



A FORTNIGHTLY NEWSLETTER ON NUCLEAR DEFENCE, ENERGY AND PROLIFERATION FROM
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OPINION - Vice Admiral Vijay Shankar

India-Pakistan and Tactical Nuclear Weapons: A Step Closer To The Abyss – Analysis

In March 2013 a workshop was conducted under the aegis of the Naval Post Graduate School, Monterey. It sought to examine the escalation dynamics in a South Asian crisis under a nuclear overhang. A scrutiny of the scenario suggested that a vertical escalatory spiral was central to the paradigm and therefore intrinsic to its anatomy was an inexorable traction to extremes. First blood had been drawn by a Pakistan State sponsored terror attack, it targeted leadership at a very large public gathering leading to extensive casualties; in most strategic lexicons this is an act of war. The demands of the Indian side, unfortunately, were given short shrift. Had some movement been made towards apprehending and handing over the terrorists, the situation could have been defused.

Accordingly, a swift punitive military thrust was launched by Indian forces across the LOC and a Maritime Exclusion Zone was decreed. Forces primarily used were the less intrusive Air and Sea arms. This in turn escalated to action that was not restricted to the LOC. The introduction of TNWs into the battle area attained inevitability. To Indian Leadership the question posed was how would offensive Indian forces respond? In the event a deliberate decision was made to search out and strike the nuclear tipped Nasr batteries as with other tactical artillery pieces without discrimination; and should a nuclear Nasr launch occur on Indian Forces it would be regarded as a First Strike and India would reserve the right to launch massive retaliatory strikes to the dictates of her Nuclear Doctrine. The adversary balked from deploying TNWs.

Firstly, technology, while it provides for modernization it invites covertness whereas its impact demands transparency. Secondly, that the army in Pakistan is the real power centre, and therefore for India to engage an enfeebled civilian leadership is self defeating. Thirdly, TNWs make for a dangerously unconvincing deterrent correlation.

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What is it All About? The Essence of Stability

Marshall Ferdinand Foch, one of the lesser of the meat grinding generals of the First World War when faced with the bewildering nature of the larger strategic situation is said to have countered with a fundamental question, De quoi s'agit-il? – What is it all about? Indeed this poser if understood and answered in the context of nuclear stability would bring us to the complexities that face nations with the coming of a weapon that can obliterate the very purpose of warfare; in the circumstance the separation of the conventional from the nuclear is a

logical severance. A major divergence from the Two-Bloc-Nuclear-Face-Off of the past is nuclear multilateralism. In this altered plurality the true enemy is the dynamic that rocks the equilibrium.

The essence of stability is to find agreement on three foundational truths. Firstly, technology, while it provides for modernization it invites

covertness whereas its impact demands transparency. Secondly, that the army in Pakistan is the real power centre, and therefore for India to engage an enfeebled civilian leadership is self defeating. Thirdly, TNWs make for a dangerously unconvincing deterrent correlation. Why would a nation turn its back on the prudence of the past six decades and deliberately reduce the nuclear threshold through the introduction of TNWs and in a situation of mortal internal collapse, invite the increasing probability of the breakdown of nuclear deterrence? After all it was the Pak foreign minister Aga Shahi in dialogue with the American Secretary of State in 1979 who suggested that the “value of nuclear weapons lies in its possession and not in its use”. TNWs are marked by several features that prop up the illusion of control and the misguided belief that the adversary would, for some reason, abjure the opportunity to escalate response. Its deployment will attract pre-emptive suppressive action and doctrine for employment follows conventional field axioms with the risk of accidental, unauthorized or mistaken use. It therefore promotes only one cause and that is the Pakistani military establishment’s hold on that hapless state. Recognizing the politics of the South Asian region and the emasculated nature of civilian leadership in Pakistan; the dangers of adding nuclear violence to military perfidy, as recent proliferatory history and Jihadist terror acts have shown, is more than just a reality.

The NATO Paradigm

Pakistan in defense of TNWs often cites the NATO analogy. However, by the 1980s NATO was doctrinally imbued with the idea of the irrelevance of nuclear weapons against less than existential threats. With this conviction, both Britain and France perceived the use of nuclear weapons (of any yield) as a failure of deterrence and therefore not a realistic alternative to conventional forces. Employment of TNWs through the doctrine of ‘flexible response’ did not provide the lever to control the escalatory ladder. The strategy, even in concept lacked conviction for limited nuclear war is a contradiction in terms.

The Burden of God’s Gift

The South Asian nuclear imbroglio is evolving under circumstances that are unique. A shared antagonistic history; geographic contiguity; a political and structural contradiction between a centralized de facto military

leadership and a democratic dispensation; a yawning economic gap; and, awkwardly a self-ordained military that (mis)perceives in antagonism an existential peril and a reason for self-perpetuation. India also views the complicity of China in the Pakistan nuclear weapons programme as suggestive of doctrinal links that permit a ‘Janus’-faced approach to the latter’s no first use posture.

Pakistan contends that the articulation of a nuclear doctrine is unnecessary for the purpose of establishing deterrence. Unfortunately, a nation that announced its nuclear weapon status and views it as “God’s gift” must also realize that a deterrent relationship is essentially about mutual knowledge of purpose. Ambiguities, deception and carousing with non-state actors can only serve to obfuscate.

The Challenge: Contending with Pakistan’s Perspective

The impending introduction of a sea-based deterrent into the Indian arsenal, rather than being seen as an element of stability that will enhance credibility of the

second strike, is perceived through a curious logic as an asymmetric trend that somehow adversely impacts crisis stability. Given the opacity of Pakistan’s strategic nuclear underpinnings, descent to TNWs and duplicity of policies, it has become increasingly prickly for India to either understand nuclear thinking in Islamabad or to find coherence between a mania for parity, the rush for stockpiling fissile material and the loosening of controls over nuclear weapons.

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More puzzling is the strategic notion that the perceived conventional imbalance between the two countries may be countered by Pakistan exercising one of two options: firstly, secure an assured second-strike capability; secondly, place the arsenal on ‘hair trigger alert’ and then the argument goes, introduce TNWs as “another layer of deterrence” designed to apply brakes on India’s military doctrine of Cold Start (ala NATO’s discredited formulation). As Feroz Khan posits, “Pakistan’s flight-testing of the short-range, nuclear-capable rocket system Hatf-9 (Nasr), was introduced to add ‘deterrence value’ to Pakistan’s force posture.”

The author in a bizarre contradictory temper adds “due to the proximity of targets, short flight times and the technical challenges of assuring information accuracy, the likelihood of inadvertence is high.” He further holds

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that "...central command and control will become untenable and the 'Nasr' with its marked footprint will attract punishing pre-emptive conventional attack. Thus, battlefield nuclear weapons such as Hatf-9 will pose a 'use it or lose it' choice, precipitating a nuclear exchange that may not be intended." The unbiased political examiner is left bewildered that if such be the imbalances in the power matrix, then why does Pakistan not seek rapprochement as a priority of their military, economic and political policies? The answer perhaps lies in asking, "Who stands to gain in this power play?"

Conclusion: the Quest for a Response

Pakistan espouses an opaque deterrent under military control steered by a doctrine obscure in form, seeped in ambiguity and guided by a military strategy that finds unity with non-state actors. The introduction of TNWs exacerbates credibility of control. It does not take a great deal of intellectual exertions to declare whose case lowering of the nuclear threshold promotes. Two options present themselves to the Indian planner; firstly to generate specialised forces that continuously track and mark TNWs and incorporates an airborne conventional capability to neutralise them. The second option is a soft one that aims at dispelling the veil of opacity that surrounds the nuclear deterrent. What may have impact is a combination of the two.

Nietzsche astutely warned that "And if thou gaze long into an abyss, the abyss will also gaze into thee". Thus far nuclear relations in the region have been bedeviled by a persistent effort to combat the monsters that the shroud of covertness has cast; it has left us the unenviable task of out staring an abyss. Nietzsche in the circumstance would have advised an assault on the first causes – dispel opacity and engage the military through dialogue and from a position of total preparedness.

Source: <http://www.eurasiareview.com/>, 02 December 2013.

OPINION - Jamal Hussain

Nuclear Weapons: A Game Changer in South Asia

Historians might credit the May 1998 time frame — when both India and Pakistan overtly displayed their nuclear arsenal — as the beginning of the nuclear age in South Asia. Realistically however, the dynamics of nuclear deterrence had been set in motion way back in 1985 when both India and Pakistan, through intentionally planned leaks, had let it be known to each other that they had crossed the nuclear threshold, and were in possession of nuclear weapons, without having

to resort to a nuclear explosion. This was the period of the policy of 'nuclear ambiguity', and many military analysts on both sides of the border have credited it with averting armed conflict between the two belligerent neighbours on more than a couple of occasions, from 1985 to 1998.

In 1986, under the banner of Exercise Brass Tacks, the Indian armed forces, led by General Sundarji, had amassed a very large offensive force close to the Pakistan border in the southern sector, considered Pakistan's soft underbelly. The threat of a full scale Indian military invasion of Pakistan was very real, and trusting the Indian's stated intentions that the force assembly was merely a peacetime exercise in India would have been foolish, almost suicidal. Pakistan mobilised its armed forces fully, and exploiting a gap in the Indian defences in the north that had resulted because of the large scale troop redeployment for the exercise in the south, positioned its offensive formations in a manner that threatened sensitive Indian territories. This was followed by veiled threats of defending the homeland through all possible means, an indication of going for the nuclear option if necessary.

The crisis was defused following what is generally referred to as cricket diplomacy, the uninvited visit of the Pakistani strongman and president, General Ziaul Haq to India, ostensibly to witness a cricket match between the Pakistan and India cricket teams. Assuming that the Indians were planning a military offensive under the garb of Exercise Brass Tacks, were they eventually deterred by Pakistan military's conventional posture or its nuclear threat, or perhaps both? A chastised Sundarji, after retirement, published the very readable book, *Blind Men of Hindoostan*, where he depicts the horror and destruction that a nuclear exchange would cause to both the nations if such an eventuality does take place.

Tensions along the border were raised on a couple of other occasions prior to 1998, but not on the scale of the 1986 event and on each occasion, mutual deterrence where the nuclear factor played a key role, prevented misadventures by either side.

May 1998 saw both India and Pakistan take their nuclear weapons capability out of the closet by conducting nuclear explosions that removed any ambiguity about their nuclear weapons manufacturing credentials. After that, in 1999, a limited conflict was fought in Kargil, and the fact that it did not spill out of control may be credited to the nuclearisation of the region.

On December 13, 2001, the Indian parliament came under attack by an armed group, which according to the Indian government, was part of a terrorist organisation that had its support base in Pakistan. Pakistan denied any involvement and condemned the attack, but an enraged Indian government, with the full backing of its public, decided to teach Pakistan a lesson through a military showdown. Full scale mobilisation of the Indian armed forces was ordered, and they were placed along the Pakistan border in an extremely offensive posture. Pakistan was served with a list of harsh ultimatums, which if it failed to comply with to their satisfaction, would result in a military invasion of Pakistan. Pakistan rejected the ultimatums and put its own forces on full alert to meet any impending Indian threat. The two forces, fully armed and ready to launch at short notice, faced each other, eyeball to eyeball, across their respective borders.

A full scale conventional war between two nuclear-armed neighbours, which could easily escalate to a nuclear weapons exchange, became a nightmarish reality. The entire world sat up, alarmed at the exceedingly dangerous situation, which if not defused, could lead to a nuclear war that would affect the ecology of the entire planet. Intense diplomatic and other pressures were applied on both the belligerents to de-escalate, especially by the US, the sole superpower of the world. Mercifully, after over eight months of engaging in a dangerous game of military brinkmanship, the Indians relented and decided to disengage by pulling back their armed forces. Pakistan followed suit. A dangerous war had been averted.

While the US had played a pivotal role in using its influence in the region to defuse the situation, would the US had been as concerned if the two sides were not nuclear armed? What part did nuclear deterrence play in preventing the war? Have nuclear weapons changed the complexion and nature of war between India and Pakistan?

What are the limits and dangers of nuclear posturing and nuclear brinkmanship? Can the Kargil war, the 2001/2002 standoff and 2008 Mumbai attack

experience lead to the suggestion that a full scale conventional war of the 1965/1971 variety has become a thing of the past, while the threat of a very limited military conflict between the two nuclear armed neighbours, which still has the potential of escalating to a full-fledged nuclear showdown, continue to loom large? If that be true, should it not lead to a doctrinal shift of Pakistan's defence policy and a restructuring of its armed forces to meet the new challenges?

Today the nation faces a serious threat to its security from non-state actors indulging in asymmetric warfare against the state. Nuclear deterrence does not work against such adversaries, and when the militancy of the rebels goes beyond the capability of the country's law enforcing agencies to control, and turns into a full fledged insurgency, deployment of regular armed forces, where air power plays a secondary but significant role becomes inevitable. Today, Pakistan is confronted with such a scenario, and its armed forces have to be prepared and readied to handle both the conventional and sub-conventional threats to its security. These are some of the key questions that have to be understood, addressed and answered to determine if alterations in the nature, size and capabilities of the nation's current armed forces is called for.

The very nature and magnitude of destruction caused by nuclear weapons has put them in a class of their own, very different from that of conventional weapons. While conventional weapons are developed and acquired to fight wars, nuclear weapons' primary purpose is to prevent wars, both at the conventional and nuclear levels. This implies that the nuclear warfare doctrine is a separate subject, independent of the conventional warfare doctrine, yet the two remain interlinked. Pakistan's defence strategy, therefore, should be built on the twin pillars of nuclear and conventional/sub-conventional war dynamics.

Source: Daily Times, [http://www.dailytimes.com.pk/27 October, 2013](http://www.dailytimes.com.pk/27%20October,2013).

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OPINION - Eben Harrell

Fukushima: Are Faulty Vents A Global Danger?

Of all the crucial decisions that Tepco engineers faced at the Fukushima Power Plant in the frenzied hours after the earthquake, none was more agonizing or difficult than this: should the company intentionally vent gas from the overheating reactors even though doing so would release radioactivity into the atmosphere? The decision took time—and caused dissent among company and government officials—but it was eventually agreed that doing so was the only way to prevent hydrogen that had accumulated in the reactor containment vessel from exploding. What happened next will be scrutinized by nuclear safety experts for years.

According to various press reports that cite internal Tepco documents, when officials decided to begin authorized venting, they found that the venting system did not work. It relied on the same source of electricity as the rest of the plant: backup generators that had been decimated by a 50 ft tsunami that followed shortly after the earthquake. They then decided to try to manually open the vents, but again were thwarted, perhaps because the vents had been damaged during the earthquake. What eventually happened is now well-known: hydrogen in reactors 1, 2 and 3 exploded, blowing the roof off the containment buildings and spewing a radioactive plume that spread for miles.

There are two main questions that the Fukushima venting problems raise. The first is whether existing BWRs in the U.S. and elsewhere have adequate venting systems to handle serious loss of coolant accidents. The U.S. NRC mandated in the 1980s that an enhanced venting system be installed at boiling water reactors that use the same containment system as Fukushima. Early on after the Japanese quake, U.S. experts had said that U.S. plants were safer because of these improvements. But end of November 2013 it emerged that Tepco had installed the new

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Should there be a set trigger point that sets off the mandatory release of pressure? Currently, U.S. regulations allow plant operators to take actions during an emergency that might technically “violate” NRC regulations, as long as those actions work to control or mitigate the overall situation.

venting system at Fukushima, and it still malfunctioned. So should the NRC require U.S. plants to redesign their venting systems? “It’s still too soon to start drawing conclusions on either the events at Fukushima or how our task force will examine/evaluate verified information from the incident to provide possible recommendations to the Commission,” NRC spokesman Scott Burnell told Eco-centric. Of course, that doesn’t mean the NRC won’t be looking closely at the issue.

The second question is whether plant operators should be given the freedom to decide when to vent to prevent hydrogen explosions. Should there be a set trigger point that sets off the mandatory release of pressure? Currently, U.S. regulations allow plant operators to take actions during an emergency that might technically “violate” NRC regulations, as long as those

actions work to control or mitigate the overall situation. Perhaps the NRC should codify this process...

Tepco officials’ concern that an intentional radiation release would sharply elevate the accident’s severity. At the time, Tepco still hoped the accident could be contained without venting, given that release of radioactivity in the atmosphere would instantly rank Fukushima among the world’s worst accidents. So maybe the NRC needs to make explicitly clear when plant operators must vent to prevent them from taking on high risks in an effort to keep situations under control. We trust plant operators to make safe decisions because the stakes for their industry are so high: cynically put, nuclear accidents are very bad for business. But perhaps this cynical truth might also lead to risky behavior in certain circumstances.

While the NRC mulls over such questions, Britain became the first country to publish a report stating that Fukushima should not be a game changer for the nuclear industry. The UK’s Office for Nuclear Regulation published a preliminary report that found that Fukushima provided no warnings that should curtail nuclear power in the U.K, which has plans for the construction of

8 new reactors. The report pointed out that the UK

has no boiling water reactors and all but one of its fleet use gas-cooled technology so would not face the same issues as Fukushima's reactors during a loss of coolant accident. What's more, the report pointed out, "the extreme natural events that preceded the accident at Fukushima – the magnitude 9 earth-quake and subsequent huge tsunami – are not credible in the UK."

However, the report did lay out 25 areas—including improved communication by the IAEA and national nuclear bodies, better facilities to deal with the flooding of radioactive water, and more robust electricity supplies—in which the nuclear industry should take instruction from the experience at Fukushima. "We should recognize that to achieve sustained high standards of nuclear safety we all need to adhere to the principle of continuous improvement. This means that, no matter how high the standards of nuclear design and subsequent operation are, the question for improvement should never stop," the report states.

At present, much research is under way in China, India and the USA to develop thorium-based nuclear electric power. Chinese researchers have been working on high-temperature, gas-cooled reactors capable of processing thorium fuel.

Source: <http://energybiz.com/>, 01 December 2013

OPINION - Harry Valentine

What About Iran's Use Of Peaceful Nuclear Energy?

Now that the USA and Iran are actively talking with each other, one issue that may come up is Iran's plans to develop nuclear electric power. While the diplomacy of Iran's new president is very positive, the behavior of his predecessor was a definite cause for concern across much of the Middle East and beyond. Iran is not the only Middle Eastern nation that seeks to generate future electric power from nuclear energy. Several other Middle Eastern and North African nations seek to do likewise and all using uranium-based fuel.

Much has been written previously including in Energy Pulse, on the more peaceful aspects of thorium-based nuclear power. Previous research suggests that thorium can be more easily reprocessed than uranium and that it is quite unsuitable for use in a nuclear explosive device. The ore that contains thorium occurs quite naturally in nearby nations such as India, Turkey and Egypt. Earlier research has also suggested that a relatively small amount of thorium can generate as much electric power as some 50-times the amount of uranium.

Constructive political dialogue with Iran could open the door for possible discussions about using thorium-based nuclear electric power. At present, much research is under way in China, India and the USA to develop thorium-based nuclear electric power. Chinese researchers have been working on high-temperature, gas-cooled reactors capable of processing thorium fuel. Any willingness by Iran to discuss possible future thorium nuclear power may go far in terms of easing political tensions across the Middle East. Iran may require foreign investment to consider a conversion from uranium to thorium fuel for their future nuclear electric program.

Any easing of economic sanctions against Iran may likely open a possible door to discuss future prospects for thorium nuclear electric power in that nation. Despite having been economically isolated, Iran has connected long-distance electric power lines across international borders into Turkey and into Turkmenistan. Improved diplomatic relations between Iran and other Middle Eastern

neighbor states could possibly result in an undersea power cables connecting under the Strait of Hormuz or under the Persian Gulf. The undersea distance between SE Iran and NW India is much shorter than the proposed undersea cable distance linking British Columbia and California.

Mutually cordial diplomatic relations prevail between Iran and China and could open the door to possible discussions about Iran possibly using Chinese thorium-nuclear technology to generate electric power for domestic use as well as for export. Iran's geographic location in regard to time zones allows long-distance power lines to carry electric power to different time zones located to the east and west of Iran. The AM peak demand for electric power would occur in a sequence beginning in India and western China, followed by Iran and the Middle East, then followed by Eastern and Western Europe.

The Desertec Group has previously discussed prospects east-west and also north-south long-distance power transmission across Asia, North Africa, the Middle East and Europe. Except that Desertec focused on renewable energy such as wind and solar power. Several European countries that include Spain, Iceland, Ireland, Greece and Portugal had previously invested heavily in renewable energy, believing that a Green Energy revolution had the potential to rebuild

national economies. Except that the economic promise of cost-competitive renewable green energy has faded in several nations. Plans to install solar collectors and panels across the Sahara and Arabian deserts are now on-hold.

Given the seasonal cyclical nature of the demand for electric power across much of the Middle Eastern, the Near East and Western Europe, future development of nuclear power may benefit from the availability of seasonal energy storage capability. Beginning some 5-years ago, a research team at MIT and a British research group named Isentropic Energy independently explored future prospects for seasonal high-temperature geothermal energy storage. There is definitely potential to develop such storage in the Middle East, given the availability of a few exhausted natural gas wells that were flooded with seawater to displace residual natural gas.

Seawater is also used to displace oil from some oil wells, leaving future potential for some form of geothermal energy storage. However, high-temperature geothermal energy storage would require the physical presence of a thermal power station in close proximity to the energy storage site. The Middle East does have potential for pumped hydraulic storage with an installation operating in Iran, as well as potential for CAES with the added option of seasonal, water-displacement CAES. Across the oil-producing Middle East, large salt caverns and salt domes occur deep underground and also in high mountains.

Salt domes in Muscat and in Iran protrude above ground in high mountains, allowing for excavation of massive volumes of rock salt that may be replaced by seawater. A fabric tent cover placed over the top of the mountain salt dome would reduce evaporation from the upper reservoir of a seasonal water-displaced CAES system. One of more salt domes located at great depth and partially flushed of rock salt would serve as compressed air storage reservoirs. During winter seasonal recharging, compressed air pumped into the lower elevation chambers would displacing seawater or brine into the upper reservoir(s).

The cost of further, prolonged armed conflict across the Middle East would be unproductive. Given the

US\$5-trillion estimated of the Iraq involvement, it would cost far less to assist Iran to convert their proposed nuclear-electric program from uranium to thorium fuel that would produce far less toxic waste that would be quite unsuitable for use in an explosive device. The future of peaceful nuclear electric power would depend in the nature of future inter-governmental discussions between the Iran and USA as well as other relevant nations.

Source: <http://energybiz.com/>, 01 December 2013,

OPINION - Amos Harel

Nuclear Deal's Aftermath || Obama's Problem, Saudi Arabia's Concerns and Israel's New Goals

1. Iran

...After the signing in Geneva of the interim agreement between the P5p+1 " the five permanent members of the UN Security Council and Germany " and Iran concerning Tehran's nuclear project, many unknowns remain. Not only are the arguments about the quality of the agreement continuing; the meaning of the accord's actual details remains steeped in controversy... Iran's has accused that Washington was putting out misleading information about the full text of the agreement. In other words, negotiations over what was supposed to have been agreed upon in the negotiations are likely to continue. The interim accord is meant to be in force for a six-month period, during which the sides will formulate the final

agreement, but the countdown has yet to begin. In the meantime, then, Iran is apparently not hemmed in by the concessions it took upon itself undertook in the interim agreement. The American admission about the technical details did not surprise Israelis who followed earlier rounds of talks between Iran and the powers, dating back to the talks with the European troika a decade or so ago. In this case, the cultural cliché looks to be accurate: This is classic Iran. The Iranians are indeed skilled at conducting long and wearying negotiations. Many times, the agreements reached serve them only as a point of departure for renewed bargaining.

Contrary to the hopes of the Israeli leadership, Tehran did not come crawling to Geneva, and Tehran also apparently did not forgo the basic principles with which it came to the negotiations. The nuclear project

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has been slowed, but the Iranians can view the agreement as de facto recognition by the international community of their right to enrich uranium. They have already made significant advances in many areas, even if the pace of development was not as rapid as predicted in the pessimistic forecasts of Western intelligence in the past two decades. The uranium stocks already in Iran's possession would allow it to make a "leap forward" and complete the enrichment to a high "military" level within a few short months, if the decision is made to do that. Iran's missiles continue to threaten a large number of countries, including Israel, and many experts now think that the time needed by Iran to produce a nuclear warhead for those missiles has been considerably shortened in recent years. At present, given that global opposition to the further continuation of the nuclear project had put the survival of the regime in immediate danger "and this is always the regime's primary consideration" Tehran has decided to compromise. The economic damage, and even more so, the growing frustration of the Iranian public, dictated the compromise in Geneva, but it looks like one the ayatollahs can live with.

None of this would have been accomplished with a somewhat loopy lightning rod like Mahmoud Ahmadinejad out front. But with the moderate Hassan Rohani elected president, and with Foreign Minister Mohammad Zarif, a graduate of academic studies in the US, as Tehran's delegate to the talks, the result was very different. The way the Iranian delegation in Geneva comported itself, including its behavior with the foreign media, reflected a self-confident return to the fold of the international community. At times, it seemed as though the West was longing for a hug from Iran; it was Israeli sourness and suspicion about the agreement that were greeted with hostility.

The Iranian leadership is now apparently following a sagacious and relatively cautious path. The interim agreement is not likely to prevent Tehran from charging ahead with the manufacturing of a nuclear weapon, if a convenient opportunity should arise while the West's attention is directed elsewhere. At the moment, Iran sees itself as a nuclear threshold state, which has stopped on that threshold for reasons

of its own. The world's powers "and the neighboring states" will have to acknowledge that fact.

Iran can chalk up another strategic accomplishment, namely, that its intervention in the Syrian civil war (especially the decision to dispatch Hezbollah forces from Lebanon to the campaign) has helped save President Bashar Assad's regime, at least for now. This is the approach of a country that views itself as a regional power possessing all-embracing interests across the Middle East. The nuclear accord has already spawned an invitation to Tehran to take part in shaping Syria's future in another conference planned for Geneva, this time in an effort to end the civil war. On the other hand, the renewed honeymoon with the West might compel Tehran to reduce somewhat its involvement in terrorist activity, particularly its cooperation with Hezbollah in attacking Israeli targets abroad.

Do the successes recorded by Tehran in the past few weeks guarantee the regime's long-term survival? That is far from certain. If there is one thing the upheavals in the Arab world over the past three years have shown us, it is never to say never in this part of the world.

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2. United States

A large disparity exists between the perception of the interim accord in Washington and the reactions in the Middle East. Though the hawkish wing of the Republican Party (at least among those in it who bother themselves about foreign policy) and Israel's friends in Congress were critical of the way the Obama administration handled itself, the White House and the State Department view the agreement as an achievement. It follows hard on the last-minute agreement reached in August with Russia, which forestalled an American attack in Syria when the Assad regime agreed to dismantle its chemical weapons stocks.

The Geneva agreement, like the Syrian compromise before it, after President Barack Obama threatened to attack Syria in reaction to the regime's killing of 1,500 civilians in a chemical weapons attack, reinforces the administration's preference for diplomacy and agreements over the use of massive military force. In the past decade, the US brought advanced technology

and vast destructive might into play in its wars in Afghanistan and Iraq, yet concluded them with disappointing strategic results. Now it is looking for new methods: from the use of soft power “ diplomatic and economic “ to cyber warfare and under-the-radar sabotage.

This approach dovetails with two other aspects of administration policy. The first, about which much has been written, involves a shift of the strategic emphasis in terms of economic interests, toward the rising economies of East Asia. America’s diminishing dependence on Middle Eastern oil, together with growing disgust at the chaos in the Arab world (as well as with the Israeli-Palestinian conflict) add another incentive.

The second element concerns Washington’s efforts to find a point of equilibrium between the rival blocs in the Muslim world. In the past few years, Israel expected Washington to strengthen the moderate Sunni bloc, which includes Egypt, Saudi Arabia, Jordan and the Gulf states, against the Iranian-led Shiite bloc. However, the Americans are probably no longer dividing the region in black-and-white terms of bad guys and good guys. The hand that was proffered cautiously to Iran reflects a desire to at least leave channels of communication open with the countries of what Obama’s predecessor, President George W. Bush, termed the “axis of evil.” Related to this is the fact that, as reported in the media, Washington and Tehran held secret talks for the past year, mediated by Oman.

A few years back President Obama’s advisers explained that the president had adopted a policy of “leading from behind” (in connection with the toppling of the Gadhafi regime in Libya). That coinage continues to haunt Obama. The Saudis and the Egyptians, like the Israelis, were appalled at the idea of “leading from behind.” They interpreted the term as referring to preparation for a gradual American withdrawal from the Middle East, and as an expression of the administration’s disinclination to continue to

bring military might to bear in the region.

Obama’s principal problem after the Geneva agreement, as analysts at the Washington Institute for Near East Policy observed perceptively in a series of publications issued... is the lack of trust emanating from friendly states about his ability to implement his declarations. The Sunni capitals recall Washington’s ignominiously quick abandonment of the Mubarak

regime in January 2011, the hemming and hawing about whether to recognize the generals who seized power in Cairo last July and the pullout from Iraq and Afghanistan.

3. Saudi Arabia

The Sunni states, particularly Saudi Arabia and the Gulf states, are worried not only by the American pullout from the region

but also by the rise of Iranian hegemony. Concerns about Tehran are not confined to its nuclear aspirations. The Gulf states are observing with trepidation the extensive terrorist activity being conducted by the Iranian Revolutionary Guards’ Quds (Jerusalem) Force and Tehran’s increasing involvement in blood-drenched conflicts between Sunnis and Shi’ites across the region, epitomized by its activity in the Syrian civil war.

The statement issued by Riyadh welcoming the signing of the Geneva agreement sounded skeptical and constrained. Notable was the comment that the

agreement stirs hope, “if there are good intentions.” Senior Saudi officials, briefing journalists and think-tank analysts in the West, made it clear that if their country was not convinced that the agreement would put a stop to Iran’s project, it would consider

acquiring nuclear weapons for itself as a counterweight to the Iranians’ might. Those sentiments support the surprising alliance of interests that has recently been tightened between Israel and the Gulf states “ though this should not be taken for more than it is. The alliance will dissolve the moment Saudi Arabia actually moves to acquire nuclear weapons of its own “ which Israel will view as a potential threat. The closest ties Israel can aspire to

In the past decade, the US brought advanced technology and vast destructive might into play in its wars in Afghanistan and Iraq, yet concluded them with disappointing strategic results. Now it is looking for new methods: from the use of soft power “ diplomatic and economic “ to cyber warfare and under-the-radar sabotage.

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are with the moderate regimes in the two countries with which it already has peace treaties, Jordan and Egypt, and even then on condition that the current regimes remain in place.

4. Israel

The view from Jerusalem is that the Geneva agreement constitutes another sharp turn in the kaleidoscopic whirl of events over the past three years. It follows a wave of previous upheavals, from the fall of Mubarak to the agreement to dismantle Syria's chemical weapons stock. But what the Israeli leadership finds most

difficult to digest is that Jerusalem is no longer at the center of the target, for better or for worse. Just as Israel was never the only target of the Iranian nuclear project, so too it has only a secondary role in the world effort to scuttle the project. The agreement is neither a gift from heaven nor the end of the world. It is what it is. A vital pause has been achieved, which appears to make possible more intensive handling of the problem and offer a prospect of achieving a permanent settlement that will reduce the scale of the threat to Israel.

PM Netanyahu has good reason to be angry at President Obama. He was furious when he discovered, many months ago, the secret channel that the Americans had opened with Tehran. Political coordination between the US and Israel on the Iranian question has been wobbly since Thomas Donilon resigned as head of the National Security Council in Washington this past June. It's also true that the Americans, after masterminding the international sanctions, screwed up at the very end and returned from Geneva with a flawed agreement. The view of Israeli observers was that at the last minute, the US took fright at itself, and became fearful of a war that the Iranians should have feared. Nevertheless, this is the right moment for

Israel to disabuse itself of its grand illusions. Israel is working against its own interests by squabbling publicly with the Americans. Substantive criticism is something different from the present toxic atmosphere.

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The Iranian campaign is not yet done with. The decisive stage will be that of the negotiations on the final agreement, which are supposed to get underway now. This is not a zero-sum situation. Israel needs to calibrate its desired goal in the final agreement and do its best to achieve what it wants, in coordination with the Americans and the Europeans.

Critical issues exist on which a good result can be achieved further down the line, such as ensuring tighter supervision of the nuclear facilities, developing intelligence gathering and analysis capability that is coordinated with the Western states, and attempting to "roll back" as far as possible the final level Iranian capability will be allowed to reach in the final agreement. It is also very important to prepare a coordinated move with the US on the rapid imposition of new sanctions, should it turn out that the Iranians are deceiving the international community, bringing about the agreement's collapse. All this will be possible only if Israel stops its public blasting of the US. Netanyahu's repeated assertion that the agreement is bad, bad, bad could leave him in the position of the man of yesterday...

Critical issues exist on which a good result can be achieved further down the line, such as ensuring tighter supervision of the nuclear facilities, developing intelligence gathering and analysis capability that is coordinated with the Western states, and attempting to "roll back" as far as possible the final level Iranian capability will be allowed to reach in the final agreement.

When the US led by President Richard Nixon and his foreign policy major domo Henry Kissinger cut a deal with communist China using Pakistan as a conduit in 1970, India was left out of the loop in a detente that changed the geopolitical dynamics of the region. Some four decades later, India is front and center in the American reconciliation with Iran, an event that when fully realized

is likely to bring about an even greater seismic shift in Asia.

New Delhi may not have directly played errand boy or secret channel in the latest diplomatic upheaval that Pakistan's Yahya Khan played in 1970. But almost every interlocutor who worked on the US-Iran agreement has an India connection — from William Burns, the deputy secretary of state who initiated and led the secret talks (he also wrapped up the US-India nuclear deal) to Puneet Talwar, the White House national security council staffer who did the grunt work for the agreement, to Thomas Pickering and Frank Wisner, both former US ambassadors to New Delhi, who opened the back channel with Teheran going back to the Bush administration.

More important than the personnel involved, however, the reconciliation carries multiple benefits for India, which has the second largest Shia Muslim population in the world after Iran. In fact, PM Singh and Indian officials has often pointed this out during discussions with US officials whenever the subject of Washington's difficult relationship with Teheran came up, suggesting that a reconciliation would redound to the benefit of all sides — from making US draw down from Afghanistan smoother to relieving India, which has close civilizational ties with the Persian power, from suffocating pressure on the energy front.

The US-Iran deal, which is currently of an interim nature with much more groundwork to be done before it is set in stone, has other profound consequences for India and the region. For one, its extricates Washington from the Sunni stranglehold that had cast the US as an unremitting ally of Sunni-dominated countries such as Saudi Arabia, Pakistan, and Egypt against mostly Shia-dominated Iran, Iraq, and Syria. India, which has about a 70:30 Sunni-Shia mix, has an exemplary record of intracommunal harmony, and there were lurking fears that this might be disrupted if the Sunni-Shia conflict in the Muslim world expanded eastward.

On the nuclear front too, US exceptionalism is being

applied to two countries with civilizational underpinnings (India and Iran) vis-a-vis their artificially created rivals (Saudi Arabia and Pakistan). Although the US-Iran deal precludes Teheran having nuclear weapons, and is in fact designed to avert its nuclear weaponization (unlike in the case of India where Washington implicitly recognized India's right to retain its nuclear weapons), the agreement is seen as being as bold a move by the Obama administration as the Bush administration's nuclear deal with India...

Source: <http://www.haaretz.com/>, 30 November 2013.

OPINION - Peter Wilk

Maine Voices: With Famine Seen As Fallout From Nuclear War, Risk Must Be Reduced

The US-Iran deal, which is currently of an interim nature with much more groundwork to be done before it is set in stone, has other profound consequences for India and the region. For one, its extricates Washington from the Sunni stranglehold that had cast the US as an unremitting ally of Sunni-dominated countries such as Saudi Arabia, Pakistan, and Egypt against mostly Shia-dominated Iran, Iraq, and Syria. India, which has about a 70:30 Sunni-Shia mix, has an exemplary record of intracommunal harmony, and there were lurking fears that this might be disrupted if the Sunni-Shia conflict in the Muslim world expanded eastward.

Two of the greatest threats we face are fundamentally entwined — nuclear weapons and economic instability. Tragically, the nuclear threat is of our own creation. We spent trillions of dollars through decades of confrontation with the former Soviet Union, building massive nuclear arsenals and following a policy of “mutually assured destruction,” threatening others with mass murder and ourselves with mass suicide. Through a combination of diligence and luck, we survived the Cold War. Over the last few years, some progress has been made in reducing the nuclear threat. The most recent encouraging development is in

negotiations with Iran. As with all arms control agreements, verification of progress will be key. Meanwhile, the New START agreement is on track to reduce U.S. and Russian arsenals to 1,550 deployed strategic weapons on each side over the next six years. However, thousands of tactical nuclear weapons are still deployed around the world, and thousands of larger weapons are still held in reserve — more than 17,000 nuclear weapons altogether — leaving us at tremendous risk.

According to a new report being released by Physicians for Social Responsibility and International

Physicians for Prevention of Nuclear War, the use of a tiny fraction of that arsenal would devastate the planet. Perhaps the greatest current risk from nuclear weapons is of a so-called limited nuclear war in South Asia. Although that's on the other side of the world from us, we would all share in the catastrophe. In new studies reviewed by the Physicians for Social Responsibility and International Physicians for Prevention of Nuclear War, climate scientists concluded that if Pakistan and India used half their arsenals and detonated 100 Hiroshima-sized bombs on each other's territory, smoke from their burning cities would be carried high into the atmosphere and cause reduced growing seasons throughout the Northern Hemisphere. This dramatic climate disruption would likely last for a decade, resulting in massive food shortages putting up to 2 billion people at risk of starvation and threatening the rest of us with social and economic chaos...

Fortunately, taking steps to reshape our nuclear weapons strategy will not only enhance our national security, it also will save us billions of dollars and help address the other grave threat we face: the budget crisis... For example, deciding not to re-build our oldest nuclear gravity bomb, called the B-61, could save us \$10 billion, while simply delaying development and production of a whole new generation of nuclear submarines and bombers would save us an estimated \$35 billion...

Source: <http://www.pressherald.com/>, 10 December 2013.

NUCLEAR STRATEGY

INDIA

India Test-fires N-capable Missile

India on December 3, 2013, successfully test-fired its nuclear-capable Prithvi-II surface-to-surface missile from a military base in Odisha for the third time within two months. The indigenously-developed ballistic

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Prithvi is India's first indigenously-built ballistic missile. It is one of the five missiles being developed under the country's IGMDP. The battlefield missile, with flight duration of 483 seconds and a peak altitude of 43.5 km, can carry a 500-kg warhead. The missile has features to deceive anti-ballistic missiles and uses an advanced inertial guidance system with maneuvering capabilities and reaches its target within a few metres of accuracy.

missile with a maximum range of 350 km was fired from the Integrated Test Range at Chandipur-on-sea in Balasore district, about 230 km from Bhubaneswar. "The mission was hundred percent success. It met all mission objectives," test range Director M.V.K.V. Prasad told IANS. The test was carried out by the Strategic Forces Command (SFC) as part of a regular training exercise, he said. The missile was earlier successfully tested by SFC

from the same defence base on October 7 and October 8, 2013. Prithvi is India's first indigenously-built ballistic missile. It is one of the five missiles being developed under the country's IGMDP.

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Source: <http://newindianexpress.com/nation/>, 03 December 2013

India's First N-Sub To Head For Sea Trials In Feb-March

India's first indigenous nuclear submarine INS Arihant will finally head for the open seas for extensive trials, which will include firing of its nuclear-tipped K-15 ballistic missiles, around February-March, 2014. Though long in the making, considering that India's first thought of building a nuclear submarine started way back in 1970, the sea trials of INS Arihant will mark a critical milestone towards giving some much-needed credible teeth to the country's strategic deterrence posture.

...Though India has the land-based Agni missiles and fighters like Mirage-2000s to deliver nuclear weapons, its nuclear weapons triad will be completed only when INS Arihant successfully completes its sea trials spread over at least 12 months. The K-15 missiles, with a strike range of 750-km, have only been fired from submerged pontoons till now. They will have to pass muster during INS Arihant's trials, even as DRDO develops the 3,500-km K-4 missiles. But the Navy seems quite confident. "Let me assure you that when INS Arihant is commissioned, it will not be toothless. She will have whatever she is supposed to have," said Admiral Joshi, speaking ahead of the Navy Day... As reported earlier, India is also negotiating the lease of a second nuclear-powered submarine from Russia, at a cost of about \$1.5 billion, to bolster its ageing underwater combat arm. The Navy has been running INS Chakra, the Akula-II class nuclear submarine called "K-152 Nerpa", since April 2012 after paying Russia almost \$1 billion for a 10-year lease. Though these submarines are nuclear-propelled, they cannot be armed with nuclear missiles due to international treaties.

Nuclear-powered submarines, armed with long-range nuclear missiles, are considered to be the most effective and difficult-to-detect leg of the nuclear triad. The US leads the pack, with around 70 such submarines. While Russia has around 30, China, the UK and France have 8-12 each.

Source: <http://timesofindia.indiatimes.com/>,

04 December 2013

BALLISTIC MISSILE DEFENCE

INDIA

DRDO Planning To Test-Fire High-Altitude 'Killer' Missile in January

After a long wait, the DRDO is contemplating to conduct the first test of its newly developed interceptor missile from a defence base off the Odisha coast in January, 2014. The missile, dubbed as PDV, has the potential to destroy enemy missile with a strike range of around 2,500 km outside the earth's atmosphere (at an altitude of over 150 km). Only a few countries in the world have such a capability. The

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PAD interceptor missile has already demonstrated its killing capability at an altitude of 50 to 80 km. The AAD interceptor missile also has destroyed the target missile at an altitude of 15 to 30 km. Now we want to achieve the interception altitude of over 150 km," a defence scientist said.

air defence exercise, a part of India's BMD programme, would involve two missiles - the interceptor and enemy missile. Both the missiles have been developed for the first time and will be programmed at separate locations in Chandipur and Wheeler Island. A reliable source said while the enemy missile would be fired from a naval warship in the Bay of Bengal, the interceptor would be launched from the launching complex-IV at Wheeler Island. "The test is likely to be conducted in January," it said.

...The DRDO had successfully test-fired exo-atmospheric and endo- interceptor ballistic missiles. Of the seven interceptor missile tests, six have been successful. While two were in exo-atmosphere region, five took place in endo-atmosphere (below an altitude of 50 km). "PAD interceptor missile has already demonstrated its killing capability at an altitude of 50 to 80 km. The AAD interceptor missile also has destroyed the target missile at an altitude of 15 to 30 km. Now we want to achieve the interception altitude of over 150 km," a defence scientist said. The two-stage PDV interceptor will be powered by solid propellants and fitted to an innovative system for controlling the vehicle at an altitude of more than 150 km. The PDV interceptor is expected to replace the PAD interceptor. A scientist associated with the PDV project told 'The Express' that the focus was now to achieve the killing precision at the highest altitude with the help of an advanced software for which the DRDO would achieve a direct hit-to-kill on the target missile.

In a bid to protect major cities, the DRDO has developed two-layered BMD system and the R&D is on to develop Phase-II anti-ballistic missile defence system, capable of destroying enemy inter-continental ballistic missiles fired from 5,000 km away. The two-layered BMD system is expected to be inducted in the armed forces by the end of 2014. However, prior to the PDV test, two user trials by the SFC from the ITR have been planned. While the 350-km range Prithvi-II ballistic missile is slated for test on December 3, Agni-III missile, with a range of 3,000-km, is scheduled for test on December 18, 2013.

Source: <http://newindianexpress.com/nation/>,

30 November 2013

RUSSIA

Russia to Deploy 22 New Ballistic Missiles in 2014

Twenty-two land-based ICBMs will be added to Russia's nuclear arsenal in 2014, President Vladimir Putin said... "We intend to continue prioritizing the development of the main component of our strategic nuclear deterrent," Putin said at a meeting on the development of the Russian Strategic Missile Forces. Putin did not specify the type of new ICBMs to be deployed, but a source in the Defense Ministry told RIA Novosti on condition of anonymity that the missiles will be mobile and silo-based Yars ICBMs. Yars is armed with the multiple-warhead RS-24 ICBM, which has considerably better combat and operational capabilities than the Topol-M (SS-27 Stalin). Russia currently deploys an estimated 326 ICBMs with approximately 1,050 warheads, according to a June report by the Bulletin of the Atomic Scientists. In line with the New START treaty signed in 2010, Russia is allowed to add 227 delivery systems and 150 warheads to its stockpile of nuclear weapons.

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According to the recent State Duma Defense Committee report on the draft federal budget for 2014-2016, Russia plans to increase annual spending on nuclear weapons by more than 50 % in the next three years. The report said 46.26 billion rubles is to be spent on Russia's nuclear weapons systems in 2016, up from 29.29 billion rubles in 2013. The Defense Ministry earlier announced plans to retire most of its outdated SS-18 Satan, SS-19 Stiletto and SS-25 Sickle (Topol) ICBMs and replace them with SS-27 Sickle-B (Topol-M) and RS-24 Yars missiles by 2021.

Source: <http://www.globalsecurity.org/>,

27 November 2013

NUCLEAR ENERGY

IRAN

Report: Iran Needs More Nuclear Power Plants

Iran's nuclear chief said on December 1, 2013 that the Islamic Republic needs more nuclear power plants, the country's official news agency reported, just after it struck a deal regarding its contested nuclear program with world powers. Ali Akbar Salehi said the additional nuclear power would help the country reduce its carbon emissions and its consumption of oil, IRNA reported. He said Iran should produce 150 tons of nuclear fuel to supply five nuclear power plants. "We should take required action for building power plants for 20,000 MW of electricity" in the long term, Salehi said. The comments come after Iran agreed to freeze part of its nuclear program in return for Western powers easing crippling economic sanctions. The deal requires Iran to cap its uranium enrichment level at 5 %, far below the 90% threshold needed for a warhead. That 5 % uranium can be used at nuclear power plants. Iran also pledged to "neutralize" its stockpile of 20 %

enriched uranium — the highest level acknowledged by Tehran — by either diluting its strength or converting it to fuel for research reactors, which produced isotopes for medical treatments and other civilian use.

Iran says its nuclear program is for peaceful purposes. Western powers fear Iran could use its nuclear program to make atomic weapons. Iran's only nuclear

power plant, near the southern port of Bushehr, produces some 1,000 MW of electricity. The plant came online with help from Russia, which will provide fuel for it through 2021. Salehi said Iran is in talks with several countries — including Russia — to build four more nuclear power plants to produce 5,000 MW of power in the near future. He said he asked moderate President Hassan Rouhani to include a line of credit

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in next 2014 budget for expanding nuclear power plants.

Source: <http://news.yahoo.com/>, 01 December, 2013.

WORLD

Experts Say Nuclear Power Needed To Slow Warming

Some of the world's top climate scientists say wind and solar energy won't be enough to head off extreme global warming, and they're asking environmentalists to support the development of safer nuclear power as one way to cut fossil fuel pollution.

...Environmentalists agree that global warming is a threat to ecosystems and humans, but many oppose nuclear power and believe that new forms of renewable energy will be able to power the world within the next few decades. "Those energy sources cannot

scale up fast enough" to deliver the amount of cheap and reliable power the world needs, and "with the planet warming and carbon dioxide emissions rising faster than ever, we cannot afford to turn away from any technology" that has the potential to reduce greenhouse gases.... The vast majority of climate scientists say they're now virtually certain that pollution from fossil fuels has increased global temperatures over the last 60 years. They say emissions need to be sharply reduced to prevent more extreme damage

in the future. In 2011 worldwide carbon dioxide emissions jumped 3%, because of a large increase by China, the No. 1 carbon polluting country. The U.S. is No. 2 in carbon emissions...

... "The time has come for those who take the threat of global warming seriously to embrace the development and deployment of safer nuclear power systems" as part of efforts to build a new global energy supply. One major environmental advocacy organization, the NRDC, warned that "nuclear power is no panacea for our climate woes." Risk of catastrophe is only one drawback of nuclear power, NRDC President Frances Beinecke said in a statement. Waste storage and security of nuclear

The vast majority of climate scientists say they're now virtually certain that pollution from fossil fuels has increased global temperatures over the last 60 years.

Our cooperation in nuclear energy sector further develops. Our plans include extension of existing power bloc of Armenian NPP," said Vladimir Putin.

China and France on the 6th of December 2013 vowed to expand their three decades of nuclear energy cooperation to target markets in other countries.

material are also important issues, she said. "The better path is to clean up our power plants and invest in efficiency and renewable energy," Beinecke said. The scientists acknowledge that there are risks to using nuclear power, but say those are far smaller than the risk posed by extreme climate change...

Source: <http://news.yahoo.com/>, 03 November 2013.

NUCLEAR COOPERATION

ARMENIA — RUSSIA

Armenia And Russia Develop Cooperation In Nuclear Energy Sector

Further development of mutually beneficial partnership between Russia and Armenia in the energy sector is designed to promote the agreements reached on a formula for pricing and volumes of supplies of Russian natural gas to Armenia, said Russian President Vladimir Putin at a press

conference in Yerevan following his meeting with Armenian President Serzh Sargsya..."Our cooperation in nuclear energy sector further develops. Our plans include extension of existing power bloc of Armenian NPP," said Vladimir Putin. Russian head of state reminded that together with his Armenian counterpart he was present at the commercial operation of the fifth unit of the Hrazdan thermal power plant. "The volume of investments of Gazprom is over \$300 million. I asked the chairman of Gazprom and he said it is more than three hundred [million]. In fact, it is over

four hundred. I am sure that the work of the station will strengthen Armenia's energy security," said President Putin. During the negotiations an agreement was reached to give priority support to joint initiatives in high-tech industries. This includes creation of a spacecraft for communications and broadcasting in Armenia, as well as the organization of space research based on Armenian Byurakan Observatory...

Source: <http://news.am/eng/>, 02 December 2013.

CHINA — FRANCE

China and France to Jointly Target Nuclear Power Markets

China and France on the 6th of December 2013 vowed to expand their three decades of nuclear

energy cooperation to target markets in other countries. "We agreed to jointly exploit third-party nuclear energy markets. China hopes the two countries can find broader space in the markets," said China's premier, Li Keqiang, while meeting reporters after his hour-long talks with visiting French PM, Jean-Marc Ayrault. Li described their discussion as "candid and friendly." He called on the two countries to develop a more equal partnership in nuclear energy cooperation, and at the same time, to jointly research and develop new reactor types and strengthen the sharing of experience. He said he hoped France would transfer more technology to China. Nuclear energy cooperation between China and France dates back to the establishment of the Daya Bay nuclear power plant in the early 1990s in south China's Guangdong province. It has two 1,000 MW pressurized water reactors introduced from France.

Governments and businesses of the two countries also held a seminar to mark China-France nuclear energy cooperation...

Source: <http://www.wantchinatimes.com/>,

08 December 2013.

CHINA - PAKISTAN

Safety must be a Priority as China Bolsters Pakistan Nuclear Energy Push

China is strengthening Pakistan's nuclear muscle in a bid to overcome the South Asian nation's energy crisis. After helping to develop the nuclear facility in Chashma, in Punjab province, China is now working with Pakistan on another plant in the southern port city of Karachi. This is not just a move by Pakistan's strategic ally to help Islamabad overcome its crippling power shortages; it is also a move by an ambitious nuclear power seeking to enhance its nuclear trade abroad. The Karachi plant will be Pakistan's largest nuclear power project, with a production capacity of 2,200 MW. Late November 2013, PM Nawaz Sharif inaugurated the project, which

After helping to develop the nuclear facility in Chashma, in Punjab province, China is now working with Pakistan on another plant in the southern port city of Karachi. This is not just a move by Pakistan's strategic ally to help Islamabad overcome its crippling power shortages; it is also a move by an ambitious nuclear power seeking to enhance its nuclear

is estimated to cost US\$9.6 billion. The project, which involves setting up two nuclear reactors, is scheduled to be completed in six years. Certainly, it will be difficult for the cash-strapped country to raise the funds for the project and the government is having to rely largely on foreign loans. Energy security is the top priority of the government, which plans to increase the share of nuclear power in electricity production by installing nuclear power plants with a total capacity of 8,800MW by 2030. The country also plans to construct six more nuclear power plants with the capacity to produce 40,000MW of electricity by 2050 with China's co-operation.

Presently, the country has two nuclear power plants - Chashma 1 and 2 - each with a capacity of 300MW and built with Chinese assistance. Chashma 3 and 4 are being built with the co-operation of China Zhongyuan Engineering

Corporation, which is directly affiliated to the state-run CNNC. Yet, while the Karachi project will help the country meet its energy needs, it also raises safety concerns, given its location on the Arabian Sea coast, about 40 km west of Karachi. The 2011 Japanese earthquake and tsunami, which triggered a nuclear crisis, raised a global alarm about atomic safety. The construction of nuclear plants along coastlines has long been considered risky. Therefore, an

environmental impact assessment must be carried out before the Karachi facilities are built. In particular, it must be determined whether the complex is located in a seismic zone.

Even with its advanced technology, Japan faced a potential catastrophe after the quake-crippled nuclear power plant exploded, releasing low levels of radiation. Certainly, for a country that faces chronic power

shortages affecting its industrial output, daily life and economic growth, the nuclear power projects are a blessing for Pakistan. Yet, it seems that business interests dominate safety concerns at present. China sees the development of nuclear sites in Pakistan as a showcase of its ability to export reactors, a trade

Chinese nuclear industry executives see abundant opportunities to expand their nuclear power sector abroad. But critics have objected in particular to the 1970s technology being used by China to build the Chashma reactors, claiming it has fewer safety features than the newer models Beijing is set to use for its domestic nuclear plants.

that Beijing hopes will grow. Chinese nuclear industry executives see abundant opportunities to expand their nuclear power sector abroad. But critics have objected in particular to the 1970s technology being used by China to build the Chashma reactors, claiming it has fewer safety features than the newer models Beijing is set to use for its domestic nuclear plants. China currently has 17 nuclear power reactors in operation, with another 28 under construction - some 40 % of the world's total currently being built. China is particularly proud of having completed the latest 1,000MW reactor at the Ling Ao power plant in Guangdong, which became operational in 2011, in 57 months. How will it fare in Pakistan?

Source: Syed Fazl-e-Haider, South China Morning Post, <http://www.scmp.com/09 December 2013>.

CHINA - ROMANIA

Romania Signals Intent With China

Romanian national nuclear company Nuclearelectrica has signed a letter of intent towards the development of two units at its Cernavoda nuclear power plant with CGN. The letter was signed during a visit to Bucharest by Chinese premier Li Keqiang. Keqiang's visit to Romania also saw the two countries sign numerous bilaterals, including a memorandum of understanding on the peaceful uses of nuclear energy. Neither CGN or Nuclearelectrica have yet published further details of their letter of intent or of CGN's specific involvement in the project. Cernavoda is home to two operating Candu 6 pressurized heavy water reactors supplied by Atomic Energy of Canada Ltd and built by a Canadian-Italian consortium of AECL and Ansaldo. Unit 1 started up in 1996, but work was suspended on a further four units in 1991. Unit 2 was subsequently completed and has been in operation since 2007.

Efforts to resume work on Cernavoda 3 began in 2002, and a new project company, EnergoNuclear, was established in 2009 to oversee the completion of units 3 and 4. Initial partners GDF Suez, CEZ, RWE Power and Iberdrola subsequently withdrew, and the company is currently 84.65% owned by Nuclearelectrica. The Romanian state has since then been looking for new investors in the project to enable Nuclearelectrica to reduce its share. According to

India and Japan share the goal of total elimination of nuclear weapons and Parliaments of both countries pay tributes to the victims of Hiroshima and Nagasaki.

CGN, the agreement with Nuclearelectrica signals a new step in its aims to "go global", following a letter of intent signed with EDF in October that would see it take a share the planned Hinkley Point C nuclear plant in the UK.

INDIA — JAPAN

Nuclear Deal with Japan on the Anvil

Japan has said the main purpose of Emperor Akihito's visit to India was to add more ballast to the bilateral relationship. One of the elements that would add greater depth to the ties would be a civil nuclear agreement. "We are close to a bilateral deal on the peaceful use of nuclear energy," said senior Japanese diplomats. India and Japan share the goal of total elimination of nuclear weapons and Parliaments of both countries pay tributes to the victims of Hiroshima

and Nagasaki. But a section of Japanese opinion, including senior Ministers, wants India to sign the NPT. India has been averse to this idea and wants to sign a civil nuclear deal with Japan on the basis of its existing strong

anti-proliferation credentials. "We are touched by the gesture of your Parliament paying tribute every year to Japanese victims of the nuclear bomb. Japanese people have strong feelings about nuclear weapons, but this aspect is not known to our people," conceded an official...

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

NUCLEAR PROLIFERATION

IRAN

The White House said afterward Iran wouldn't advance its "activities" at Arak or progress toward plutonium production.

Iran Allowed Some Construction at Key Nuclear Site Under Interim Deal, U.S. Says

The U.S. said that Iran can undertake some construction

work at a key nuclear facility as long as fuel isn't produced and advances aren't made on a planned heavy water reactor. The Arak site was among the thorniest issues negotiators sought to resolve in mid November, 2013 nuclear agreement in Geneva. The White House said afterward Iran wouldn't advance its "activities" at Arak or progress toward plutonium production. It spelled out several more constraints...Nuclear fuel production, reactor work, testing, control systems advances and other activities aren't permissible. Psaki also told reporters that the

six-month interim agreement reached with Iran in Geneva regarding its nuclear program has not yet started. She also said, the next step is “a continuation of technical discussions at a working level so that we can essentially tee up the implementation of the agreement.” It’s not clear when the agreement will come into force, but in the meantime Psaki said the US is “respecting the spirit of the agreement in pressing for sanctions not to be put in place” and expects that the same is coming from Iran’s end.

...Iran’s foreign minister, Mohammad Javad Zarif, told Iran’s Parliament that the Islamic Republic would continue to build the Arak heavy water plant in contravention of the announced agreement. The uncompleted heavy-water research reactor emerged as one of several crucial issues in negotiations in Geneva..., when Iran agreed with six world powers to curb Tehran’s nuclear program for six months in return for limited sanctions relief. Iran said it would not make “any further advances of its activities” on the Arak reactor, according to text of the agreement. “The capacity at the Arak site is not going to increase. It means no new nuclear fuel will be produced and no new installations will be installed, but construction will continue there.” But experts have said an apparent gap in the text could allow Tehran to build components off-site to install later in the nuclear reactor. It was not immediately clear if Zarif was referring to this or other construction activity....

US President Barack Obama has strongly allayed the Israeli fear that Iran might acquire nuclear weapons the way Pakistan and North Korea did, saying the verification mechanism around Tehran’s atomic programme is unprecedented and makes it difficult to cheat.

Source: <http://www.haaretz.com>, 27 November 2013

Iran Won’t Acquire N-Weapons The Way Pakistan Did: Obama

US President Barack Obama has strongly allayed the Israeli fear that Iran might acquire nuclear weapons the way Pakistan and North Korea did, saying the verification mechanism around Tehran’s atomic programme is unprecedented and makes it difficult to cheat. “With respect to Pakistan, there was never the kinds of inspection regimes and international sanctions and UN resolutions that were in place,” Obama said in response to a question at the 10th annual Saban Forum meeting...Obama said that by the time the US got an agreement with North Korea, Pyongyang already had acquired a nuclear weapon. “We have been able to craft an international effort and verification mechanism around the Iran nuclear programme that is unprecedented and unique. That doesn’t mean it’s easy. And that’s why we have to take

it seriously,” said Obama when asked about the failure of the US in the past to prevent countries like Pakistan to acquire nuclear weapons.

“With the best intentions and all efforts, (the former US) President (Ronald) Reagan vowed that Pakistan would not go nuclear. Didn’t happen. With the best intentions and all efforts, President Clinton vowed that North Korea won’t go nuclear. Why is this nuclear deal different than any other nuclear deal?” the President was asked. Obama acknowledged that achieving the goals could be tough to achieve. “It’s important for everybody to understand this is hard. Because the technology of the nuclear cycle, you can get off the Internet; the knowledge of creating a nuclear weapons is already out there. And Iran is a large country and it is a relatively wealthy country, and so we have to take seriously the possibility that they are going to try to get a nuclear weapon. That’s what this whole exercise is about,” he argued.

“I think one of the things that I’ve repeatedly said when people ask, why should we try to negotiate with them, we can’t trust them, we’re being naive, what I try to describe to them is not the choice between this deal and the ideal, but the choice between this deal and other alternatives,” he said. “If I had an option, if we could create an option in which Iran eliminated every single nut and bolt of their nuclear programme, and foreswore the possibility of ever having a nuclear programme, and, for that matter, got rid of all its military capabilities, I would take it,” he said. Iran and P5+1 in November agreed on a historic deal that freezes key parts of Tehran’s nuclear programme in exchange for temporary relief on some economic sanctions.

Source: <http://www.dayandnightnews.com/>, 08 December 2013.

Fresh US Sanctions Threaten to Derail Iran’s Nuclear Talks

The Obama administration is facing a critical week in Congress as it tries to fend off new Iran sanctions legislation that it believes could damage vital talks over Iran’s nuclear programme. A group of leading senators from both parties is close to agreeing the text of a new round of sanctions, which could be announced soon if they overcome the final sticking points, according to Senate aides. However, Democratic leaders in Congress are under intense pressure from the White House to block any new sanctions, as it fears these could undermine the

interim agreement reached with Iran... Western officials involved in the Iran negotiations believe that the most significant result of pressure from the Congress could be to impose a strict timeframe on the next round of talks. Although the Geneva agreement gives the parties up to a year to reach a final agreement, sceptical members of Congress are trying to enforce a six-month deadline for a deal with Iran...

President Barack Obama said that the administration would seek to impose new sanctions if Iran does not negotiate a final agreement on its nuclear programme. However, the White House has consistently argued that to pass a new sanctions law while the negotiations are continuing would be a provocative step that might backfire... Under the bill being discussed, the administration would need to provide Congress with updates every month to show that Iran was abiding by the terms of the interim agreement. The text also calls for new sanctions to be imposed if a final deal is not reached. The unresolved question among the senators is over what to do if a deal has not been reached within six months but the administration says that an agreement is close, with the Democrats pushing for language that gives the administration a little more flexibility.

...Congressional aides say that the most likely way new sanctions can pass in 2013 would be to attach an amendment to the annual Pentagon funding bill which is currently under review. That means the central figure in the discussion will be Harry Reid, the majority leader in the Senate who has a lot of authority over which amendments are accepted to the Pentagon bill. One of the main concerns for many members of Congress – as well as the Israeli government – is that the Iran talks will drag on well beyond the initial six months, which will lead to a gradual fraying in the sanctions regime. Supporters of new sanctions say the proposed bill does not violate the interim agreement. “All we are doing is locking in the president’s own statements about sanctions if the talks fail,” said one Senate aide. “The objective is to make sure the interim deal does not become the new status quo.” The Geneva agreement says that the US, “consistent with the respective roles of the President and the Congress”, will not pass new nuclear-related sanctions. In his

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comments on the 7th of December 2013, Mr Obama refuted the idea that more sanctions could force Iran to accept much tougher restrictions on its nuclear programme.

“The idea that Iran, given everything we know about their history, would just continue to get more and more nervous about more sanctions and military threats, and ultimately just say, OK, we give in – I think does not reflect an honest understanding of the Iranian people or the Iranian regime,” he said.

Source: <http://www.ft.com/>, 08 December 2013.

NUCLEAR SAFETY

EUROPEAN UNION

Review of EU Nuclear Safeguard Procedures

The European Commission is to review its procedures for ensuring nuclear materials in the EU are not diverted from peaceful to military uses. It has released a tender for an expert to check its systems, which are coordinated by its directorate general for energy Directorate E, based in Luxembourg. The EC has 162 nuclear inspectors and a •20.5 million budget, conducting 1275 inspections in 2012, assessing 1.6 million records from nuclear operators. The commission said Directorate E is conducting an internal analysis of how it implements these checks, and wants an independent review to “identify, suggest and document any possible improvement.” The chosen contractor would assess concepts and methodology; internal organisation and procedures; interaction with external stakeholders; and verification evaluation and its effectiveness. The tender documents explain: “In all four aspects, focus is to be put on the efficiency of the use made of human and financial resources, while respecting the existing legal obligations under the Euratom Treaty and while maintaining the credibility and effectiveness of the Euratom safeguards system.” With regards to concepts and methodology, the consultant would be asked to consider whether the Commission’s work “adequately cover the risk of possible diversion of nuclear material.” The reviewer would assess the added value created by inspections. They will also be asked to

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propose inspection priorities, comparing assessments of quality of nuclear material; its quantity; and the type of nuclear facility involved, depending on the complexity of the technical process and/or the accessibility of nuclear material for safeguards verifications.

The consultant would also be asked to assess the importance of focusing on strategic installations (enrichment, fuel fabrication and reprocessing plants); those where deficiencies in the nuclear material accountancy and control system have been found; and plants where the risk of theft or loss is considered high. They will be asked to consider sample-taking and analysis; and assessments of how operators' nuclear material accountancy and measurement systems fit external standards. Regarding internal organization and procedures, the chosen consultant will assess how efficiently they are implemented and propose improvements. Targets for guidance would include the central accountancy system and nuclear accountancy bookkeeping verification. Also, cooperation between the directorate's accountancy and inspection units; its support and inspection units; the nuclear safeguards directorate, the radiation protection unit; and the financial cell, will be assessed.

On interaction with external authorities, the expert will especially look at liaison obligations under bilateral or multilateral international agreements. The commission wants proposals in boosting cooperation between the directorate and other commission services, notably the JRC; the IAEA; non-EU countries, especially major nuclear material suppliers; EU member states and nuclear operators. As for assessing the verification of evaluations, the selected expert will consider their quality, depth, relevance, completeness, coherence, conclusions and residual risk. The tender documents say the study should propose revised safeguards implementation goals; revised concepts and principles; organisational modifications; and key performance indicators for future assessment of changes.

Source: *World Nuclear News*, 06 December 2013

JAPAN

IAEA Praises Fukushima Decommissioning Approach

The 19-member team assembled by the IAEA visited Japan between 25 November and 4 December, 2013 at the request of the country's government. The main

purpose of the mission was to review efforts to plan and implement the decommissioning of the Fukushima Daiichi plant. "The governments of Japan and Tepco have increasingly adopted a more proactive attitude and approach towards addressing the many difficulties at the site." The purpose of the latest mission was to conduct a more detailed review of Japan's roadmap for the decommissioning of the plant. It also reviewed specific topics agreed in the first mission, including the removal of used fuel from storage pools and contaminated water management issues...

In its preliminary report, the team of experts said that Japan has "achieved good progress" in improving its strategy and associated plans, as well as in allocating the necessary resources, for the decommissioning of Fukushima Daiichi. The report noted that since the mission in April both the Japanese government and Tepco have "increasingly adopted a more proactive attitude and approach towards addressing the many difficulties at the site." The team recognized the "substantial efforts" made by Tepco in transitioning

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the operating floor of unit 4 to a state that has allowed the first fuel assemblies to be removed from its storage pool. It also noted that the company has developed individual plans for the removal of fuel the storage pools of units 1 to 3. Debris removal from the operating floor of unit 3 has now been completed enabling remote decontamination work to start.

With regards to managing contaminated water at the site, the IAEA said that Japan should consider all options, including the possible resumption of controlled discharges to sea. The team said that Tepco should prepare safety and environmental impact assessments for this based on the limit of 1 mSv/year for the population, and to submit it to the Nuclear Regulation Authority for review. It noted that the release of water containing tritium would have "a very limited contribution to radiation exposure to individuals." Team leader Juan Carlos Lentijo, the IAEA's director of nuclear fuel cycle and waste technology, said, "Japan has established a good foundation to improve its strategy and to allocate the necessary resources to conduct the safe decommissioning of Fukushima Daiichi." However, he stressed, "The situation remains very complex, and there will continue to be very challenging issues that must be resolved to ensure the plant's long-term stability."

The IAEA acknowledged that Tepco has become more

proactive in implementing public information and communication activities. However, it suggested the company revises its communication strategy by expanding its targeted stakeholders to include on-site staff and contractors. "As these workers are responsible for safely conducting all the activities at the power plant, it is critical that they have a clear understanding of plant conditions and how their work contributes to the plant's recovery," the report said.

Source: World Nuclear News, 05 December 2013.

JORDAN

Ensour : Jordan's Nuclear Will Take Into Account The Highest Standards Of Security

PM Dr. Abdullah Ensour met in his office with Executive Secretary of the Preparatory Commission for the CTBTO Nuclear-Test- and his accompanying delegation who is visiting the Kingdom to announce the start of preparations for hosting the second time exercise "OSI field integrated "WMO in Jordan at the end of 2014. During the meeting the Prime Minister pointed out that Jordan was one of the first countries to which has signed and ratified the Convention on the CTBT. The meeting was attended by the President of the Jordan Atomic Energy Commission Khalid Touqan and general manager of the NRA, Dr. Moses Zyoud. The PM stressed that Jordan is counting on Jordan's nuclear program for peaceful purposes in reducing the cost of energy and to diversify the sources, stressing that he would be sensitive to the highest standards of nuclear security and peace.

He stated that Jordan's position and policy is fixed on calling for disarmament of weapons of mass destruction and to achieve security, peace and global stability.

For his part, the Executive Secretary of the Preparatory Commission for the CTBT on the cooperation between the Jordanian government and the organization and its stance toward non-proliferation of nuclear weapons and weapons of mass destruction . He noted that the victory of Jordan to host this exercise, which came after a competition with several other countries. This is a success for Jordan on all political, diplomatic and logistic fronts. He said the exercise simulates reality and does not use the materials or nuclear weapons, pointing out that the exercise measure the readiness of the organization to check out any nuclear

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tests wherever they are.

Source : <http://en.ammonnews.net/>,

02 December 2013.

MEXICO

6 Detained In Mexico Radioactive Material Theft

Six people admitted to a hospital in central Mexico for radiation

testing are suspects in the theft of a truck containing potentially deadly cobalt-60...After being cleared by health authorities, the men were turned over to federal authorities in connection with the case of the cargo truck stolen at gunpoint outside Mexico City. The cobalt-60 it was carrying was from obsolete radiation therapy equipment. The theft triggered alerts in six Mexican states and Mexico City, as well as international notifications to the U.S. and the IAEA in Vienna. Authorities warned that whoever removed the radioactive material by hand was probably contaminated and could soon die... The IAEA said the cobalt has an activity of 3,000 curries, or Category 1, meaning "it would probably be fatal to be close to this amount of unshielded radioactive material for a period in the range of a few minutes to an hour."The incident raised concerns that the material could have been stolen to make a dirty bomb, a conventional explosive that disseminates radioactive material. But Mexican officials said that the thieves seemed to have targeted the cargo truck with a moveable platform and crane, and likely didn't know about the dangerous cargo.

The truck was found abandoned about 24 miles from where it was stolen, and the container for the radioactive material was found opened. The cobalt-

60 pellets were left about a half mile from the truck in an empty rural field, where authorities said they were a risk only to anyone who had handled them and not the surrounding population. The material was from obsolete

radiation therapy equipment at a hospital in the northern city of Tijuana and was being transported to nuclear waste facility in the state of Mexico, which borders Mexico City...

Source:<http://www.foxnews.com/>, 07 December 2013

TAIWAN

Nuke Plant Safety Procedures Questioned

Emergency measures conducted to handle crises in nuclear power plants do not require the abandonment or destruction of the power plants, the AEC said on

09 December. The Legislative Yuan's Education and Culture Committee yesterday visited the First Nuclear Power Plant to observe its ultimate emergency measures, which would be initiated in an emergency situation. DPP Legislator Chiu Chih-wei said that President Ma Ying-jeou's statement that the ultimate emergency measures can destroy the entire nuclear power plant in the event of a meltdown to avoid radiation from contaminating the environment was shocking... According to Taipower, there are three key conditions that will cause workers to initiate emergency procedures, including a nuclear reactor losing the ability to pump water, loss of power by electric generators, and a cut-off of power to electric generators during earthquakes and the issuing of tsunami warnings by the Central Weather Bureau.

Taipower said that when one of these three situations takes place, power plant workers will have everything ready within an hour and wait for the supervisor's order to pour either seawater or freshwater into the reactors to prevent them from overheating. AEC Minister Tsai Chuen-horng said that the public usually considers ultimate emergency measures as

Taipower said that when one of these three situations takes place, power plant workers will have everything ready within an hour and wait for the supervisor's order to pour either seawater or freshwater into the reactors to prevent them from overheating.

Each nuclear power plant is equipped with a pool containing 100,000 tons of fresh water, and a nuclear reactor can still be used even after water is poured inside.

abandoning a nuclear power plant, but in fact they are not the same. "Each nuclear power plant is equipped with a pool containing 100,000 tons of fresh water, and a nuclear reactor can still be used even after water is poured inside," said Tsai. "However, if the workers pour seawater inside a nuclear reactor, the salt contained inside the water will destroy the equipment inside the nuclear reactor," said Tsai. "In this case, the nuclear reactor cannot be used anymore."

Tsai said that the cooling effect of fresh water and seawater is the same, but the only time sea water would be used is when reserves of fresh water are used up. Taipower Deputy Manager Chen Pu-tsan said that destruction of a nuclear power plant when conducting ultimate emergency measures is not a precise notion. "Even if a nuclear power plant loses the capability to generate electricity after seawater is used to cool the reactor, radiation is still covered by containment buildings, which means that people's health will not be affected," said Chen.

Source: Jot Lee, The China Post, <http://www.chinapost.com.tw/> 10 December 2013.



Centre for Air Power Studies

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