades from now to a more permanent home. ...

Source: http://www.ocregister.com, 02 December 2014.

Centre for Air Power Studies

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

Centre for Air Power Studies
P-284
Arjan Path, Subroto Park,
New Delhi - 110010
Tel.: +91 - 11 - 25699131/32
Fax: +91 - 11 - 25682533
Email: capsnetdroff@gmail.com
Website: www.capsindia.org

Edited by: Director General, CAPS

Editorial Team: Dr. Sitakanta Mishra, Hina Pandey, Arjun Subramanian P, Chandra Rekha, Debalina Ghoshal

Composed by: CAPS

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