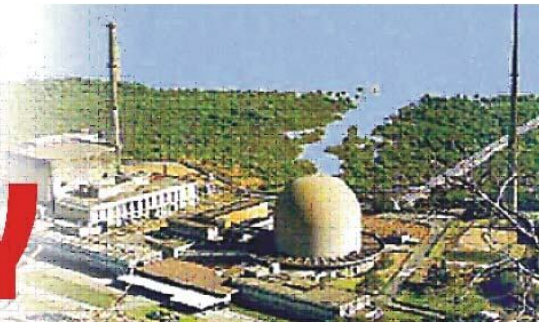
NUCLEAR SECURITY



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

Vol 10, No. 07, 01 Feb. 2016

CONTENTS

STATEMENT – Yukiya Amano

Introductory Statement to the Board of Governors

I requested that this meeting of the Board of Governors be convened in connection with my report entitled Verification and Monitoring in the Islamic Republic of Iran in light of United Nations Security Council Resolution 2231. My report on January 16th to the Board of Governors, and in parallel to the Security Council, confirmed that Iran had taken the actions specified in Annex V of the Joint Comprehensive Plan of Action. As a result, Implementation Day occurred on the same day.

Iran had previously informed me that it would provisionally apply the Additional Protocol to its Safeguards Agreement with the Agency, starting on Implementation Day, pending its entry into force. It will also fully implement the modified Code 3.1 of the Subsidiary Arrangements to its Safeguards Agreement. Verifying that Iran had completed the necessary preparatory steps was a complex and difficult task, carried out under intense time pressure. I am very grateful to our excellent team in the Department of Safeguards for their diligence and professionalism. The way is now clear for the Agency to begin verifying and monitoring Iran's nuclear-related commitments under the JCPOA, as requested by the Security Council and authorised by the Board. I congratulate all those who helped to make the JCPOA a reality, especially the group of countries known as the E3/EU+3, Iran, and the Board of Governors.

Verifying that Iran had completed the necessary preparatory steps was a complex and difficult task, carried out under intense time pressure. I am very grateful to our excellent team in the Department of Safeguards for their diligence and professionalism. The way is now clear for the Agency to begin verifying and monitoring Iran's nuclear-related commitments under the JCPOA.

On 16 January, I had meetings in Vienna with EU High Representative Mogherini, US Secretary of State Kerry, Iranian Vice-President Salehi and Foreign Minister Zarif. I had talks in Tehran with President Rouhani and again met Dr Salehi and Dr Zarif. All expressed their appreciation for the Agency's major contribution on this issue. They also confirmed their commitment to fully implementing the JCPOA.

Mr Chairman, As I informed the Board in December, implementation of the Additional Protocol, and verification and monitoring of Iran's nuclear-related commitments under the JCPOA, involve activities for which predictable funding is needed. I will soon issue a Draft Budget Update for 2017, with estimates of the additional costs that need to be funded through the Regular Budget for that year. Highlights of the Update were circulated. I am grateful to countries that have already made, or pledged, contributions and I count on the support of all Member States in ensuring predictable funding for this long-term verification and monitoring work.

Implementation of the JCPOA marks the beginning of a new phase in relations between Iran and the IAEA. We have come a long way since the Agency first started considering the Iran nuclear issue in 2003. A lot of work has gone into getting us here. Equal effort will be required in the future to implement the JCPOA. The IAEA is fully committed to playing its part.

In order to discharge our new responsibilities, I plan to establish an Office in the Department of Safeguards to take charge of our safeguards, and verification and monitoring, activities in Iran. This will replace the existing Iran Task Force. The change will not require any additional funding. Our verification and monitoring activities in connection with the JCPOA are exceptional. They do not set a precedent. Implementation of the JCPOA marks the beginning of a new phase in relations between Iran and the IAEA. We have come a long way since the Agency first started considering the Iran nuclear issue in 2003. A lot of work has gone into getting us here. Equal effort will be required in the future to implement the JCPOA. The IAEA is fully committed to playing its part. I am grateful for the support of the Board. I will continue to report on a regular basis....

Source: https://www.iaea.org, 19 January 2016.

OPINION – Seth Oldmixon

Pakistan and North Korea's Nuclear Extortion: Two Troubled Countries. Two Similar Strategies

Two important and unsettling events took place earlier in January: North Korea claimed to have detonated a thermonuclear bomb, and India's Pathankot airbase was the victim of an attack by Pakistan-based militants. While seemingly unrelated, the two events have more in common than readily apparent: Each fits a long established pattern of behavior intended to extort international concessions by exploiting global anxiety about nuclear terrorism. The most immediate connection between these two events is the provenance of North Korea's nuclear weapons program: Pakistani metallurgist A.Q. Khan, the man who stole nuclear secrets from his employer in Holland and passed them on to Pakistan's military. In the 1990s, Pakistan sold nuclear weapons technology to North Korea, as well as Iran, Libya and possibly other states. A.Q. Khan was briefly held under house arrest until he received a full pardon from Pakistan's military dictator and President Gen. Pervez Musharraf. Yet, there is another commonality between North Korea's nuclear weapons program and a fidayeen attack on an Indian airbase: strategy.

Pakistan making overtures of peace, followed by a vicious jihadi attack, and finally culminating in the Pakistani government declaring its desire to proceed with peace talks so that the terrorists don't win. The attack on Pathankot airbase also follows this pattern.

Writing in *Foreign Affairs*, Sung-Yoon Lee and Joshua Stanton described North Korea's foreign policy in this way: "Offer a fake overture of peace; raise the stakes for your foes with a provocation; act unstable and threaten to escalate even further; and finally, call for talks and act reasonable. Pyongyang seizes and maintains the initiative from beginning to end and leaves its adversaries anxious for negotiations in the face of provocations." Such a strategy should sound remarkably familiar to South Asia watchers, as it echoes the strategy employed by Pakistan.

The Hudson Institute's Aparna Pande has chronicled four recent examples of Pakistan making overtures of peace, followed by a vicious jihadi attack, and finally culminating in the Pakistani government declaring its desire to

proceed with peace talks so that the terrorists don't win. The attack on Pathankot airbase also follows this pattern. Increasingly, the Pathankot attack appears to have been carried out by jihadi militants associated with JeM, a transnational terrorist organization founded by Masood Azhar under the patronage of Pakistan's ISI, the country's premier military intelligence organization. After having been dormant for several years, JeM resurfaced in early 2014 when Masood Azhar addressed a rally well orchestrated in Pakistan-controlled Kashmir shortly after Gen. Raheel Sharif took over as Pakistan's Chief of Army Staff.

Pakistani National Security Advisor Sartaj Aziz has openly admitted that the state has no interest in shutting down militant groups that it deems friendly to Pakistan's interests. Well-meaning sympathizers accept the Pakistani contention that they can't actually go after all militants because doing so would present an insurmountable threat – there are so many militants that taking them all on would destabilize the entire country, putting at risk its ever expanding nuclear arsenal.

Gen. Raheel has declared a policy of "zero tolerance" for militancy, a position that he reiterates after each militant attack. In practice, however, certain militant groups are tolerated, if not directly sponsored by the military. Last year, the State Department praised Pakistan for following through on its international obligations to ban Islamist militant groups including the Haqqani Network and Jamaat-ud-Dawa, only to find out that the groups were not actually banned at all. Even nominally-banned groups, such as the Ahle Sunnat Wal Jamaat (ASWJ), a virulent anti-Shia organization, are expanding.

The problem is that Pakistan's jihadi monster has grown bold enough that it's turned on its patron. Around 30,000 Pakistanis have been killed by jihadi militants, including over 1,000 in 2015. After militants killed 140 schoolchildren in 2014, Pakistan's security establishment promised to change its ways, but "pro-Pakistan" militants have continued to flourish.

This is no accident. Pakistani National Security Advisor Sartaj Aziz has openly admitted that the state has no interest in shutting down militant groups that it deems friendly to Pakistan's interests. Well-meaning sympathizers accept the Pakistani contention that they can't actually go after all militants because doing so would present an insurmountable threat – there are so many militants that taking them all on would destabilize the entire country, putting at risk its ever expanding nuclear arsenal.

This conveniently ignores the fact that the problem is one of Pakistan's own making. Pakistan cultivated jihadi militant groups like LeT and JeM for decades both as force multipliers and proxy forces that can carry out attacks without the clear imprint of the state. The last part is key: Pakistan's jihadi assets provide the cover of plausible deniability that allows the state to approach India or the US and pretend that it is sincerely working to change the situation. The problem is that Pakistan's jihadi monster has grown bold enough that it's turned on its patron. Around 30,000 Pakistanis have been killed by jihadi militants, including over 1,000 in 2015. After militants killed 140 schoolchildren in 2014, Pakistan's security establishment promised to change its ways, but "pro-Pakistan" militants have continued to flourish.

If North Korea's international strategy is based on Richard Nixon's "Madman theory" – the gamble that other countries will not risk provoking them for fear of an unpredictable and disproportionate response, Pakistan uses a slightly more sophisticated technique: "Good Cop, Bad Cop." The "good cop" being the Pakistani state, the "bad cop" being jihadi militant groups. Pakistan promises to restrain its jihadis if only the US or India will make certain concessions. As a result, the US has provided Pakistan's military with billions of dollars in cash payments and arms sales. In return,

Pakistan has continued to support a variety of jihadi militant groups, including those responsible for attacks on American soldiers.

The White House has cast doubt on North Korea's claims, saying that early evidence is inconsistent with the detonation of a thermonuclear device. Nevertheless, it is clear that North Korea is once again turning to its tried and true strategy to improve its negotiating position. Regarding Pakistan, White House Spokesman John Kirby told reporters following the Pathankot attack that "the Government of Pakistan has said publicly and privately that it's not going to discriminate among terrorist groups." Of course, Pakistan has said this before, and it will continue to so as long as Washington continues to believe them. And the cycle will repeat until either Washington decides to break it, or Pakistan finally loses control completely.

Source: http://thediplomat.com/, 16 January 2016.

OPINION – Eunjung Lim

Japan's Nuclear Trilemma

Japan is enigmatic in many different ways. For instance, the Liberal Democratic Party (LDP)'s long-lasting resilience in free elections intrigues many Western political scientists. Meanwhile, the country's dramatic transformation from the enemy that attacked Pearl Harbor in 1941 to the closest ally of the United States remains puzzling to others. Japan's reliance on nuclear energy has also been difficult for many foreigners to understand. Japan is the only country victimized by atomic bombs in human history. Nonetheless, less than a decade after the atomic bombings of Hiroshima and Nagasaki, Japan surprisingly 'embraced' atomic power for its economic growth. Since March 1954 when the Japanese Diet approved Yasuhiro Nakasone's request for budgeting nuclear energy research and development, which totaled 235 (a number reminiscent of Uranium-235) million Japanese Yen, the Japanese government has vigorously promoted nuclear energy as a reliable energy source for this extremely resource-poor country.

The Fukushima Accident that deeply injured Japan's global reputation added more puzzles. After the accident, which was of unprecedented scale, Japan promptly decided to stop all remaining nuclear power reactors in the country, but was not able to phase out nuclear energy like Germany.

For the past several decades, the development of nuclear energy has been eye-opening in Japan. As the famous manga character Mighty Atoms (Astro Boy) symbolizes, Japan became one of the major nuclear states in the world; it had 54 reactors in operation before the Fukushima Accident and a closed fuel cycle. Japan's global leadership in this field has been outstanding, as Yukiya Amano has shown through his exemplary leadership as Director General of the IAEA. The Fukushima Accident that deeply injured Japan's global reputation added more puzzles. After the accident, which was of unprecedented scale, Japan promptly decided to stop all remaining nuclear power reactors in the country, but was not able to phase out nuclear energy like Germany. Instead, operation of these halted reactors has resumed since Shinzo Abe returned to the Prime Minister's office in spite of massive protests and the objection of the majority of the public; Sendai 1 Reactor in Kagoshima Prefecture was restarted on 11 August, 2015 and Sendai 2 Reactor successively went online on 15 October. And now, Japan's global leadership in the nuclear field faces another serious challenge from the point of view of non-proliferation.

Japan is the only country in the world that is permitted to reprocess its spent fuel, which means it can possess plutonium – a weapon-usable material – without acquiring nuclear weapons. Originally, Japan envisioned FBR for generating electricity with plutonium separated from reprocessing.

Japanese Exceptionalism and Missions Impossible: Japan's decision to restart its idle nuclear reactors should be understood together with two other important components of the back end of its nuclear fuel cycle, namely reprocessing and plu-thermal because nuclear power generation, reprocessing, and plu-thermal together make up the trinity in Japan's national plan for securing nuclear energy. Japan is the only country in the world that is permitted to reprocess its spent fuel, which means it can possess plutonium – a weapon-usable material – without

acquiring nuclear weapons. Originally, Japan envisioned FBR for generating electricity with plutonium separated from reprocessing.

Japan's sodium-cooled FBR Monju, which is supposed to produce more fuel than it consumes and thus is regarded as a dream reactor, has never been realized mainly because of insuperable technical problems, despite astronomical investment that exceeded 1 trillion Japanese Yen. Eventually, on 13 November, 2015, the Nuclear Regulation Authority (NRA) recommended that the Ministry of Education, Culture, Sports, Science and Technology (MEXT) find another entity to replace the Japan Atomic Energy Agency (JAEA) as operator of Monju; JAEA is under the jurisdiction of MEXT. If MEXT fails to find a replacement for JAEA, Japan might need to reexamine the national FBR project. Whereas the FBR project did not show any significant progress, Japan built the idea of "plu-thermal" as an alternative plan in the late 1990s. "Plu-thermal" per se is combination of the words "plutonium" and "thermal reactor" (generally indicating LWR), and stipulates burning MOX fuel in LWR. Japan has continued to justify its reprocessing and its plutonium stockpile with its plu-thermal strategy and planned to transition to MOX fuel in 16 to 18 reactors by 2015; in the aftermath of the Fukushima Accident this proved unrealistic.

Whereas the FBR project did not show any significant progress, Japan built the idea of "plu-thermal" as an alternative plan in the late 1990s Japan has continued to justify its reprocessing and its plutonium stockpile with its plu-thermal strategy and planned to transition to MOX fuel in 16 to 18 reactors by 2015; in the aftermath of the Fukushima Accident this proved unrealistic.

Meanwhile, it has never been easy to start up the reprocessing plant in Rokkasho Village, Aomori Prefecture. This reprocessing plant was initially planned to start its operation in 2000, but completion of reprocessing plant construction has been delayed more than twenty times. Moreover, the construction cost has surged up to approximately 22 billion USD, almost four times higher than the original cost planned back in 1989. And on November 16, 2015, Japan Nuclear Fuel Ltd. (JNFL), the operator of reprocessing plant, announced that the operation of the reprocessing plant is postponed again to as late as September 2018. JNFL's President Kenji Kudo reported that a separate plant for producing MOX fuel had also been delayed by early 2019.

The Chicken or the Egg?

Japan's Nuclear Trilemma:

Nonetheless, the Japanese government still shows reluctance to withdraw from reprocessing with the excuse of its scarcity of natural resources. Without a technical way out, however, the plutonium stockpile of Japan continues to rise. As for July 2015, its plutonium stockpile reached 47.8 metric tons - 10.8 tons in Japan, 16.3 tons in France, and 20.7 tons in the United Kingdom – the fifth largest next to the United Kingdom, France, Russia, and the United States. Considering the fact that Japan is not a nuclear-armed state, this number is obviously an outlier. For instance, Germany, which also does not possess nuclear weapons, only had 3 tons of separated plutonium at the end of 2013.

As for July 2015, its plutonium stockpile reached 47.8 metric tons - 10.8 tons in Japan, 16.3 tons in France, and 20.7 tons in the United Kingdom – the fifth largest next to the United Kingdom, France, Russia, and the United States. Considering the fact that Japan is not a nuclear-armed state, this number is obviously an outlier.

Japan's 'entrapped' situation with regards to reprocessing has been controversial both domestically and internationally. James Acton, co-director of the Nuclear Policy Program at Carnegie Endowment, analyzes why Japan is 'entrapped' in reprocessing in his recent report, "Wagging the Plutonium Dog". Acton explains that the operation of the reprocessing plant in Rokkasho Village is unlikely to be avoided regardless of lots of criticism because of densely intertwined commitments between the central government and the local communities coupled with a lot of pressure from those communities on the central government. As Acton points out, pressure from

the local communities to maintain the reprocessing plan was intense. When Japan Atomic Energy Commission (JAEC) proposed "it is more economical not to reprocess spent fuel" in February 2012 and a serious re-examination on reprocessing plan was on the table, then-Rokkasho Mayor Kenji Furukawa strongly appealed his anxieties as the head of the host community.

Moreover, both Rokkasho Village and Aomori Prefecture intimidated the central government into adhering to the original plan; they contended that the more than 3,000 tons of spent fuel in the area should otherwise be transferred back to the reactors where the spent fuel was originally produced. This alternative however, is politically and technically implausible because the host communities of reactors also expect spent fuel to be removed from their backyards almost immediately. Thus it can be said that Japan fell into the following trilemma after the Fukushima Accident: first, without restarting nuclear reactors, reprocessing lacks enough justification; second, without having the reprocessing plant in operation, restarting nuclear reactors will only produce more spent fuel that does not have a final destination; and third, without having the MOX fuel plant and reactors using MOX fuel in operation, reprocessing alone will add more plutonium to the existing stockpile that is already overwhelming. Technical difficulties that relate to every pillar of the trinity in the Japanese national project bogs the central government down to a stalemate. Yet what the Abe Cabinet has chosen to pursue is restarting stopped reactors and sticking to reprocessing, which is likely to increase the plutonium stockpile.

Japan fell into the following trilemma after the Fukushima Accident: first, without restarting nuclear reactors, reprocessing lacks enough justification; second, without having the reprocessing plant in operation, restarting nuclear reactors will only produce more spent fuel that does not have a final destination; and third, without having the MOX fuel plant and reactors using MOX fuel in operation, reprocessing alone will add more plutonium to the existing stockpile that is already overwhelming.

Growing Anxieties and the Missing Link of the Trilemma*:* Japan's unusual surplus of plutonium creates tremendous political pressures for the Japanese government. Japan's neighbors like China and South Korea often become suspicious of Japan's real reasons for having that amount of plutonium. Not only its neighbors but experts and lawmakers in the United States, its closest ally, have also demonstrated their deep concerns about the Japanese massive stockpile of plutonium.

Furthermore, Japan's recent performance triggered a backlash even from the IAEA, whose head is a former Japanese diplomat; 640 kg of unused plutonium was not included in Japan's annual reports to IAEA in 2012 and 2013. IAEA experts criticized this as "inappropriate omission" though JAEC explained that the stock was part of MOX fuel stored in a reactor that was not in operation during that period of time, and accordingly assumed exempt from reporting requirements. Japan has insisted that it would be impossible to inappropriately separate plutonium at the reprocessing plant in Rokkasho Village under the IAEA's 24-hour surveillance. However, surveillance burdens for safeguards have aggravated simply because of the absolute amount of stockpile. Thus, Japan seriously needs to concentrate its all efforts on how to consume existing plutonium for peaceful purposes; in other words it needs to downsize its plutonium stockpile. At the Hague NSS in March 2014, Prime Minister Abe explicitly stated that Japan "should possess no plutonium reserves without specified purposes." However, the outcome of what Japan is trying to do now – re-operation of reactors and operation of the reprocessing plant – is contradictory to his statement.

Japan seriously needs to concentrate its all efforts on how to consume existing plutonium for peaceful purposes; in other words it needs to downsize its plutonium stockpile. At the Hague NSS in March 2014, Prime Minister Abe explicitly stated that Japan "should possess no plutonium reserves without specified purposes." However, the outcome of what Japan is trying to do now – re-operation of reactors and operation of the reprocessing plant – is contradictory to his statement.

The missing link here that is also related to the trilemma stated above is whether or not Japan can continue using MOX fuel. Without MOX fuel-burning reactors and the MOX fuel plant in operation, re-operation of non-MOX fuel reactors will only produce more spent fuel and operation of the reprocessing plant will only add more plutonium to the stockpile. The important thing to remember is there is no final destination for spent fuel and high-level radioactive waste (HLW) in Japan. Regardless of the Nuclear Waste Management Organization (NUMO)'s strenuous efforts since 2000, Japan does not have any site for permanent repositories of HLW produced after reprocessing. On the other hand, operation of an interim storage facility under construction in Mutsu City, Aomori Prefecture has not been realized either. On January 27, 2015, Japan's Recyclable-Fuel Storage Company announced its decision to postpone the scheduled operation of the Recyclable Fuel Storage Center – an interim storage facility – from March 2015 to October 2016 by stating that the facility needs to be investigated by NRA for compatibility with new regulatory standards.

Regardless of the Nuclear Waste Management Organization (NUMO)'s strenuous efforts since 2000, Japan does not have any site for permanent repositories of HLW produced after reprocessing. On the other hand, operation of an interim storage facility under construction in Mutsu City, Aomori Prefecture has not been realized either.

What Needs to Be Done to Restore Japan's Leadership: The following things, therefore, need to be done to restore Japan's global reputation and its leadership in the nuclear field. First, as long as Japan does not want to phase out nuclear energy and needs nuclear energy as a "key base-load power source", Japan should prioritize restarting those of its nuclear power plants that can use MOX fuel; for example, the Ôma Nuclear Power Plant in Aomori Prefecture is supposed to be capable of using a 100% MOX fuel core. The Tomari Plant in Hokkaidô and the Onagawa Plant in Aomori Prefecture can use MOX fuel as well. It is encouraging that Shikoku Electric Power and Kansai Electric Power recently decided on using MOX fuels for their reactors to go online in the near future.

Even if the test were not of a hydrogen bomb but of a smaller atomic weapon, as many experts suggest, we are still reminded that we live in the Nuclear Age, an age in which accident, miscalculation, insanity, or intention could lead to devastating nuclear catastrophe.

Second, Japan should not obsess over the hurried operation of the reprocessing plant until technical problems are cleared and MOX fuel consumption reaches a certain level. A declaration of temporary moratorium of the reprocessing plant might be necessary and may be possible under Abe's consolidated leadership. In order to persuade host communities including Aomori Prefecture and Rokkasho Village, relevant legislation needs to be passed; for instance, from the point of view of Rokkasho Village's interests, financial aid originally promised in case of starting the reprocessing plant should be either fully or partially guaranteed under the name of a storage fee. And from the Aomori Prefecture's point of view, it should be clarified that this moratorium is not a dead end for the region but a temporary decision until Japan can figure out more pragmatic solutions. ...

Source: http://www.ensec.org, 19 January 2016.

OPINION– Richard Falk, David Krieger, Robert Laney

Political Responsibility in the Nuclear Age: An Open Letter to the American People

Dear fellow citizens: By their purported test of a hydrogen bomb early in 2016, North Korea reminded the world that nuclear dangers are not an abstraction, but a continuing menace that the governments and peoples of the world ignore at their peril. Even if the test were not of a hydrogen bomb but of a smaller atomic weapon, as many experts suggest, we are still reminded that we live in the Nuclear Age, an age in which accident, miscalculation, insanity, or intention could lead to devastating nuclear catastrophe.

What is most notable about the Nuclear Age is that we humans, by our scientific and technological ingenuity, have created the means

of our own demise. The world currently is confronted by many threats to human well-being, and even civilizational survival, but we focus here on the particular grave dangers posed by nuclear weapons and nuclear war. Even a relatively small nuclear exchange between India and Pakistan, with each country using 50 Hiroshima-size nuclear weapons against the other side's cities, could result in a nuclear famine, killing some 2 billion of the most vulnerable people on the planet. A nuclear war between the United States and Russia could destroy civilization in a single afternoon and send temperatures on Earth plummeting into a new ice age. Such a war could destroy most complex life on the planet. Despite the gravity of such threats, they are being ignored, which is morally reprehensible and politically irresponsible.

We are appalled that none of the candidates running for the highest office in the land have yet put forward any plan or strategy to end current threats of nuclear annihilation, that none have challenged the planned expenditure of $1 trillion to modernize the US nuclear arsenal, and that none have made a point of the United States being in breach of its nuclear disarmament obligations under the Nuclear Non-Proliferation Treaty.

We in the United States are in the midst of hotly contested campaigns to determine the candidates of both major political parties in the 2016 presidential faceoff, and yet none of the frontrunners for the nominations have even voiced concern about the nuclear war dangers we face. This is an appalling oversight. It reflects the underlying situation of denial and complacency that disconnects the American people as a whole from the risks of use of nuclear weapons in the years ahead.

Rather than fulfill their obligations for negotiated nuclear disarmament, the nine nuclear-armed countries all rely upon nuclear deterrence and are engaged in modernization programs that will keep their nuclear arsenals active through the 21st century and perhaps beyond. Unfortunately, nuclear deterrence does not actually provide security to countries with nuclear arsenals.

This menacing disconnect is reinforced by the media, which have failed to challenge the candidates on their approach to this apocalyptic weaponry during the debates and have ignored the issue in their television and print coverage, even to the extent of excluding voices that express concern from their opinion pages. We regard it as a matter of urgency to put these issues back on the radar screen of public awareness. We are appalled that none of the candidates running for the highest office in the land have yet put forward any plan or strategy to end current threats of nuclear annihilation, that none have challenged the planned expenditure of $1 trillion to modernize the US nuclear arsenal, and that none have made a point of the United States being in breach of its nuclear disarmament obligations under the Nuclear Non-Proliferation Treaty.

In the presidential debates it has been a non-issue, which scandalizes the candidates for not raising the issue in their many public speeches and the media for not challenging them for failing to do so. As a society, we are out of touch with the most frightening – yet after decades still dangerously mishandled – challenge to the future of humanity. There are nine countries that currently possess nuclear weapons. Five of these nuclear-armed countries are parties to the NPT, and are obligated by that treaty to negotiate in good faith for a cessation of the nuclear arms race and for nuclear disarmament. The other four nuclear-armed countries (Israel, India, Pakistan, and North Korea) are subject to the same obligations under customary international law. None of the nine nuclear-armed countries have engaged in such negotiations, a reality that should be met with anger and frustration, and not, as is now the case, with indifference. It is not only the United States that is responsible for the current state of denial and indifference. Throughout the world there is a false confidence that, because the Cold War is over and no nuclear weapons have

been used since 1945, the nuclear dangers that once frightened and concerned people can now be ignored.

Rather than fulfill their obligations for negotiated nuclear disarmament, the nine nuclear-armed countries all rely upon nuclear deterrence and are engaged in modernization programs that will keep their nuclear arsenals active through the 21st century and perhaps beyond. Unfortunately, nuclear deterrence does not actually provide security to countries with nuclear arsenals. Rather, it is a hypothesis about human behavior, which is unlikely to hold up over time. Nuclear deterrence has come close to failing on numerous occasions and would clearly be totally ineffective, or worse, against a terrorist group in possession of one or more nuclear weapons that has no fear of retaliation and may actually welcome it. Further, as the world is now embarking on a renewed nuclear arms race, disturbingly reminiscent of the Cold War, rising risks of confrontations and crises between major states possessing nuclear weapons increase the possibility of use. As citizens of a nuclear-armed country, we are also targets of nuclear weapons.

Rather than fulfill their obligations for negotiated nuclear disarmament, the nine nuclear-armed countries all rely upon nuclear deterrence and are engaged in modernization programs that will keep their nuclear arsenals active through the 21st century and perhaps beyond. Unfortunately, nuclear deterrence does not actually provide security to countries with nuclear arsenals.

John F. Kennedy saw clearly that "every man, woman and child lives under a nuclear sword of Damocles, hanging by the slenderest of threads, capable of being cut at any moment by accident, or miscalculation, or by madness. The weapons of war must be abolished before they abolish us." What President Kennedy vividly expressed more than 50 years ago remains true today, and even more so as the weapons proliferate and as extremist groups come closer to acquiring these terrible weapons. Those with power and control over nuclear weapons could turn this planet, unique in all the universe in supporting life, into the charred remains of a Global Hiroshima. Should any political leader or government hold so much power? Should we be content to allow such power to rest in any hands at all? It is time to end the nuclear weapons era. We are living on borrowed time.

The United States, as the world's most powerful country, must play a leadership role in convening negotiations. For the United States to be effective in leading the movement to achieve Nuclear Zero, US citizens must awaken to the need to act and must press our government to act and encourage others elsewhere—especially in the other eight nuclear-armed countries—to press their governments to act as well. It is not enough to be apathetic, conformist, ignorant, or in denial. We all must take action if we want to save humanity and other forms of life from nuclear catastrophe. In this spirit, we are at a stage where we need a robust global solidarity movement that is dedicated to raising awareness of the growing nuclear menace, and the urgent need to act nationally, regionally, and globally to reverse the strong militarist currents that are pushing the world ever closer to the nuclear precipice.

For the United States to be effective in leading the movement to achieve Nuclear Zero, US citizens must awaken to the need to act and must press our government to act and encourage others elsewhere—especially in the other eight nuclear-armed countries—to press their governments to act as well.

Nuclear weapons are the most immediate threat to humanity, but they are not the only technology that could play and is playing havoc with the future of life. The scale of our technological impact on the environment (primarily fossil-fuel extraction and use) is also resulting in global warming and climate chaos, with predicted rises in ocean levels and many other threats – ocean acidification, extreme weather, climate refugees, and strife from drought – that will cause massive death and displacement of human and animal populations. In addition to the

technological threats to the human future, many people on the planet now suffer from hunger, disease, lack of shelter, and lack of education.... It is immoral to spend our resources on modernizing weapons of mass annihilation while large numbers of people continue to suffer from the ravages of poverty.

While ridding the world of nuclear weaponry is our primary goal, we are mindful that the institution of war is responsible for chaos and massive casualties, and that we must also challenge the militarist mentality if we are ever to enjoy enduring peace and security on our planet.

Doing all we can to move the world to Nuclear Zero, while remaining responsive to other pressing dangers, is our best chance to ensure a benevolent future for our species and its natural surroundings. We can start by changing apathy to empathy, conformity to critical thinking, ignorance to wisdom, denial to recognition, and thought to action in responding to the threats posed by nuclear weapons and the technologies associated with global warming, as well as to the need to address present human suffering arising from war and poverty. The richer countries are challenged by migrant flows of millions of desperate people and by the realization that as many as a billion people on the planet are chronically hungry and another 2 billion are malnourished, resulting in widespread growth-stunting among children and other maladies. While ridding the world of nuclear weaponry is our primary goal, we are mindful that the institution of war is responsible for chaos and massive casualties, and that we must also challenge the militarist mentality if we are ever to enjoy enduring peace and security on our planet.

The fate of our species is now being tested as never before. The question before us is whether humankind has the foresight and discipline necessary to forgo some superfluous desires, mainly curtailing propensities for material luxuries and for domination of our fellow beings, thereby enabling all of us and succeeding generations to live lives worth living. Whether our species will rise to this challenge is uncertain, with current evidence not reassuring. The time is short, and what is at risk is civilization and every small and great thing that each of us loves and treasures on our planet.

Source: http://www.thenation.com, 14 January 2016.

OPINION – Jang Sung-min

Applying Israel Rule to North Korea Nuclear Program

The positions on North Korea's hydrogen bomb test vary among members of the six-party talks. But all they have in common is they have kept a passive response to the test and misunderstood the nature of the North Korean regime. They set their own positions on the danger of the North Korea's nuclear test in terms of national interest and strategy. Therefore, each country adjusts the level of sanctions against the North based solely on a diplomatic and military standpoint.

The Obama administration has kept "strategic patience" on the North Korea's nuclear issue. It refers to a policy of "waiting in patience" until the North gives up its nuclear development and returns to the negotiating table by itself. As a result, the Obama administration has failed to present any direct and active solutions to resolve the North's nuclear problem for the last four years. The US has tried neither an aggressive contact, nor a strategic negotiation. This policy can be called as "strategic neglect.

Although the North is upgrading its nuclear technology day by day, neighboring countries including the ROK have not changed their passive and defensive position acting just like a bystander. The Obama administration has kept "strategic patience" on the North Korea's nuclear issue. It refers to a policy of "waiting in patience" until the North gives up its nuclear development and returns to the negotiating

table by itself. As a result, the Obama administration has failed to present any direct and active solutions to resolve the North's nuclear problem for the last four years. The US has tried neither an aggressive contact, nor a strategic negotiation. This policy can be called as "strategic neglect." President Obama's "strategic neglect" was also kept in his final State of the Union address. He did not mention any single word regarding the North Korea's nuclear program. Keeping "strategic neglect," Obama showed that his administration would not be entangled with the North's strategy that attracts the attention of the US However, it's hard to deny that the Obama administration's passive policy on the North caused the development of the nuclear technology up to the level of hydrogen bomb. It would be recorded as a failure of Obama's policy on North Korea.

China and North Korea maintain an alliance "forged in blood." China can hardly discard the North in view of geopolitics. China also does not have any effective tools or policies to force the North to abandon its nuclear development. Though having enough leverage on North Korea, China has refrained from exerting its leverage on North Korea. Why? The answer is simple. That is because China has a fear that the growing uncertainty and instability of the periphery due to the collapse of the North could endanger the mainland. So, China thinks that keeping the North Korean regime with nuclear weapons stable would be much better for their national interest than the chaos caused by regime collapse. China has a view that mass confusion in North Korea would cause a chaotic situation in China. And, it believes a threat of regime collapse is a much more fearful nightmare for them than the nuclear threat. Therefore, though consistently asserting denuclearization on the Korean peninsula, China has always kept a position that this should be done in a peaceful manner. But, the North Korea's recent hydrogen bomb test showed that China's denuclearization policy has also failed.

Though having enough leverage on North Korea, China has refrained from exerting its leverage on North Korea. Why? The answer is simple. That is because China has a fear that the growing uncertainty and instability of the periphery due to the collapse of the North could endanger the mainland. So, China thinks that keeping the North Korean regime with nuclear weapons stable would be much better for their national interest than the chaos caused by regime collapse.

Let's turn the eyes to Russia, another military power that shares a border with the North Korea. Russia has been under a strong economic embargo from the US and international society since they occupied Ukraine and the Crimean Peninsula. The North and Russia may be in the same situation in that both are suffering from international sanctions. It appears that Russia does not consider the North's nuclear development as a big threat. So, like China, it did not present a policy or strategy to resolve the North's nuclear problems to speak of. Moreover, Russia, like China, has a certain sense of kinship with North Korea as former socialist countries. That's why Russia seems to believe that they would not be a target of the North's nuclear weapons. But, Pyongyang's counterparts overlooked that their misjudgment made a "historic mistake" that allowed the North to be a nuclear power. They not only underestimate the nuclear threat of the North, but misjudge the nature of the North Korean regime. In this respect, the US is not an exception.

The US believes that it is not possible that long-range nuclear missiles can strike the US mainland unless the North succeeds in nuclear arms miniaturization. So, the US also underestimates the North's nuclear threat and misjudges the nature of the North Korean regime. The first target of the North's nuclear attack would be the ROK and the next would be Japan. But, in an excessive reliance on their strong ally, the US, both countries do not realize the seriousness of the nuclear threat and seem to dump this problem on the US Pyongyang's counterparts, including the ROK, need to realize that their passive policy on North Korea overlooked the seriousness of the nuclear

threat and misjudges the intention of the North.

The current world system is disintegrated post-Cold War system and is dominated by terrorism and counter-terrorism. The more isolated and the poorer the North Korea, the more radical and hostile the North's regime becomes. Their nuclear weapons could have smaller and lighter warheads and you can never tell when they could be portable. That's why we should not remain a mere onlooker. Once succeeding in getting smaller and lighter warheads, the North could transfer them to terrorist groups. Pyongyang's counterparts and international society should take this point seriously. Now, the US is fighting with the Taliban, Al-Qaeda and the IS. The US ought not to ignore or neglect the seriousness and danger of these terrorists can obtain the nuclear weapons from the North. China also should not ignore the possibility that the North's nuclear weapons could fall into the hands of partitionists in Tibet and Xinjiang Uyghur. Russia ought not to overlook the transfer of the North Korea's nuclear weapons to Chechen rebels as well.

The US ought not to ignore or neglect the seriousness and danger of these terrorists can obtain the nuclear weapons from the North. China also should not ignore the possibility that the North's nuclear weapons could fall into the hands of partitionists in Tibet and Xinjiang Uyghur. Russia ought not to overlook the transfer of the North Korea's nuclear weapons to Chechen rebels as well.

On 6 January, the Korean Central News Agency announced an official statement about a hydrogen bomb test and it included the following part: "The DPRK, a responsible nuclear-weapons state, will neither be the first to use nuclear weapons nor transfer relevant means and technology under any circumstances as already declared, as long as the hostile forces for aggression do not encroach upon our sovereignty." However, international society has to realize that the North's claims are not true. It is based on the following historical experience. Israel struck a nuclear facility at al-Kibar in Syria on 6 September, 2007. Then, Israel announced that "they found the nuclear reactor was built with support of North Korean technicians and the building cost of ten to twenty billion dollars was provided solely by Iran. AFP reported that a foreign ministry statement of Israel, the Middle East's sole but undeclared nuclear power, said "Israel condemns North Korea's nuclear test and a clear message must be sent (to North Korea) that such activities are unacceptable and cannot be tolerated." Israel's strong denunciation is based on past experience that North Korea had technological cooperation with Muslim countries that are seeking to develop nuclear weapons in order to overthrow Israel, such as Iran, Syria and Iraq.

The ROK government needs to assert the hold of the five-party talks – except North Korea – to urge the members not to misjudge the seriousness of the North's nuclear weapons in an age of terrorism, and set out an agreement for the abandonment of the nuclear program. A part of the agreement needs to be a diplomatic and peaceful proposal based on the "9.19 Joint Statement" and the other needs to include a way to enforce the North to give up their nuclear program. So, ROK government could usher in a peaceful time in the world and Northeast Asia. In this respect, the ROK government should take the initiative in inter-Korean relations by setting an order of priority in its foreign and security policy, and explore a new age on the Korean peninsula to open a period of denuclearization. Only then, will a gate for a unified and strong Korea be open.

Source: http://www.koreatimes.co.kr, 19 January 2016.

OPINION – Lawrence Wittner

'Modernizing' the Opportunities for Nuclear War

A fight now underway over newly-designed US nuclear weapons highlights how far the Obama administration has strayed from its commitment to build a nuclear-free world. The fight, as a recent *New York Times* article indicates, concerns a variety of nuclear weapons that the US military

is currently in the process of developing or, as the administration likes to say, "modernizing." Last year, the Pentagon flight-tested a mock version of the most advanced among them, the B61 Model 12. This redesigned nuclear weapon is the country's first precision-guided atomic bomb, with a computer brain and maneuverable fins that enable it to more accurately target sites for destruction. It also has a "dial-a-yield" feature that allows its handlers to adjust the level of its explosive power.

Supporters of this revamped weapon of mass destruction argue that, by ensuring greater precision in bombing "enemy" targets, reducing the yield of a nuclear blast, and making a nuclear attack more "thinkable," the B61 Model 12 is actually a more humanitarian and credible weapon than older, bigger versions. Arguing that this device would reduce risks for civilians near foreign military targets, James Miller, who developed the nuclear weapons modernization plan while undersecretary of defense, stated in a recent interview that "minimizing civilian casualties if deterrence fails is both a more credible and a more ethical approach." Other specialists were far more critical. The Federation of Atomic Scientists pointed out that the high accuracy of the weapon and its lower settings for destructiveness might tempt military commanders to call for its use in a future conflict.

James Miller, who developed the nuclear weapons modernization plan while undersecretary of defense, stated in a recent interview that "minimizing civilian casualties if deterrence fails is both a more credible and a more ethical approach." The Federation of Atomic Scientists pointed out that the high accuracy of the weapon and its lower settings for destructiveness might tempt military commanders to call for its use in a future conflict.

General James E. Cartright, a former head of the US Strategic Command and a retired vice chair of the Joint Chiefs of Staff, conceded that possessing a smaller nuclear device did make its employment "more thinkable." But he supported developing the weapon because of its presumed ability to enhance nuclear deterrence. Using a gun as a metaphor, he stated: "It makes the trigger easier to pull but makes the need to pull the trigger less likely." Another weapon undergoing US government "modernization" is the cruise missile. Designed for launching by US bombers, the weapon—charged William Perry, a former secretary of defense—raised the possibilities of a "limited nuclear war." Furthermore, because cruise missiles can be produced in nuclear and non-nuclear versions, an enemy under attack, uncertain which was being used, might choose to retaliate with nuclear weapons.

Overall, the Obama administration's nuclear "modernization" program – including not only redesigned nuclear weapons, but new nuclear bombers, submarines, land-based missiles, weapons labs, and production plants – is estimated to cost as much as $1 trillion over the next thirty years. Andrew C. Weber, a former assistant secretary of defense and former director of the interagency body that oversees America's nuclear arsenal, has criticized it as "unaffordable and unneeded." After all, the US government already has an estimated 7,200 nuclear weapons. The nuclear weapons modernization program is particularly startling when set against President Obama's April 2009 pledge to build a nuclear weapons-free world. Although this public commitment played a large part in his receipt of the Nobel Peace Prize that year, in succeeding years the administration's action on this front declined precipitously. It did manage to secure a strategic arms reduction treaty (New START) with Russia in 2010 and issue a pledge that same year that the US government would "not develop new nuclear warheads." But, despite promises to bring the 1996 CTBT to the Senate for ratification and to secure further nuclear arms agreements with Russia, nuclear disarmament efforts ground to a halt. Instead, plans for "nuclear modernization" began. The president's 2016 State of the Union address contained not a word about nuclear disarmament, much less a nuclear weapons-free world.

***What Happened?**: Two formidable obstacles derailed the administration's nuclear disarmament policy. At home, powerful forces moved decisively to perpetuate the US nuclear weapons program: military contractors, the weapons labs, top military officers, and, especially, the Republican Party. Republican support for disarmament treaties was crucial, for a two-thirds vote of the US Senate was required to ratify them. Thus, when the Republicans abandoned the nuclear arms control and disarmament approach of past GOP presidents and ferociously attacked the Obama administration for "weakness" or worse, the administration beat an ignominious retreat. To attract the backing of Republicans for the New START Treaty, it promised an upgraded US nuclear weapons program. Russia's lack of interest in further nuclear disarmament agreements with the United States provided another key obstacle. With 93 percent of the world's nuclear weapons in the arsenals of these two nations, a significant reduction in nuclear weapons hinged on Russia's support for it. But, angered by the sharp decline of its power in world affairs, including NATO's advance to its borders, the Russian government engaged in its own nuclear build up and spurned US disarmament proposals.

The Obama administration could renew the nuclear disarmament process. Developing better relations with Russia, for example by scrapping NATO's provocative expansion plan, could smooth the path toward a Russian-American nuclear disarmament agreement. And this, in turn, would soften the objections of the lesser nuclear powers to reducing their own nuclear arsenals.

Despite these roadblocks, the Obama administration could renew the nuclear disarmament process. Developing better relations with Russia, for example by scrapping NATO's provocative expansion plan, could smooth the path toward a Russian-American nuclear disarmament agreement. And this, in turn, would soften the objections of the lesser nuclear powers to reducing their own nuclear arsenals. If Republican opposition threatened ratification of a disarmament treaty, it could be bypassed through an informal US-Russian agreement for parallel weapons reductions. Moreover, even without a bilateral agreement, the US government could simply scrap large portions of its nuclear arsenal, as well as plans for modernization. Does a country really need thousands of nuclear weapons to deter a nuclear attack? Britain possesses only 215. And the vast majority of the world's nations don't possess any. Given the terrible dangers and costs posed by nuclear weapons, isn't it time to get back on the disarmament track?

Source: http://www.huffingtonpost.com/, 18 January 2016.

OPINION – The Economist

The Nuclear Deal with Iran: The End of the Beginning

According to America's secretary of state, John Kerry, "Implementation Day" for the Iran nuclear accord could be just "days away if all goes well". He was not expecting two US Navy patrol boats and their crews to be seized by Iranian Revolutionary Guards on January 12th after unintentionally entering Iranian waters near an island naval base. But with both sides determined to smooth things over, the boats and the sailors were released the following day. As long as there are no new shocks, the big day looks set to be announced in the next few days—sooner than was expected when the deal was struck last July. Iran will be judged to have complied with all its obligations in dismantling those parts of its nuclear programme which offered a path to building a bomb. In return the UN, America and the EU will drop or suspend all their nuclear-related sanctions. At the same time, Iran will apply the Additional Protocol of its safeguards agreement (subject to ratification by its parliament, the Majlis) with the IAEA, a measure which gives the agency's inspectors access to materials and sites beyond declared nuclear facilities.

Iran is very near to completing the removal of some 14,000 uranium-enrichment centrifuges. The core

of the Arak heavy-water reactor, which had the potential to produce plutonium, was reportedly taken out on 11 January and is being filled with cement. Most of Iran's stockpile of low-enriched uranium was sent to Russia and Kazakhstan in late December. Nuclear proliferation experts are amazed at the speed with which Iran has acted. Iran's foreign minister, Mohammad Javad Zarif, and the head of its Atomic Energy Organisation, Ali Akbar Salehi, have appeared determined to navigate all obstacles, even supposed red lines drawn by the supreme leader, Ayatollah Ali Khamenei, to get the job done. A priority for them was to get the sanctions lifted before Majlis elections on 26 February. After more than two years in office, President Hassan Rohani will cite the achievement as evidence that his policy of engagement with the West has worked, ending a crisis that had left Iran's economy in ruins. He will urge voters to back moderate candidates who support him and to weaken hard line factions that were opposed to the negotiations.

Iran is very near to completing the removal of some 14,000 uranium-enrichment centrifuges. The core of the Arak heavy-water reactor, which had the potential to produce plutonium, was reportedly taken out on 11 January and is being filled with cement. Most of Iran's stockpile of low-enriched uranium was sent to Russia and Kazakhstan in late December.

Yet there are still important players in the regime, such as the Revolutionary Guards, who remain hostile to the deal and are prepared to test the West's commitment to it. The IAEA received minimal co-operation in preparing its report, published in early December, on the possible military dimensions of Iran's nuclear programme. It concluded that Iran had a parallel clandestine weapons programme until 2003 and that some aspects of it continued until 2009. But there was no admission of this by Iran and no access to the scientists the agency wanted to talk to. It was also unable to carry out verification procedures at the Parchin military complex, where it believes there was an explosives chamber.

Western diplomats decided that Iran's obfuscations were predictable and it was time to move on. That raises questions about how much Iran may get away with in the future. Gary Samore, a former White House arms-control adviser now at Harvard, says that the Iranians' caginess about their past nuclear weapons-dabbling was a reminder that the deal was not a "strategic solution to the nuclear problem but something purely transactional". The response to an Iranian test of a nuclear-capable ballistic missile in October that violated a UN Security Council resolution was also less than resolute. Mr Samore says that it was clearly intended by the Guards to provoke a reaction from America that would give Iranian critics of the deal the chance to stall or kill it. Persuaded by Mr Kerry, who had his ear bent by Mr Zarif, not to rise to the bait, Barack Obama flip-flopped over slapping on new sanctions, first indicating he would, but then withdrawing the threat.

As for the prospects of the deal holding, Mr Samore thinks the Iranians have an incentive to co-operate for the time being, as they will benefit by up to $100 billion from the unfreezing of assets. But if other benefits, such as increased oil revenues, are slow to come, this might not last. A more immediate threat will come from whoever is the next American president. A Republican could choose to sabotage the deal with new sanctions, while even Hillary Clinton, says Mr Samore, will need to show there is a new sheriff in town if Iran's behaviour in non-nuclear areas (missile tests, the unjustified imprisonment of American citizens, support for the Syrian regime and abuse of human rights) does not change. Getting to Implementation Day has been surprisingly smooth. What comes after will be a lot harder

Source: http://www.economist.com/, 16 January 2016.

BALLISTIC MISSILE DEFENCE

IRAN

Ballistic Missiles are 'Legitimate' for Defense: Iran's Zarif

Iran's foreign minister on 20 January decried new US sanctions over Iran's ballistic missile testing, calling them an example of an American "addiction to coercion." Speaking to The Associated Press, Mohammad Javad Zarif called

the ballistic program legitimate self-defense and said the prospect of restoring bilateral diplomatic relations is "far away" despite the recent landmark nuclear deal. He spoke at the World Economic Forum in Davos before taking part in a debate focusing on the Islamic republic. The United States on 17 January imposed sanctions against 11 individuals and entities involved in Iran's ballistic missile program as a result of Tehran's firing of a medium-range ballistic missile, a new punishment one day after the Obama administration lifted economic penalties against Iran over its nuclear program. "We believe these sanctions are uncalled for. We believe the sanctions are illegal. They violate basic principles. The Iranian missile program is a legitimate defense program" and allowed under the landmark nuclear deal, he said. "It shows that the United States has an addiction which has been very difficult for it to overcome," Zarif said, specifying, "Its addiction to pressure, addiction to coercion, addiction to sanctions." Asked about conservative voices within Iran, he said: "Iran is not a monolith, I think Americans would recognize that ... just like the United States is not. So you have a difference of views among various political actors, among various parts of the population." Despite lingering tensions between Iran and the United States despite the nuclear deal, he said, "the United States can take steps to overcome this mistrust," he said, such as through implementation of the nuclear agreement. ...

The United States on 17 January imposed sanctions against 11 individuals and entities involved in Iran's ballistic missile program as a result of Tehran's firing of a medium-range ballistic missile, a new punishment one day after the Obama administration lifted economic penalties against Iran over its nuclear program.

Source: http://www.nbcnews.com, 20 January 2016.

USA

Defense Department Seeks to Bring Back Anti-Ballistic Missile Lasers on Drones

The Missile Defense Agency is giving a second look at the idea of airborne lasers as a defense against ballistic missiles. But this time, instead of using giant chemical lasers carried by enormous crewed aircraft, the MDA is hoping that solid-state lasers will soon be up to the job—and that they will be able to be carried by drones

Over a decade ago, the US Air Force mounted a megawatt laser on a 747 as part of an effort to develop a flying weapon to shoot down ballistic missiles as they launch. The Airborne Laser Laboratory (ABL) had several successful tests, but then-Secretary of Defense Robert Gates cancelled the program in 2011 because of both its expense and impracticality. "The reality is that you would need a laser something like 20 to 30 times more powerful than the chemical laser in the plane right now to be able to get any distance from the launch site to fire," Gates said in a House Appropriations committee hearing in 2009. To shoot down an Iranian ballistic missile, he argued, "the ABL would have to orbit inside the borders of Iran in order to be able to try and use its laser to shoot down that missile in the boost phase. And if you were to operationalize, this you would be looking at 10 to 20 747s, at a billion and a half dollars apiece, and $100 million a year to operate. And there's nobody in uniform that I know who believes that this is a workable concept."

Over a decade ago, the US Air Force mounted a megawatt laser on a 747 as part of an effort to develop a flying weapon to shoot down ballistic missiles as they launch. The Airborne Laser Laboratory (ABL) had several successful tests, but then-Secretary of Defense Robert Gates cancelled the program in 2011 because of both its expense and impracticality.

But now MDA Director Vice Admiral James Syring is convinced that laser technology has improved enough to be up to the challenge—particularly if it's mounted on something a lot cheaper to fly than a 747. On 19 January, Defense One reports, Syring said at an event at the Center of Strategic and International Studies, "We have significantly ramped up our program in terms of investment and talking about more of what else needs to be done to mature this capability." Syring said that MDA's plan is to see how much more reliable and capable laser technology gets over the next three years and then

build a long-range, high-altitude drone around a laser weapon. The drones, conceivably using stealth technology, would be able to stay on watch for long periods of time without being detected and at altitudes that stay out of range of air defences.

Source: http://arstechnica.com/, 21 January 2016.

US Navy's Plans for a Huge Ballistic Missile Defense Ship

The US Navy has been in discussions with shipbuilder Huntington Ingalls about the possibility of building a missile defense variant of the San Antonio-class amphibious transport dock (LPD-17). The new vessel could eventually be equipped with new radars, rail guns and lasers. The massive 25,000-ton troop carrier has the size and weight margins for the mission, according to industry officials. "You can put a lot of additional weight on the ship and you can put ... some modern technologies like ballistic missile defense radars that are very heavy," Huntington Ingalls vice president Brian Cuccias told reporters at the Surface Navy Association symposium.

The US Navy has been in discussions with shipbuilder Huntington Ingalls about the possibility of building a missile defense variant of the San Antonio-class amphibious transport dock (LPD-17). The new vessel could eventually be equipped with new radars, rail guns and lasers. The massive 25,000-ton troop carrier has the size and weight margins for the mission, according to industry officials.

Deleting the ship's well deck would greatly add to the vessel's weight and stability margins. That, in turn, would allow the LPD-17 hull form to accommodate the enormous weight of a next generation ballistic missile defense radar—which are usually very large and extremely heavy. In fact, the LPD-17 hull form would allow designers to mount the radar high on the vessel's superstructure to give it the widest possible field of regard. ... Indeed, the Missile Defense Advocacy Alliance suggests that a dedicated ballistic missile defense version of the LPD-17 could feature a 30-35 foot, multi-faced, S-band radar. Such a radar would provide much greater coverage than either the current SPY-1 radars found on current Aegis warships or the next generation Advanced Missile Defense Radar (AMDR) planned for DDG-51 Flight III destroyers.

Closing the well deck would also afford the service the space onboard to host high-powered laser weapons and electromagnetic rail guns as those advanced systems become available over the next decade or two. It would also free up space to host many more missile tubes than would be possible on a destroyer or cruiser. Estimates vary as to how many more exactly, but some sources suggest that an LPD hull might be able double the missile capacity of an Aegis cruiser. However, while the space and weight margins would be available, Huntington Ingalls and the Navy would have to figure out a way to generate enough power and cooling for such a large radar and the other directed energy weapons the sea service hopes to add to the ship. ... While this is the first time that industry officials have confirmed that they have discussed building a ballistic missile defense ship out of the LPD-17 hull form, the idea is not new. Nonetheless, Huntington Ingalls is skittish about the details of its discussions with the Navy.

Source: http://www.nationalinterest.org, 15 January 2016.

TURKEY

Turkey Eyes Offensive Missiles to Boost Deterrence

It is puzzling from a NATO perspective that this ally wants to develop offensive missile capabilities," said one NATO ambassador in Ankara. "Turkey is part of the security umbrella. We are not sure if any Turkish effort for offensive missiles makes strategic sense...despite [Turkey's] legitimate perceptions of increased military threat in its region.

Turkey feels increasingly isolated and threatened by a multitude of conventional armies and wants to be more deterrent. But diplomats and analysts greet its ambitious to develop offensive missile systems with caution. "It is puzzling from a NATO perspective that this ally wants to develop offensive

missile capabilities," said one NATO ambassador in Ankara. "Turkey is part of the security umbrella. We are not sure if any Turkish effort for offensive missiles makes strategic sense...despite [Turkey's] legitimate perceptions of increased military threat in its region."

More recently, Russia, which backs Assad along with Iran and the Iraqi government, has vowed to punish Turkey "beyond commercial sanctions" after two Turkish F-16 aircraft shot down Nov. 24 a Russian Su-24 citing violation of its airspace along its border with Syria.

Pro-Sunni Turkey lately has faced increased sectarian tensions with Shiite and Shiite-dominated governments in Iran and Iraq due to its support for the Sunni opposition fighting the Syrian regime of President Bashar al-Assad. Turkey has fought to oust Assad and supported "mildly" Islamist Sunni forces, its allies, to replace him. That goal has put Turkey into major disputes with all of its southern and eastern neighbors, Syria, Iraq and Iran. More recently, Russia, which backs Assad along with Iran and the Iraqi government, has vowed to punish Turkey "beyond commercial sanctions" after two Turkish F-16 aircraft shot down Nov. 24 a Russian Su-24 citing violation of its airspace along its border with Syria. In a briefing to parliament's defense committee on 7 January, Turkey's top procurement official, Ismail Demir, advocated offensive missiles. "It is difficult for a country to be deterrent with defensive missiles only ... . This is why offensive [missile] systems too should be developed," Demir said. A senior procurement official confirmed Turkey's intentions to build offensive missile systems. ... He admitted that in any such program's initial stages Turkey would need foreign know-how. He did not name any particular country that may be willing to assist any Turkish program, but he did not reject the "Chinese option." "The idea is to make the system indigenous over years as it progresses," he said.

In November Turkey scrapped a $3.44 billion contract for which it in 2013 selected China Precision Machinery Import-Export Corp. (CPMIEC) for the construction of the country's first long-range air and anti-missile defense system. Ankara said two local state-controlled defense companies, Aselsan and Roketsan, would instead develop a "national" system. An EU ambassador in Ankara said the Turkish move for an offensive system was confusing. "Such ambitions can fuel sectarian tensions in the region. A missile rivalry between a NATO member and Iran does not sound pleasant in any way," he said. In recent years Iran has announced several missile programs. Experts, too, remain skeptical about Turkish ambitions. ...

Source: http://www.defensenews.com, 16 January 2016.

NUCLEAR STRATEGY

PAKISTAN

Around 130 Pakistan Nuclear Warheads Aimed at Deterring India: US Report

Pakistan's nuclear warheads which are estimated to be between 110-130 are aimed at deterring India from taking military action against it, a latest Congressional report has said. The report also expressed concern that Islamabad's "full spectrum deterrence" doctrine has increased risk of nuclear conflict between the two South Asian neighbours.

Pakistan's nuclear arsenal probably consists of approximately 110-130 nuclear warheads, although it could have more. Islamabad is producing fissile material, adding to related production facilities, deploying additional nuclear weapons, and new types of delivery vehicles.

"Pakistan's nuclear arsenal probably consists of approximately 110-130 nuclear warheads, although it could have more. Islamabad is producing fissile material, adding to related production facilities, deploying additional nuclear weapons, and new types of delivery vehicles," CRS said in its latest report. In its 28-page report, the CRS noted that Pakistan's nuclear arsenal is widely regarded as designed to dissuade India from taking military action against it, but Islamabad's expansion of its nuclear arsenal, development of

new types of nuclear weapons and adoption of a doctrine called "full spectrum deterrence" have led some observers to express concern about an increased risk of nuclear conflict between Pakistan and India, which also continues to expand its nuclear arsenal.

CRS is the independent research wing of the US Congress, which prepares periodic reports by eminent experts on a wide range of issues so as to help lawmakers take informed decisions. Reports of CRS are not considered as an official view of the US Congress.

Moreover, Pakistani and US officials argue that, since the 2004 revelations about a procurement network run by former Pakistani nuclear official A Q Khan, Islamabad has taken a number of steps to improve its nuclear security and to prevent further proliferation of nuclear-related technologies and materials, it said. A number of important initiatives, such as strengthened export control laws, improved personnel security, and international nuclear security cooperation programmes, have improved Pakistan's nuclear security, the CRS said. "However, instability in Pakistan has called the extent and durability of these reforms into question. Some observers fear radical takeover of the Pakistani government or diversion of material or technology by personnel within Pakistan's nuclear complex," the CRS said.

Source: http://www.newindianexpress.com, 21 January 2016.

It is important to protect fissile material from extremists in Pakistan more than nuclear bombs because the latter has multi-layer security unlike the former, a senior Pakistani nuclear expert today opined. Speaking about the threat of extremists to nuclear warheads in Pakistan, Hoodbhoy said, "Even if Taliban or other extremists organisations can get the weapons, which is not impossible, the nuclear weapons have several locks and passwords.

NUCLEAR SECURITY

PAKISTAN

Need to Protect Fissile Material from Extremists: Pak Nuke Expert

It is important to protect fissile material from extremists in Pakistan more than nuclear bombs because the latter has multi-layer security unlike the former, a senior Pakistani nuclear expert today opined. Pervez Hoodbhoy said there was no need of India and Pakistan to test the nuclear bomb in 1998 as both knew the capacity of the atomic weapon they possessed.

Speaking about the threat of extremists to nuclear warheads in Pakistan, Hoodbhoy said, "Even if Taliban or other extremists organisations can get the weapons, which is not impossible, the nuclear weapons have several locks and passwords. I hope Pakistani weapons too have the PALs to ensure the security of weapons. "But it is the fissile material which should be protected.

However, to make a bomb out of it one requires 80-90 kgs of enriched uranium. Even in this case, it will be very primitive," he said. ...Noting that testing of atomic bomb by any nation is for sending "political messages", he said it could have been avoided. "India could have avoided testing the (nuclear) bomb. Pakistan too could have avoided not responding to it. It is fairly simple matter to understand the magnitude. The amount of material and purity of material and the core of the uranium bomb. Any PhD Student would have estimated the yield of the bomb.

Testing of fission bombs is done for sending a political message.... The way North Korea does by testing fission bombs," he said. India and Pakistan both being nuclear weapon states affects the security atmosphere in the region, owing to the uneasy relations between the two.

"Testing of fission bombs is done for sending a political message.... The way North Korea does by testing fission bombs," he said. India and Pakistan both being nuclear weapon states affects the security atmosphere in the region, owing to the uneasy relations between the two. Hoodbhoy said Pakistan's nuclear doctrine is to counter India's nuclear weapons. Commenting on the current state of Indo-Pak relations, Hoodbhoy said both nations have shown "maturity" after the

Pathankot attacks. "Unlike 26/11 Mumbai attacks in 2008, it is a good thing that when India pointed out that these attackers were from Pakistan, it did not deny that. Otherwise it would have been disgraceful," he said. The scientist, however, noted that a lot needs to be done and "not enough action" is being taken against outfits like Jaish-e-Mohammed and LeT and finances to these organisations are still not being tracked.

He said with Gen Raheel Sharif, the chief of Pakistan Army, at the helm, there has been decisive action against terrorists.

Source: http://www.outlookindia.com/, 16 January 2016.

NUCLEAR NON-PROLIFERATION

BARBADOS

Barbados Accepted into IAEA

As Barbados works to ensure that its radiological sources are secure and safe, Minister of Health John Boyce announced that the country's application for membership to the IAEA has been accepted. He was speaking at a course on Physical Protection and Security Management organised by the Office of Radiological Security in the United States Department of Energy. The course, which is taking place at the Radisson Aquatica Resort, has attracted participants from Barbados, Dominica, Curacao, Jamaica and Trinidad. Boyce noted that each of the countries represented, as small island developing states, had unique challenges and a common vulnerability to physical and financial threats, due to their relatively small size and economic realities. ... He therefore stressed the importance of having appropriate high quality mechanisms for ensuring that radiological sources were managed and protected. Boyce expressed gratitude to the various agencies which have helped Barbados to assess and develop its capacity to deal with complex issues of international importance in the area of management of radiological materials.

The Health Minister stated that in January last year, personnel from the Pacific Northwest National Laboratory, which also falls under the US Department of Energy, visited the Clara Brathwaite Centre for Oncology and Nuclear Medicine at the Queen Elizabeth Hospital to assess the security of the Cobalt-60 teletherapy source, as well as the room designated for the new brachytherapy unit. He revealed that a range of security measures were recommended and the work being carried out by a local contractor was nearing completion. Some of the features include the installation of security doors to each room, secure external doors and security monitoring systems. He explained that as the 167th member state of the IAEA, Barbados will now be involved in protocols which would see safeguards being put in place to verify that nuclear material in Barbados was not diverted from peaceful purposes. "An Additional Protocol has been developed, significantly increasing the IAEA's ability to verify, not only that there is no diversion of declared nuclear material, but also that there are no undeclared nuclear material or activities. The conclusion of an Additional Protocol by Barbados would play an important part in helping the IAEA safeguards to be put in place," the Minister said. (BGIS)

Source: http://www.nationnews.com, 19 January 2016.

GENERAL

17 States Meet in Tokyo to Prevent Nuclear Proliferation in Wake of North Korean Test

Senior officials from Japan, the United States, Canada and 14 other Asia-Pacific nations discussed on 20 January in Tokyo, measures to prevent the proliferation of nuclear weapons in the wake of North Korea's recent nuclear test, Japan's Foreign Ministry said. In the meeting, officials in charge of non proliferation policy from the 17 countries focused on ways to stop the entry of nuclear-related materials and technologies into North Korea through concerted international efforts, it said.

"There remains a grave, outstanding challenge in the region – it is North Korea's nuclear issue," said Kazutoshi Aikawa, director general of the Disarmament, Non-Proliferation and Science

Department at the Japanese Foreign Ministry, at the outset of the meeting, which was open to the media. "North Korea's issue is the issue that the international community, particularly countries in this region, needs to tackle and take united and immediate action on," said Aikawa, who chaired the meeting. "So the international community must further its global and regional cooperation in a comprehensive manner."

The meeting, the 12th of its kind, included around 40 officials from China, Pyongyang's longtime benefactor, the 10 countries of the Association of Southeast Asian Nations, South Korea and countries interested in the security of the Asian region, namely Australia, Canada, New Zealand and the United States, the ministry said. Japan hopes to develop human resources and provide expertise in the areas of cargo inspections and customs controls to Asian countries amid concerns materials related to nuclear weapons development are slipping through to Pyongyang, a government official said. The talks, launched in November 2003, serve to complement the US-led Proliferation Security Initiative aimed at stopping the trafficking of weapons of mass destruction and their means of delivery.

North Korea's issue is the issue that the international community, particularly countries in this region, needs to tackle and take united and immediate action on," said Aikawa, who chaired the meeting. "So the international community must further its global and regional cooperation in a comprehensive manner.

Source: http://www.japantimes.co.jp/, 20 January 2016.

NUCLEAR ENERGY

CHINA

China Plans a Floating Nuclear Power Plant

China is working on a floating nuclear power plant that could sail to specific sites and anchor offshore to produce power for various needs. China General Nuclear expects to complete construction of this small modular offshore multi-purpose reactor by 2020, and demonstrate its utility for a variety of purposes. Construction of the first floating reactor is expected to start next year with electricity generation to begin in 2020. China General Nuclear's ACPR50S reactor design was approved by China's National Development and Reform Commission. This new type of power plant is part of China's strategy to develop innovative energy technologies, and is outlined in their 13th Five-Year Plan. Also included in that Plan are more than 100 nuclear power reactors over the next decade.

China General Nuclear's ACPR50S reactor design was approved by China's National Development and Reform Commission. This new type of power plant is part of China's strategy to develop innovative energy technologies, and is outlined in their 13th Five-Year Plan. Also included in that Plan are more than 100 nuclear power reactors over the next decade.

The Chinese government plans to invest over US$100 billion to construct about seven new reactors annually between now and 2030. By 2050, nuclear power should exceed 350 GW in that country, should include about 400 new nuclear reactors, and should result in over a trillion dollars in nuclear investment. But unlike the United States, China is experimenting with many types of reactors, this floating design being just one. China's strategy to be the largest exporter of nuclear energy technology requires high levels of technological diversity so they can capture most of the nuclear market with reactors at all scales and of all types – small modular reactors, fast reactors, molten salt reactors, thorium reactors and large light water reactors.

The smallish 200 MW reactor for this floating plant has been developed to supply of electricity, heat and desalination, and can be used on islands or in coastal areas, to support offshore oil and gas exploration, to provide power for large special industrial parks needing lots of quick base load power, and to provide emergency power in case of a natural disaster. The

idea of floating small modular nuclear reactors is a good idea from more than one perspective. Being able to bring power to a site for specific purposes, then move on to another site, has logistical benefits. Construction in a factory or shipyard will result in significant efficiencies and cost-reductions. Decommissioning can take place at a special facility designed for that purpose, and only one such decommissioning facility would be needed.

Environmental impact is low. Seawater can be used for some of the cooling and shielding. Siting is simplified. Emergency evacuation plans are less onerous and don't need to be permanent. However, the offshore environment brings important considerations, such as access for personnel and equipment and the need to ensure radioactive materials never enter the sea, even though entering the sea is better than onto the land surface. The Chinese company said it is also working on the ACPR100 small reactor for use on land. This reactor will have an output of some 450 MW and would be suitable for providing power to large-scale industrial parks or to remote mountainous areas. China General Nuclear said the development of small-scale offshore and onshore nuclear power reactors will complement its large-scale plants and provide more diverse energy options. This is not the first floating nuclear reactor in history. Our own Navy has over a hundred nuclear-powered submarines and aircraft carriers with good-sized nuclear reactors, but they produce propulsion and on-board power, not electricity for use elsewhere.

Environmental impact is low. Seawater can be used for some of the cooling and shielding. Siting is simplified. Emergency evacuation plans are less onerous and don't need to be permanent. However, the offshore environment brings important considerations, such as access for personnel and equipment and the need to ensure radioactive materials never enter the sea, even though entering the sea is better than onto the land surface.

Importantly, the safety issues of a floating reactor have been dealt with extremely well over the last 60 years, by the United States, Russia and China in their military applications. America's Nuclear Navy has logged over 5,400 reactor years of accident-free operations and travelled over 130 million miles on nuclear energy, enough to circle the earth 3,200 times. The nuclear reactors can run for many, many years without refueling. They operate all over the world, sometimes in hostile environments, with no maintenance support except their own crew. These reactors can ramp up from zero to full power in minutes, as fast as any natural gas-fired power plant. The Chinese floating reactor will have a longer refueling schedule than most light water reactors, although not as long as military reactors.

Another floating nuclear power plant, the Akademik Lomonosov, is under construction in Russia. They are adapting and mounting two 35 MWe reactors used in their nuclear navy, on a barge to be moored in harbor. It should become operational in Chukotka for nuclear power plant operator Rosenergoatom sometime in 2017. These new applications for nuclear power are an necessary diversification that will continue in the coming decades, and that will compliment a diverse and sustainable global energy mix.

Source: http://www.forbes.com, 18 January 2016.

Another floating nuclear power plant, the Akademik Lomonosov, is under construction in Russia. They are adapting and mounting two 35 MWe reactors used in their nuclear navy, on a barge to be moored in harbor. It should become operational in Chukotka for nuclear power plant operator Rosenergoatom sometime in 2017.

Fuel Loading Completed at Hongyanhe 4

The loading all 157 fuel assemblies into the core of unit 4 of the Hongyanhe nuclear power plant in China's Liaoning province has been completed. The reactor is scheduled to start up early this year. China's National Nuclear Safety Administration issued a licence on 15 January for fuel to be loaded into the reactor. The process was completed at 11.55am on 18 January,

China General Nuclear (CGN) announced. Construction of Phase I of the Hongyanhe plant, comprising four CPR-1000 pressurized water reactors, began in August 2009. Units 1 and 2 have been in commercial operation since June 2013 and May 2014, respectively. Unit 3 entered commercial operation last August. Work on the nuclear island at Hongyanhe 4 officially began in August 2009. The dome of its reactor building was successfully lowered into place in September 2011. The unit is expected to achieve first criticality in the coming weeks.

Construction of Phase I of the Hongyanhe plant, comprising four CPR-1000 pressurized water reactors, began in August 2009. Units 1 and 2 have been in commercial operation since June 2013 and May 2014, respectively. Unit 3 entered commercial operation last August.

Construction of Phase II of the Hongyanhe plant - units 5 and 6 - started in March and July 2015, respectively. These units are scheduled to begin operating in 2019 and 2020. According to CGN, once all six units are in operation, the Hongyanhe plant will generate around 45 billion kWh of electricity annually, avoiding the need to burn some 15 million tonnes of coal for power generation and the resulting emissions of some 40 million tonnes of carbon dioxide. The Hongyanhe plant is owned and operated by Liaoning Hongyanhe Nuclear Power Co, a joint venture between CGN and China Power Investment Corp, each holding a 45% stake, with the Dalian Municipal Construction Investment Co holding the remaining 10%.

Source: http://www.world-nuclear-news.org/,20 January 2016.

INDIA

Westinghouse Eyes India Reactor Deal in Time for Possible Modi US Visit

Toshiba Corp's Westinghouse Electric hopes to clinch a deal to build six nuclear reactors in India by end-March, its CEO said, in time for a possible visit by Prime Minister Narendra Modi to Washington to attend a global nuclear summit. A Westinghouse team is already in India to negotiate the deal, Chief Executive Daniel Roderick told Reuters, but talks are likely to go down to the wire, as the crucial issue of nuclear liability insurance for suppliers remains unresolved.

The aim, however, was to make a "commercially significant announcement" during Modi's expected US visit in March and sign a final contract later in the year, Roderick said, narrowing the timeline on a deal that an Indian official had said would be disclosed by June. The contract would give a big boost to India's $150 billion nuclear power programme, and a broader push to curb greenhouse gas emissions. India has launched an insurance pool with a liability cap of 15 billion rupees ($222 million) to assuage suppliers' concerns, after a 2010 law gave the state-run operator NPCIL the right to seek damages from them in the event of an accident. Roderick said that while the concept gave Westinghouse confidence to go ahead with a potential deal, the company still needed details of how the liability scheme would work before it can agree on commercial terms. The NPCIL did not respond to requests for comment on the deal, which was put on the fast-track when President Barack Obama visited India in January last year.

The contract would give a big boost to India's $150 billion nuclear power programme, and a broader push to curb greenhouse gas emissions. ...India has launched an insurance pool with a liability cap of 15 billion rupees ($222 million) to assuage suppliers' concerns, after a 2010 law gave the state-run operator NPCIL the right to seek damages from them in the event of an accident.

Decade in the Making: The Westinghouse deal would be the first nuclear commercial power project since the United States and India first struck an agreement to cooperate in the civil nuclear arena a decade ago, and would underscore a growing strategic partnership between the world's two largest democracies. An Indian foreign ministry spokesman declined to comment on Modi's travel plans. A US diplomat, however, said the United States had invited Modi to the March 31-April 1 Nuclear Security Summit and that Washington was thinking of turning the trip into a full-fledged

official visit, which would give the Indian leader a similar reception as Chinese President Xi Jinping.

India has given two sites to US companies - Westinghouse and a nuclear venture between General Electric Co and Hitachi - to build six reactors each. In December, an Indian official told Reuters that GE had yet to decide on whether it would move ahead with the plan. Spokesman Christopher White said GE was still interested, but added that the March timeframe was "totally dependent on the finalization of the insurance plan". Roderick said that if the GE-Hitachi deal did not eventually go through, Westinghouse would rather the Indian government gave it the site than "Russia or somebody else". He said that while Modi's office was driving the deal, other government authorities also had to hasten the process. "It is just going to take everyone deciding to have this done by March," Roderick added.

The government is trying to develop a commercial fast-breeder nuclear reactor to recycle nuclear fuel and raise the energy self-sufficiency rate, currently at about 6 percent, of the world's fifth-largest energy consuming country.

Source: http://in.reuters.com/,15 January 2016.

JAPAN

Problems with Prototype Reactor Threaten Japan's Nuclear Fuel Recycling Plan

Japan's energy policy is facing major obstacles this year, as problems surrounding an experimental reactor threaten to foil long-laid plans to recycle nuclear fuel. The government is trying to develop a commercial fast-breeder nuclear reactor to recycle nuclear fuel and raise the energy self-sufficiency rate, currently at about 6 percent, of the world's fifth-largest energy consuming country. Resource-poor Japan imports all of its uranium for nuclear power generation – one of its core power sources – from Canada and other countries, but it seeks to make fuel on its own using an advanced fast-breeder reactor capable of producing more plutonium than it consumes.

Japan currently uses overseas companies to reprocess its spent fuel into uranium-plutonium MOX fuel, with a view to home grown reprocessing in the future. The fast-breeder reactor development project recently hit a major stumbling block, however, that put the entire project at risk of shutting down.

Plutonium can be used as nuclear fuel for conventional and fast-breeder reactors by mixing it with uranium. Japan currently uses overseas companies to reprocess its spent fuel into uranium-plutonium MOX fuel, with a view to home grown reprocessing in the future. The fast-breeder reactor development project recently hit a major stumbling block, however, that put the entire project at risk of shutting down. The regulator instructed the government in November to consider steps to guarantee the safety of the trouble-prone Monju reactor, including an option to close it down if a new operator cannot be found within six months. The government has spent more than ¥1 trillion ($8.27 billion) on Monju, a prototype fast-breeder nuclear reactor that remains under development. But ongoing safety problems have left the reactor idled for much of the time since it first achieved criticality in 1994. The Nuclear Regulation Authority has criticized the current operator, the government-backed Japan Atomic Energy Agency, for having made little progress in enhancing safety management even after a slew of safety problems led to a protracted halt in operations.

Hiroshi Hase, the science minister in charge of the project, set up a panel to discuss a possible successor to operate the reactor. But the regulator's warning sparked concerns over the fate of the project, as many industry observers think it would be tough to find a replacement. Establishing yet another government body is no longer a solution after the government's repeated attempts to create new entities to run Monju failed to realize safe operation, an NRA official said. The JAEA, established in 2005 by the government through a merger of two former national nuclear research institutions, is already the Monju plant's third operator. It would be too risky to let a private

company take charge of the prototype reactor, which generates electricity in a more complex way than light-water reactors that many utilities run at present, experts said.

"A (private) power company doesn't have the technical expertise" to run a fast-breeder nuclear reactor, Makoto Yagi, chairman of the Federation of Electric Power Companies of Japan (FEPC), told reporters when asked about replacements for the JAEA.

Monju has a long track record of problems, starting with a major fire caused by a sodium leak in 1995 that resulted in the project being suspended until May 2010. It was halted again in August of the same year after a fuel replacement device for the reactor was accidentally dropped, leaving it inoperable until now.

The Japan Institute for National Fundamentals, a pro-nuclear activist group, criticized the NRA's decision as a move that could lead to the closure of Monju and a drastic overhaul of the country's nuclear energy policy. The government should "correct the Nuclear Regulation Authority's excessive" behavior, the institute said in a newspaper advertisement in December, arguing that the NRA has no jurisdiction over the nation's energy policy. Shunichi Tanaka, the head of the NRA, has repeatedly said his body wants the science minister, who is in charge of the Monju project, to ensure the experimental reactor's safety and has no intention to push the ministry to discontinue it. "It is up to the ministry to decide" whether to close it, Tanaka said at a news conference.

Terminating the project could create a new headache: the stockpiling of plutonium with no fast-breeder reactor running on MOX fuel to use it. Such a decision would reinforce international fears that the nuclear fuel could be put to military use. Chinese envoy Fu Cong said in a speech to the UN General Assembly's First Committee in October that Japan's fissile materials inventory is already large enough to make more than 1,000 nuclear warheads.

Hideyuki Ban, co-director of the Citizens' Nuclear Information Center, an independent anti-nuclear advocacy group, said no power companies and government bodies have the ability to carry out the project safely. "I think (closing it) is really what the government should do," he said. Monju has a long track record of problems, starting with a major fire caused by a sodium leak in 1995 that resulted in the project being suspended until May 2010. It was halted again in August of the same year after a fuel replacement device for the reactor was accidentally dropped, leaving it inoperable until now. Shutting down the reactor due to safety issues would be tantamount to Japan giving up on development of a commercial fast-breeder reactor, Ban said.

However, terminating the project could create a new headache: the stockpiling of plutonium with no fast-breeder reactor running on MOX fuel to use it. Such a decision would reinforce international fears that the nuclear fuel could be put to military use. Chinese envoy Fu Cong said in a speech to the UN General Assembly's First Committee in October that Japan's fissile materials inventory is already large enough to make more than 1,000 nuclear warheads. The FEPC had planned to use such MOX fuel at 15 conventional reactors by the end of March 2016. That plan, however, has been stalled since the Fukushima meltdowns of 2011 left most reactors in Japan suspended for safety reviews under newly tightened regulations. If abandoning the fast-breeder reactor project derails Japan's plan to launch its own reprocessing of spent fuel, concerns are likely to grow over what to do with spent fuel. "If the Monju project falls through, there is no doubt that calls for reviewing the energy policy will grow louder," Ban said.

Source: http://www.japantimes.co.jp/, 17 January 2016.

IRAN

Iran Set to Start Construction of Two Nuclear Power Plants

"Construction of two 1000-MW power plants will start soon," Ali Akbar Salehi, head of the Atomic Energy Organization of Iran (AEOI), told reporters.

Tehran intends to work with other countries to improve Iran's nuclear power network. In December 2015 AEOI spokesman Behrouz Kamalvandi announced cooperation between Tehran and Moscow, saying that "the construction work will begin in coming weeks and we are in talks with the Russians to start the job as soon as possible after the New Year holidays."

On 19 January, Iran's Ambassador to Russia Mehdi Sanaei told Sputnik that the lifting of sanctions offers a number of opportunities for renewed cooperation between the two countries. "Recent events urge our countries to develop closer cooperation in many areas," Sanaei said. "While some countries only seek to create and maintain tensions, Iran and Russia should work together to stabilize the situation and to combat international terrorism." The lifting of sanctions comes after months of intense negotiations between Iran and the P5+1 nations, including the US, UK, France, Russia, China, and Germany. In exchange for keeping their uranium stockpiles far below what is necessary to develop a nuclear weapon, the accord opens Tehran to the international community. The plan has been criticized by several Gulf nations, as well as Israeli Prime Minister Benjamin Netanyahu as a way for Tehran to pursue nuclear weapons. The Iranian government has repeatedly stressed that its goals are peaceful, a view shared by diplomats who took part in the negotiations. Formalized in July, 18 January was Iran's "implementation day" for the agreement, ending nearly a decade of economic and cultural isolation.

Source: http://sputniknews.com, 20 January 2016.

MIDDLE EAST

Nuclear Energy in the Middle East

The nuclear agreement that Iran and six major world powers signed in 2015 has focused attention on Middle Eastern nuclear politics. But as the Bulletin of the Atomic Scientists' Executive Editor and Publisher, Rachel Bronson, observes, that deal is only part of an unfolding nuclear story. Bronson's article, "Power shift in the Middle East," is part of the Bulletin's latest subscription journal, a special issue that examines nuclear energy in the Middle East and the geopolitical structures that are changing because of it. As country after country in the region embarks upon plans to build nuclear reactors, the burgeoning nuclear power boom is greatly complicated by the challenges of keeping civilian nuclear power protected from terrorists and delinked from nuclear weapons programs. The boom is also complicating matters for NATO and the United States, as the vacuum left by dwindling nuclear energy resources in the US has created a void that Russia, with its teetering economy, is only too happy to fill through attractive financing and "build, own, and operate" (BOO) deals. ...

The realization that oil-rich, water-poor countries in the Middle East are vigorously pursuing nuclear power tends to raise two immediate questions: Why don't they just burn their oil? And, how will increasingly drought-stricken countries come up with the water to cool nuclear reactors when they do exist.

The realization that oil-rich, water-poor countries in the Middle East are vigorously pursuing nuclear power tends to raise two immediate questions: Why don't they just burn their oil? And, how will increasingly drought-stricken countries come up with the water to cool nuclear reactors when they do exist? Amy Myers Jaffe, Jim Krane, and Jareer Elass look at the economics of selling oil vs. burning it for electricity and/or desalination, and Ori Rabinowitz examines how the energy crisis in the Middle East is really a water crisis that is both driving the push toward nuclear energy and complicating its implementation. Saudi Arabia's former intelligence chief, Prince Turki al-Faisal, warned earlier this year that a nuclear deal with Iran might fuel a regional arms race. Now that a deal is in place and Iran is moving forward with plans for civilian uranium enrichment, will other countries in the Middle East scramble to get similar enrichment deals? ...

Source: http://thebulletin. org/, 15 January 2016.

SRI LANKA

Sri Lanka Eyes Nuclear Power?

With the intention of making Sri Lanka achieve the status of a 'high income developed nation' by 2030, the government has envisaged tapping advanced technologies such as civil nuclear applications via the Science and Technology City Mega Project that is proposed to be built on the Malabe-Homagama Corridor, in a bid to see the possibility of tapping atomic power for civilian applications. "We are highly keen on seeing the possibilities of venturing into nuclear and space technologies in partnership with foreign expertise," a high-ranking town and spatial planner involved in the project, told *The Sunday Leader*.

With the intention of making Sri Lanka achieve the status of a 'high income developed nation' by 2030, the government has envisaged tapping advanced technologies such as civil nuclear applications via the Science and Technology City Mega Project that is proposed to be built on the Malabe-Homagama Corridor, in a bid to see the possibility of tapping atomic power for civilian applications.

In the event, authorities plan to harness nuclear energy necessary approvals would have to be obtained from the IAEA. However in the event Sri Lanka wishes to build a nuclear power plant, it would have to be built outside the Megapolis (away from densely populated areas) and the whole process would take around nearly 20 to 25 years, he opined. ...

Source: *http://www. the sundayleader. lk/, 17 January 2016.*

VIETNAM

Vietnam Promotes Nuclear Development Master Plan

Hoang Anh Tuan, General Director of the Vietnam Atomic Energy Agency (VAEA) made the affirmation at a conference in the northern province of Ninh Binh on 15 January, held to review the country's achievements over the last decade in implementing its master plan on atomic energy for peaceful purposes. During his speech, Tuan underlined the need for high-level training of human resources, who will be serving nuclear power development. As of October 2015, a total of 323 Vietnamese students had been sent to Russia to study numerous subjects related to nuclear power. The country also sent delegations abroad on field study or short-term courses as part of its cooperation framework with the IAEA and the European Union as well as countries with a developed nuclear energy industry such as Japan and France. Tuan also briefed participants on Vietnam's infrastructure preparations for nuclear power development, especially nuclear power plant projects planned for central Ninh Thuan province. Deputy Director of the Ninh Thuan nuclear power projects management board Phan Minh Tuan, gave an overall introduction to the projects, stressing safety as the key issue.

As of October 2015, a total of 323 Vietnamese students had been sent to Russia to study numerous subjects related to nuclear power. The country also sent delegations abroad on field study or short-term courses as part of its cooperation framework with the IAEA and the European Union as well as countries with a developed nuclear energy industry such as Japan and France.

Source: http://english.vietnamnet.vn, 16 January 2016.

NUCLEAR COOPERATION

FRANCE–IRAN

France Welcomes Iran Nuclear Compliance, Eyes Regional Cooperation

France on 16 January "welcomed the start of the implementation of the nuclear agreement with Iran", Foreign Minister Laurent Fabius said, adding that he hoped for the same "spirit of cooperation" with Tehran in other regional issues. "This is an important step for peace and security," he said in a statement. "At a time when the region is seeing immense challenges and strong tensions, I hope that the spirit of cooperation that marked the conclusion of the deal can also be brought to all the other regional issues."

Source: http://www.expatica.com/, 16 January 2016.

INDIA–RUSSIA

Russia in Talks with India to Continue Nuclear Fuel Deliveries

TVEL has signed a long-term deal with India's Department of Atomic Energy to deliver 2,000 metric tons of uranium pellets to India's nuclear power plants with PHWRs in February 2009. "The contract ends this year, and TVEL has started substantive negotiations with Indian partners to sign a new long-term contract or extend the current one," the Russian firm said in a statement. Last year, the Mashinostroitelny Zavod joint stock company, part of TVEL's structure, has completed its annual production plan and delivered 303 metric tons of uranium pellets to the Nuclear Fuel Complex in Hyderabad. India is one of 15 countries which receive nuclear fuel from TVEL. The company says 78 nuclear reactors, an estimated 17 percent of the world's total, run on TVEL-made fuel.

Source: http://sputniknews.com/, 15 January 2016.

IRAN–CHINA

Iran Urges Enhanced Nuclear Cooperation with China

Head of the Atomic Energy Organization of Iran (AEOI) Ali Akbar Salehi says the country is resolute on boosting nuclear cooperation with China following the implementation of the nuclear agreement between Tehran and six world powers. Salehi made the remarks on 23 January in a meeting with Director of China's Atomic Energy Authority Xu Dazhe, who accompanied Chinese President Xi Jinping in a visit to Tehran after Iran and the P5+1 group of countries started to implement the nuclear agreement, dubbed the JCPOA, which was reached in Vienna on July 14, 2015.

On January 16, Iran and the five permanent members of the UN Security Council plus Germany started to implement JCPOA. After JCPOA went into effect, all nuclear-related sanctions imposed on Iran by the European Union, the UN Security Council and the US were lifted. Iran, in return, has put some limitations on its nuclear activities.

Nuclear agreement reached between Iran and China included the modernization of the Arak heavy water reactor and the construction of 100-megawat power plants. The Chinese official, for his part, said nuclear cooperation between Tehran and Beijing will not be confined to the modernization of Arak heavy water nuclear reactor, but will include economic and research areas in the nuclear industry. Xu added that the construction of nuclear power plants in Iran will be beneficial to both Tehran and Beijing.

Salehi hailed the visit by the Chinese delegation to Tehran and said, "Since we have entered a new phase, we call for the expansion of mutual relations in different fields, particularly in the nuclear sector." The AEOI head added that a nuclear agreement reached between Iran and China included the modernization of the Arak heavy water reactor and the construction of 100-megawat power plants. The Chinese official, for his part, said nuclear cooperation between Tehran and Beijing will not be confined to the modernization of Arak heavy water nuclear reactor, but will include economic and research areas in the nuclear industry. Xu added that the construction of nuclear power plants in Iran will be beneficial to both Tehran and Beijing.

Source: http://www.presstv.ir, 24 January 2016.

NUCLEAR PROLIFERATION

SAUDI ARABIA

Kerry Warns Saudi Arabia of Consequences if they Get Nukes

US Secretary of State John Kerry has warned both Saudi Arabia and Pakistan against indulging in trade of nuclear weapons, saying there will be "all kinds of NPT consequences" if Riyadh went ahead with any such plan. Such a strong warning from Kerry comes amidst media reports that Saudi Arabia is trying to buy nuclear weapons from Pakistan.

Top Pakistani leaders have in recent weeks warned Iran of serious consequences if it attacked Saudi Arabia, which many analysts see a nuclear threat from Islamabad to Tehran.

"Sure we've heard those things. But you can't just buy a bomb and transfer (a nuclear bomb)," Kerry told CNN. "There's all kinds of NPT consequences. I mean, there are huge implications of that," Kerry said, referring to the strong NPT. He was asked, "The Saudis (are) not even ruling out the possibility, given their concern about this nuclear deal with Iran, they could go forward and buy some - maybe buy a nuclear bomb, maybe from Pakistan, you've heard those concerns."

The 'Science & Diplomacy for Peace & Security' conference is being convened from January 25 to February 4 at the Vienna International Centre, the UN headquarters in the Austrian capital, in a year that marks the 20th anniversary of the CTBT.

Pakistan is already under the radar of the international community for its previous nuclear proliferation activities and leaking the nuclear weapons technology to countries like Iran, Libya and North Korea. "Saudi Arabia knows, I believe, that that is not going to make them safer, nor is it going to be easy because the very things that Iran went through, they would then be subject to with respect to inspection, NPT and so forth," Kerry said.

The importance of this event lies in the fact that though the CTBT is almost universal it has yet to become law. Since it opened for signature in 1996, 183 countries have signed the Treaty. 164 of them have also ratified it, including three of the nuclear weapon States: France, Russia and the United Kingdom. But 44 specific nuclear technology holder countries must sign and ratify before the CTBT can enter into force.

Source: http://www. ptinews. com/, 21 January 2016.

NUCLEAR DISARMAMENT

GENERAL

Banning the Bomb with Science and Diplomacy

The Preparatory Commission for the CTBTO is organising a symposium on the role of science and diplomacy for peace and security as the first in a series of events this year to push for entry into force of a law prohibiting atomic explosions by everyone and everywhere. The 'Science & Diplomacy for Peace & Security' conference is being convened from January 25 to February 4 at the Vienna International Centre, the UN headquarters in the Austrian capital, in a year that marks the 20th anniversary of the CTBT.

Participants in the symposium will include some of the lead negotiators of the CTBT in the CD in the mid-1990s. Keynote speakers will include the CTBTO Executive Secretary Lassina Zerbo, Joseph Cirincione, President, Ploughshares Fund and David Strangway, President Emeritus, University of British Columbia and Canada Foundation for Innovation. The importance of this event lies in the fact that though the CTBT is almost universal it has yet to become law. Since it opened for signature in 1996, 183 countries have signed the Treaty. 164 of them have also ratified it, including three of the nuclear weapon States: France, Russia and the United Kingdom. But 44 specific nuclear technology holder countries must sign and ratify before the CTBT can enter into force. Of these, eight are still missing: China, Egypt, India, Iran, Israel, North Korea, Pakistan and the USA. On the other hand, India, North Korea and Pakistan have yet to sign the CTBT. In fact the three countries have violated the de facto moratorium and tested nuclear weapons since 1996...

In run-up to the symposium, the CTBTO head Zerbo highlighted the CTBT's role as a "game changer" for global peace and security. Referring to the DPRK's nuclear test announced on January 6, he said: "Without a global system for monitoring and detecting signs of nuclear explosions, and no means of transmitting the relevant data in a timely and non-discriminatory manner, the international community would not

be empowered to draw conclusions on the nature of an event." Addressing the Annual Conference of the Academic Council on the United Nations System – ACUNS on January 13, in Vienna, he said: "The very existence of the CTBT has all but put a stop to nuclear testing. Many States condemned the announced test as breaking with a de facto norm against testing. While this demonstrates that the Treaty is as important as ever, it is also a wake-up call to finally bring it into force," he told ACUNS delegates. It is hardly known that a verification regime to monitor the globe for nuclear explosions is nearing completion with around 90 percent of the 337 planned International Monitoring System facilities already in operation. In view of the fact that the threat of nuclear weapons has faded from public concern and mainstream news media provide little coverage of the subject, together with the Atomic Reporters, CTBTO will debate on January 26 "If nuclear weapons and nuclear testing are a great risk to life on earth, are news media failing the public by not paying them more attention?"

Nevertheless, as Zerbo pointed out, time is ripe for the CTBT entering into force. The Iran deal after two years of negotiations and several years of hard work behind the scene, he said, shows that multilateral collaboration can effectively overcome intractable problems.

Nevertheless, as Zerbo pointed out, time is ripe for the CTBT entering into force. The Iran deal after two years of negotiations and several years of hard work behind the scene, he said, shows that multilateral collaboration can effectively overcome intractable problems. "Many of the key players in the Iran deal – such as EU High Representative Mogherini – are now talking about CTBT entry into force as the next big goal in disarmament and non-proliferation, which can be achieved with a similar approach. Let's make her words a reality," he told ACUNS delegates.

The forthcoming symposium will carry forward the message emerging from the 9th Ministerial-level Conference on Facilitating the Entry into force of the CTBT on September 29 at the United Nations headquarters in New York. The conference was co-chaired by Erlan Idrissov, Foreign Minister of the Central Asian Republic of Kazakhstan, and Japan's Foreign Minister Fumio Kishida. The Kazakh Foreign Minister warned delegates he would be "blunt, even undiplomatic" in pushing for a legally binding nuclear test ban. "Our countries (Kazakh and Japan) have the moral right to be aggressive about abolishing nuclear weapons." Co-chair Kishida highlighted Japan's historical role and obligation to work with the international community to ban nuclear tests and nuclear weapons, making particular reference to this year's 70th anniversaries of the bombings of Hiroshima and Nagasaki and the experience of nuclear-bomb survivors, the Hibakusha.

The Kazakh Foreign Minister warned delegates he would be "blunt, even undiplomatic" in pushing for a legally binding nuclear test ban. "Our countries (Kazakh and Japan) have the moral right to be aggressive about abolishing nuclear weapons." Co-chair Kishida highlighted Japan's historical role and obligation to work with the international community to ban nuclear tests and nuclear weapons, making particular reference to this year's 70th anniversaries of the bombings of Hiroshima and Nagasaki and the experience of nuclear-bomb survivors, the Hibakusha.

The Conference was attended by a large number of Foreign Ministers from ratifying states, as well as Members of the Group of Eminent Persons (GEM), including the EU High Representative Mogherini, former UK Secretary of State for Defence Lord Desmond Browne, Commissioner of the Japan Atomic Energy Commission Ambassador Nobuyasu Abe, former UN High Representative for Disarmament Affairs Angela Kane, and CTBTO Executive Secretary Emeritus Wolfgang Hoffmann. Some of them will also be participating in the Science & Diplomacy for Peace & Security symposium in Vienna. ...

Source: http://www.indepthnews.info, 20 January

2016.

Cooperation among US, South Korea, China Key to Denuclearization

Cooperation among the United States, South Korea and China is key to international efforts to denuclearize the Korean Peninsula, a former US envoy who led nuclear negotiations with North Korea said. While international talks over how to achieve the denuclearization have remained deadlocked for many years, Pyongyang appears to have made progress on its nuclear weapons program. The communist country conducted its fourth nuclear test. Christopher Hill, former US assistant secretary of state, told VOA on 14 January that the three countries should not "allow North Koreans to create any divisions" among them, saying the countries hold "keys" to resolving the issue. Hill led the US delegation that reached a nuclear deal with North Korea in September 2005, where Pyongyang pledged to abandon all nuclear weapons and existing nuclear programs in return for economic aid and other incentives.

The Tihange 2 reactor had been shut down since March, 2014, following the discovery of tiny cracks in the reactor's pressure vessel. But in November 2015, the Belgian nuclear authority saw "no obstacle" to restarting the reactor, which became operational again at the end of December 2015.

Trilateral Cooperation Necessary*:* The former envoy said China is an "important element" of sanctions on North Korea. However, Hill added, the international community and China appear to disagree on how much leverage Beijing is using on Pyongyang. Beijing believes it is using more than enough leverage against its ally, but many countries see it as inadequate, according to Hill.

On 15 January, Beijing said it would support the UN sanctions against Pyongyang. This was the first time Beijing had publicly expressed its support for the UN action in response to Pyongyang's nuclear test. At the same time, the latest nuclear test sparked criticism that the Obama administration's containment policy of "strategic patience" has failed to stop Pyongyang's nuclear development. Some critics have suggested Washington should steer its focus toward preventing Pyongyang's nuclear proliferation, instead of seeking complete denuclearization. ...

Technical Requirements*:* When asked about why Kim Jong Un might have chosen this time to conduct the test, the former diplomat cited "internal technical matters," in reference to necessary steps required for Pyongyang's nuclear weapons program. ... He added that North Korea's internal politics also might have played a role in Kim's decision. "I think the testing program, which enrages the rest of the world, actually is perceived in North Korea as a sign of Kim Jong Un's strength," Hill said. ...

Source: http://www.voanews.com, 15 January 2016.

NUCLEAR SAFETY

BELGIUM

Belgium's Neighbors Concerned About Nuclear Safety

Germany, the Netherlands and Luxembourg are all concerned about the re-starting of Belgian nuclear reactors. The government there promises better communication, but seems to feel little urgency to act. One and a half hours by car – that's how long it takes to drive from the site of Belgium's nuclear reactors at Tihange to neighboring Luxembourg. One and a half hours, or 160 km (100 miles), that's not enough to put the mind of Luxembourg's state secretary for infrastructure at ease. Which is why Camille Gira, together with parliamentarians and nuclear safety and health experts, came to Brussels on 18 January, to meet Belgium's interior minister, Jan Jambon, for an "exchange of views." ...

Cracks Prompted Temporary Shut-Down*:* The Tihange 2 reactor had been shut down since March, 2014, following the discovery of tiny cracks in the reactor's pressure vessel. But in November 2015, the Belgian nuclear authority saw

"no obstacle" to restarting the reactor, which became operational again at the end of December 2015. A recent study commissioned by the Green party group in the European parliament, on the other hand, said the steel used in the pressure vessels was of such poor quality that – had this been known at the time of licensing – the reactor would never have been allowed to start operations.

Aachen's Citizens Worried: Aside from raising worries in Luxembourg, re-starting the Tihange 2 reactor has sparked great concern in neighboring Germany. With the city of Aachen a mere 70 km from Tihange, some 100,000 citizens in the region had signed a petition initiated by anti-nuclear activists to stop the reactor from going on the grid again – to no avail. Aachen's authorities are set to brief the public about the current situation, as well as about emergency plans, later in January. At a recent session of the city's environment committee, fire department chief Jürgen Wolff told representatives that some emergency steps mandated by the state government would not work. It would, for instance, take definitely more than 24 hours, "maybe more than 32 or 48 hours" to distribute iodine pills to the population, Wolff said according to the local newspaper Aachener Zeitung. In case of a nuclear accident, it is advised to take highly-dosed iodine pills as soon as possible, allowing the thyroid gland to store this iodine rather than the radioactively contaminated iodine that people would likely inhale following a nuclear emergency.

Aside from raising worries in Luxembourg, re-starting the Tihange 2 reactor has sparked great concern in neighboring Germany. With the city of Aachen a mere 70 km from Tihange, some 100,000 citizens in the region had signed a petition initiated by anti-nuclear activists to stop the reactor from going on the grid again – to no avail.

Concern in the Netherlands: For their part, citizens in neighboring Netherlands are also worried about another nuclear site called Doel. Same as at the Tihange 2 reactor, tiny cracks have also been found at the Doel 3 reactor's pressure vessel, causing it to be taken off the grid until its restart shortly before the end of the year. Only a short while later, the plant was closed again for a few days, after a water leak. The Doel site is also home to Belgium's oldest reactor, Doel 1, which had been shut down in February 2015, following its 40th anniversary. But the government then decided to extend the lives of Doel 1 and Doel 2 by another 10 years. Widespread concern has prompted the Dutch minister for infrastructure, Melanie Schultz, to schedule a visit to Doel on 20 January, together with Belgian Interior Minister Jambon, accompanied by inspectors from the Dutch nuclear authority. ...The Belgian interior ministry, which is in charge of nuclear safety as well, said it wanted to improve communication with neighboring countries on the subject, but also stressed Belgium was not handing over control of its nuclear sites to its neighbors.

Widespread concern has prompted the Dutch minister for infrastructure, Melanie Schultz, to schedule a visit to Doel on 20 January, together with Belgian Interior Minister Jambon, accompanied by inspectors from the Dutch nuclear authority.

Belgian Nuclear Authority Suggests Changes to Emergency Plan: In Belgium itself, the scientific council of the nuclear authority - known by the initials of its Flemish name, 'FANC' – on 15 January issued a report proposing to revise existing nuclear emergency plans. One recommendation is to distribute iodine pills to the entire Belgian population. Current plans limit the distribution of such pills to people living within a 20-km-radius of nuclear sites. The scientific body also recommends extending the safety zone around nuclear sites. Then, people living within 20 instead of 10 km from a nuclear site would have to remain in their homes for 24 hours, with doors and windows closed. Already in March, 2015, Belgium's National Health Council (CSS) had recommended distributing at no cost iodine pills to people living within a radius of 100 km of nuclear plants. ...

Entanglements between Politics, Industry, and Oversight: But, on the whole, the Belgian government seems rather unfazed by the security concerns raised by its neighbors. According to Jan

Vande Putte of Greenpeace Belgium, that has to do with the fact that Belgium's main utilities provider, Electrabel, still has a strong influence over politicians, especially in the country's French speaking region of Wallonia – an influence dating back to the times when the state-owned utilities provider was the only player in the country's energy market. ...

Neighbors Insist on Having Questions Answered: But though that may be a tricky situation for Belgian politicians and oversight authorities, it appears that Belgium's neighbors are not willing to let the issue slide. Experts of Germany's environment ministry presented the FANC with a list of 15 open questions concerning the security of the Doel 3 and Tihange 2 reactors. Back in Luxembourg, Olaf Münichsdorfer of the environment ministry also vowed to keep up the pressure. "We had a constructive meeting, but not all our questions were answered," said Münichsdorfer.

But though that may be a tricky situation for Belgian politicians and oversight authorities, it appears that Belgium's neighbors are not willing to let the issue slide. Experts of Germany's environment ministry presented the FANC with a list of 15 open questions concerning the security of the Doel 3 and Tihange 2 reactors. Back in Luxembourg, Olaf Münichsdorfer of the environment ministry also vowed to keep up the pressure. "We had a constructive meeting, but not all our questions were answered," said Münichsdorfer.

Source: http://www.dw.com, 18 January 2016.

As an independent regulatory authority, the board is to provide for the protection of the present generation, posterity and the environment against the harmful effects of ionising radiation, safety of radiation sources, and radioactive waste. The Board would also provide for the safety, security and safeguarding of nuclear materials and nuclear installations, ensure that radioactive sources and nuclear materials including radioactive waste, both from within and outside the country are properly controlled.

GHANA

Ghana Nuclear Regulatory Authority Board Inaugurated

Ghana has inaugurated an independent governing board for the Nuclear Regulatory Authority (NRA) in fulfilment of Article 70 (1) of the 1992 Constitution. This also fulfils the Section 7 of the Nuclear Regulatory Act of 2015 (Act 895). The seven-member Board would be chaired by Professor Albert Fiadjoe, Former Chairperson of the Constitutional Review Commission. Other members were Prof. Geoffery Emy Raynolds, Director of Radiation Protection Institute, Ghana Atomic Energy Commission (GAEC); Emeritus Prof. Edward Akaho, Former Director-General of GAEC; Mr William Kofi Baffoe-Mensah, representing the National Security; Mr John Pwamang, Dr Mohammed Alfa and Prof. Aba Bentsil Adam.

As an independent regulatory authority, the board is to provide for the protection of the present generation, posterity and the environment against the harmful effects of ionising radiation, safety of radiation sources, and radioactive waste. The Board would also provide for the safety, security and safeguarding of nuclear materials and nuclear installations, ensure that radioactive sources and nuclear materials including radioactive waste, both from within and outside the country are properly controlled. Dr. Bernice Adiku Heloo, Deputy Minister of Environment, Science, Technology and Innovation (MESTI), urged the Board to be mindful of the provisions in the entire Act 895, but more important the scope of application as stated in Section (1), the functions of the Authority in Section (5) and the powers of the Authority as expressed in Section (6). ...

Dr Heloo applauded the hard work of officials from GAEC, MESTI, Former Ministers of State, the Attorney General's Department, Members of Parliament, IAEA consultants and many others who laid the foundation and worked towards the achievement of the Act. She said after the Nuclear Regulatory Act 895 was assented by President

John Dramani Mahama on August 14, 2015, it became important that a Regulatory Authority be established. The Radiation Protection Instrument of 1993 L.I 1559, now revoked, was further responsible for ensuring that safety and health of radiation workers, irradiation of nuclear material and the radioactive waste from these activities and practices were properly handled, she said. It also carried out inspection, authorisation and enforcement of practice in compliance with the 1992 Constitution and other international legal instruments.

Ghana has been a member of the IAEA since September 1960, and was also a party to a host of international legal instruments such as the NPT and the Convention on Nuclear Safety, and that the NRA would ensure that Ghana fulfils its international obligations under all treaties and conventions in maintaining nuclear safety and security.

Ghana has been a member of the IAEA since September 1960, and was also a party to a host of international legal instruments such as the NPT and the Convention on Nuclear Safety, and that the NRA would ensure that Ghana fulfils its international obligations under all treaties and conventions in maintaining nuclear safety and security. Dr Heloo said Ghana's quest to introduce nuclear power into its energy mix can only be possible if we have a viable, credible and fully functional independent regulatory authority. The establishment of the Regulatory Authority would enable GAEC to focus on its current functions of promoting the peaceful application of nuclear technology for energy, research, commercialisation, development, education and consultancy.

Source: https://www. ghana businessnews.com,15 January 2016.

JAPAN

Toshiba Unveils Remote-Control Robot to Dismantle Fukushima Nuclear Plant

Toshiba has unveiled an amphibious remote-control robot to remove spent fuel rods from the highly radioactive reactor 3 building at Japan's crippled Fukushima Daiichi nuclear plant. The device is scheduled to begin extracting 566 fuel-rod assemblies in the 2017 financial year, the Japan Times reported. Toshiba constructed reactor 3, which is still so radioactive that when the ABC toured the plant in February 2015, it was strictly off-limits because entry would mean instant death. At the time, Kenichiro Matsui from the TEPCO said the company did not know the exact situation in detail. "We need to develop robotic technology with help from around the world to know the real situation," he said. Reactors 1, 2 and 3 are being controlled by pumping in water to cool them and prevent further nuclear meltdown, resulting in 500,000 litres of radioactive water being extracted and stored every day.

Toshiba has unveiled an amphibious remote-control robot to remove spent fuel rods from the highly radioactive reactor 3 building at Japan's crippled Fukushima Daiichi nuclear plant. The device is scheduled to begin extracting 566 fuel-rod assemblies in the 2017 financial year, the Japan Times reported.

Radioactive water has leaked into the sea off Fukushima on several occasions. Reactor 4, which was not operating when an earthquake triggered a tsunami in March 2011, had the last of its 1,535 fuel rod assemblies removed in December 2014. Low levels of radiation allowed workers to stand at the pool in reactor 4 to monitor the fuel-rod removal, but that will not be possible in reactor 3, which was damaged by a hydrogen explosion and suffered a meltdown. The removal of fuel rods from reactor 3 will be "more difficult since it will have to be done completely remotely", TEPCO official Isao Shirai said.

Toshiba's device has multiple cameras allowing workers to see from multiple angles, two arms that can pick up and cut debris, and a third arm designed to grab fuel rod assembles. TEPCO said it hoped to bring radiation levels down to 1 millisievert per hour, which would still be too high for long-term work at the site. Australians are exposed to only 1.5 millisieverts per year on average, more than half of which is from medical X-rays, according to the Radiation Protection and Nuclear Safety Agency.

Source: http://www.abc.net.au/, 21 January 2016.

NUCLEAR SECURITY

AZERBAIJAN–USA

High-Ranking Official Talks Azerbaijan-US Cooperation in Nuclear Security

The US believes that Azerbaijan will further contribute to nuclear security and continue its activities in this field, as well as keep on to cooperate with the US in this area, Novruz Mammadov, deputy head of Azerbaijani presidential administration, chief of the administration's foreign relations department, told reporters on 14 January. He made the remarks with reference to the invitation to the Nuclear Security Summit in Washington, D.C., sent to President of Azerbaijan Ilham Aliyev. Novruz Mammadov said that the Azerbaijani president received this letter on 3 December. "At the same time, it was stated both there (in the letter) and at the meeting with the director general of the US National Security Council, which took place two days ago, that a wide exchange of views took place regarding the Nagorno-Karabakh, the conflict resolution, the current state of the conflict, ongoing negotiations," he said.

TEPCO said it hoped to bring radiation levels down to 1 millisievert per hour, which would still be too high for long-term work at the site. Australians are exposed to only 1.5 millisieverts per year on average, more than half of which is from medical X-rays.

Speaking about the information that Azerbaijan allegedly wasn't invited to the Nuclear Security Summit in the US, Novruz Mammadov said that there are certain circles both abroad and inside the country, which spread false and provocative information that serves their own interests. Mammadov went on to add that Azerbaijan has always been a very significant and important partner for the US. "Azerbaijan is located in such a region that it will always remain such a state both in the 21st century and the 22nd century," he said. ... Novruz Mammadov said that the Azerbaijani president was invited to the Nuclear Security Summit in the US, however, it is still unknown whether the head of state will take part in this event. Mammadov added that most likely, Ilham Aliyev will participate in this summit, because Azerbaijan took part in it last time. Last time this summit was held in the UK, and in South Korea before that, Mammadov said.

The current global nuclear security system has dangerous gaps that prevent it from being truly comprehensive and effective," NTI President Joan Rohlfing said in a statement. "Until those gaps are closed, terrorists will seek to exploit them.

Source: http://en.trend.az/, 14 January 2016.

GENERAL

World Must Do More to Curb Nuclear Terror Threat

International progress in reducing the threat of nuclear terrorism has slowed in recent years, and the global nuclear security system remains vulnerable, according to a report released on 14 January. The NTI, found that even as international security has been rocked by one crisis after another, basic weaknesses persist in securing the world's fissile materials. "The current global nuclear security system has dangerous gaps that prevent it from being truly comprehensive and effective," NTI President Joan Rohlfing said in a statement. "Until those gaps are closed, terrorists will seek to exploit them."

World leaders are due to meet from March 31 to April 1 in Washington for the fourth and final Nuclear Security Summit under the administration of President Barack Obama. "Leaders must commit to a path forward when they meet this spring," Rohlfing said. "The consequences of inaction in the face of new and evolving threats are simply too great." Since 2014, there have been no improvements in several areas related to securing highly enriched uranium and plutonium, the NTI said. "The number of countries taking the most important step to

prevent theft – eliminating their materials – also has dropped," NTI noted. In the two years ahead of releasing its prior report in 2014, seven countries eliminated their weapons-usable nuclear materials. But in the run-up to the 2016 edition of its Nuclear Threat Index, only one country – Uzbekistan – has been scratched from the list of countries with weapons-usable nuclear materials. The NTI Index also finds worrying shortfalls in how well countries protect their nuclear facilities against potential sabotage, as well as from cyber attacks.

The report warns many countries considering nuclear power are struggling to implement even basic measures to prevent sabotage that could lead to a radiological spill similar in size to Japan's 2011 Fukushima disaster. Twenty countries "do not even have basic requirements to protect nuclear facilities from cyber attacks," the findings state. Among several suggested improvements, the NTI recommends the creation of international norms around nuclear security, as well as improved cyber security measures.

In the two years ahead of releasing its prior report in 2014, seven countries eliminated their weapons-usable nuclear materials. But in the run-up to the 2016 edition of its Nuclear Threat Index, only one country – Uzbekistan – has been scratched from the list of countries with weapons-usable nuclear materials.

Source: http://www.japantimes.co.jp/, 15 January 2016.

Should You be Afraid of Cyber Attacks on Nuclear Power Plants?

Twenty countries with nuclear weapon materials or nuclear power plants "do not even have basic requirements to protect nuclear facilities from cyber attacks," according to a new report from a nonproliferation watchdog group. The NTI's finding comes in the wake of reports from researchers that a cyberattack in December 2015 caused a power outage in Ukraine, raising new concerns about the ability of the industrial sector to prevent digital attacks. And the stakes are even higher in the nuclear space because of the potentially devastating results of a malfunction – or the possibility someone could create an opportunity to steal nuclear materials.

The NTI's finding comes in the wake of reports from researchers that a cyberattack in December 2015 caused a power outage in Ukraine, raising new concerns about the ability of the industrial sector to prevent digital attacks. And the stakes are even higher in the nuclear space because of the potentially devastating results of a malfunction – or the possibility someone could create an opportunity to steal nuclear materials.

In preparing its latest global ranking of nuclear security risks, NTI for the first time asked basic questions about regulations addressing how to protect nuclear facilities from cyber attacks. "What we have observed is what I call enormous unevenness on the global stage to address this issue," said Page Stoutland, the group's vice president for scientific and technical affairs and one of the report's authors. The United States and other nations with developed programs often had regulatory safeguards, he said, while countries now developing nuclear programs were less likely to have formal policies in place. The report is based on a review of publicly available information by the group, so it does not take into account classified measures that may be in place. And just because certain precautions are not required, that doesn't necessarily mean nuclear facilities aren't taking steps to defend themselves against cyber attacks.

But that isn't enough for Stoutland. "In our view it's still important that a country have some level of regulation for us to have any confidence that is actually happening," he said. The US nuclear industry sees the threat of cyber attacks as very real, but the current risk of a major incident here as very low, said William Gross, a senior project manager for engineering at the Nuclear Energy Institute. "We've been doing this for a long time, and we take this very seriously," he said. Nuclear power plants in the

United States keep their systems disconnected from the Internet or use hardware that separates business computer systems at plants from those that control nuclear operations to protect them from being attacked through the Web, according to the institute. In a report released last year, the Department of Homeland Security said that "[n]othing suggests that a cyber attack executed through the Internet could cause a nuclear reactor to malfunction and breach containment."

The US nuclear industry sees the threat of cyber attacks as very real, but the current risk of a major incident here as very low, said William Gross, a senior project manager for engineering at the Nuclear Energy Institute. "We've been doing this for a long time, and we take this very seriously," he said.

However, some research suggests the nuclear power industry at home and abroad remains at risk to digital attacks. A 2013 CNN report claimed that security researchers discovered connections to the command and control systems of nuclear power plants accessible online. And a report last year by London-based think tank Chatham House said there appears to be an "element of denial" among nuclear power plant operators about cyber security risk. "Often, nuclear facilities will have undocumented connections to the internet" that could provide a way for malicious hackers to infect their systems, the Chatham House report said. The issue may be compounded, according to the group, by a lack of disclosure in the nuclear industry when cyber attacks occur that makes it hard to judge the true scope of the problem and could leave the industry with a false sense of security.

In 1992, a programmer at a Lithuanian nuclear plant was arrested on charges that he sabotaged its computer systems – highlighting the potential for threats from insiders who don't need to go through the Internet to get to computer systems. In 2003, computers at the Davis-Besse nuclear power plant in Ohio were infected by a computer worm dubbed "Slammer." The worm disabled the software interface employees used to monitor system safety for almost five hours.

However, there are a few significant cyber incidents involving nuclear power plants we do know about. In 1992, a programmer at a Lithuanian nuclear plant was arrested on charges that he sabotaged its computer systems – highlighting the potential for threats from insiders who don't need to go through the Internet to get to computer systems. In 2003, computers at the Davis-Besse nuclear power plant in Ohio were infected by a computer worm dubbed "Slammer." The worm disabled the software interface employees used to monitor system safety for almost five hours. Luckily, the reactor had been offline due to unrelated problems since the year earlier and there was an analog backup system not affected by the infection. And in 2008, a Georgia nuclear power plant went into emergency shutdown for 48 hours due to a cyber incident. This wasn't an attack, but an issue caused when a contractor installed a software update on one computer that reset the data on a control system. That caused the system to incorrectly believe that the plant didn't have enough water to cool its nuclear fuel rods and triggered the safety precaution. The situation showed that even without a malicious actor, increased reliance on software and interconnected systems can come with new risks.

But nuclear power has always come with a certain amount of risk. And just like squirrels seem to currently be a bigger threat to our electrical grid than hackers, the most recent major incident involving a power plant had to do with a natural disaster: Japan's 2011 Fukushima plant disaster caused by a tsunami. In fact, there is just one cyber campaign involving nuclear facilities reported to have caused physical damage – an attack on Iranian nuclear facilities by malware known as Stuxnet thought to have been jointly developed by the United States and Israel: The malware destroyed nearly 1,000 of Iran's 6,000 centrifuges – machines used to enrich uranium.

Source: Excerpted from article by Andrea

Peterson, https://www.washingtonpost.com, 15 January 2016.

NUCLEAR WASTE MANAGEMENT

GENERAL

Buried Nuclear Waste Risky, Say Stanford Experts

Radioactive material from the laboratories that design America's nuclear weapons will have to be buried and kept away from humans for at least 10,000 years. But three Stanford experts say the safety analysis of this project needs to be revised to reflect new strategies that aim to substantially increase the amounts of plutonium to be disposed of. The Department of Energy's long-term plan for dealing with material contaminated with plutonium and heavier elements from the US weapons program is to bury it underground at the Waste Isolation Pilot Plant in southeastern New Mexico. The Energy Department's plan aims to safeguard nuclear material for the next 10,000 years. But three Stanford nuclear scientists point out in a new commentary article in the journal "Nature" that the Waste Isolation Pilot Plant (WIPP) was not designed to hold as much plutonium as is now being considered for disposal there. And, in fact, the site has seen two accidents in recent years.

In fact, there is just one cyber campaign involving nuclear facilities reported to have caused physical damage – an attack on Iranian nuclear facilities by malware known as Stuxnet thought to have been jointly developed by the United States and Israel: The malware destroyed nearly 1,000 of Iran's 6,000 centrifuges – machines used to enrich uranium.

"These accidents during the first 15 years of operation really illustrate the challenge of predicting the behavior of the repository over 10,000 years," said Rod Ewing, the Frank Stanton Professor in Nuclear Security at Stanford and a senior fellow at the Center for International Security and Cooperation. What's more, there's more plutonium proposed for disposal at WIPP in the future, a result of treaties with the former Soviet Union and now Russia to decrease the number of nuclear weapons by dismantling them. A recent assessment of what to do with the plutonium from dismantled weapons has proposed that the material be diluted and disposed of at WIPP.

But this analysis does not include a revision of the safety analysis for the site, wrote Ewing and his two Stanford co-authors in the Department of Geological Sciences, postdoctoral scholar Cameron Tracy and graduate student Megan Dustin. They call on the US Department of Energy, which operates WIPP, to take another look at the safety assessment of the site. Particular emphasis should be on the estimates of drilling activity in the oil-rich Permian Basin, where WIPP is located, and on the effects of such a huge increase in the plutonium inventory for the pilot plant. "The current regulatory period of 10,000 years is short relative to the 24,100-year half-life of plutonium-239, let alone that of its decay product, uranium-235, which has a half-life of 700 million years," the researchers wrote.

As a result, it is important to understand the impact of future drilling in the area. The waste is stored 2,150 feet below the surface in hundreds of thousands of plastic-lined steel drums in rooms carved out of a 250-million-year-old salt bed. The repository is at about half of its planned capacity and slated to be sealed in 2033. The researchers question some of the assumptions used in the safety studies. For example, to determine the odds of oil drilling in the future, the study uses a 100-year historical average drill rate, even though drilling has intensified in recent decades, throwing this assumption into question. The Stanford experts also suggest more attention to

The Energy Department's plan aims to safeguard nuclear material for the next 10,000 years. But three Stanford nuclear scientists point out in a new commentary article in the journal "Nature" that the Waste Isolation Pilot Plant (WIPP) was not designed to hold as much plutonium as is now being considered for disposal there. And, in fact, the site has seen two accidents in recent years.

how the buried materials may interact with each other, particularly with salty brine, over centuries. A single storage drum may contain a variety of materials, such as lab coats, gloves and laboratory instruments; thus, the chemistry is complex. Ewing said that the complacency that led to the accidents at WIPP can also occur in the safety analysis. Therefore, he advises, it is important to carefully review the safety analysis as new strategies for more plutonium disposal are considered.

Particular emphasis should be on the estimates of drilling activity in the oil-rich Permian Basin, where WIPP is located, and on the effects of such a huge increase in the plutonium inventory for the pilot plant. "The current regulatory period of 10,000 years is short relative to the 24,100-year half-life of plutonium-239, let alone that of its decay product, uranium-235, which has a half-life of 700 million years," the researchers wrote.

Source: http://news.stanford.edu/, 15 January 2016.

PAKISTAN

PINSTECH to Host Country's First Licensed Facility

Pakistan Institute of Nuclear Science and Technology (PINSTECH) is going to host country's maiden licensed facility for radioactive wastage management in Nilore. Certificate for hosting the storage facility was awarded to PINSTECH in a ceremony held at PNRA Headquarter Islamabad. Besides this Chairman PNRA also awarded operating license of isotope production facility at PINSTECH and design certification of B(U) Package for transport of radioactive materials to PAEC Chairman, Muhammad Naeem (HI.,SI.)....

Pakistan Institute of Nuclear Science and Technology (PINSTECH) is going to host country's maiden licensed facility for radioactive wastage management in Nilore. Certificate for hosting the storage facility was awarded to PINSTECH in a ceremony held at PNRA Headquarter Islamabad.

Commenting on PINSTECH Pre-disposal Radioactive Waste ManagementFacility (PPRWMF), he emphasized that during all the peaceful uses of nuclear energy, generation of radioactive waste is unavoidable. The only effort one can do is to keep it minimum possible and ensure safe management. He further said that in every effort of our life, the struggle is always directed towards shaping the future of the next generations. So in the peaceful use of nuclear energy, it is not wise and ethical that today we reap the fruit of the nuclear technology and knowingly pass on the debt of waste management to the next generation. ... Chairman PAEC, Muhammad Naeem thanked Chairman PNRA for the joint efforts of both organizations in ensuring safety of facilities and activities. He apprised the participants that the radiopharmaceuticals produced in the PINSTECH facility are being used in the medical centers of PAEC providing treatment to around 80% of the cancer patients in Pakistan. ... Regarding waste management facility, Chairman PAEC said, "This is first such facility licensed by PNRA with the potential to be used for the training purposes both at national and international level."

Source: http://pakobserver.net/, 17 January 2016.

TAIWAN

Activists Call on Candidates for Anti-Nuclear Policy

Anti-nuclear activists on 13 January released an assessment of three presidential candidates' policies on nuclear power and energy development, saying the issue of nuclear waste is deliberately avoided, despite all candidates vowing to build a nuclear-free Taiwan. Members of the National Nuclear Abolition Action Platform said they requested the Chinese Nationalist Party (KMT), Democratic Progressive Party (DPP) and People First Party (PFP) to clarify their stance on multiple issues, including the decommissioning of the nation's three operating nuclear plants, abolishing a mothballed plant, relocation of low-level radioactive waste from Orchid Island, treatment of used fuel rods and energy transition policy.

Platform members announced an analysis of the three parties' policies.

The three parties pledged to deactivate the three functioning nuclear plants by 2025, but the KMT and the PFP did not exclude the possibility of extending the service life of those plants if the nation faced power shortages. Both the KMT and the PFP said the activation of the sealed nuclear plant should be decided by a referendum, while the DPP said it would not resume the construction of the unfinished plant. Low-level nuclear waste currently stored on Orchid Island would be relocated until the site of a permanent or intermediate nuclear waste depository is decided, while no party has a management policy on high-level nuclear waste. Orchid Island-based Tao Foundation director Siyaman Foangayan said there is never a practical relocation program and major parties have been circumventing the issue..

The three parties pledged to deactivate the three functioning nuclear plants by 2025, but the KMT and the PFP did not exclude the possibility of extending the service life of those plants if the nation faced power shortages. Both the KMT and the PFP said the activation of the sealed nuclear plant should be decided by a referendum, while the DPP said it would not resume the construction of the unfinished plant.

Source: http://www.taipeitimes.com/, 15 January 2016.

Centre for Air Power Studies

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

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

Edited by: Director General, CAPS

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

Composed by: CAPS