



A FORTNIGHTLY NEWSLETTER ON NUCLEAR DEFENCE, ENERGY AND PROLIFERATION FROM  
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## MEDIA BRIEFING – Sujatha Singh

### Foreign Secretary on President Obama's Visit to India

Friends, you would all know by now that this is a historic visit that underlines our deepening strategic partnership and a qualitative reinvigoration of ties in what has been described as one of the defining partnerships of the 21st century. In the interest of time I will touch only a few broad points.

There have been significant and substantive outcomes on the strategic, civil nuclear, defence, energy, and economic sides. I will go straight to the civil nuclear side where we have broken the logjam of the past few years.

You would recall that during the Prime Minister's visit to the US in September 2014 the two leaders reaffirmed their commitment to implement fully the US-India civil nuclear cooperation agreement, and established a contact group on advancing the implementation of civil nuclear energy cooperation in order to realise early their shared goal of delivering electricity from US-built nuclear power plants in India. Based on three rounds of discussions in the Contact Group, we have reached an understanding on two outstanding issues namely civil nuclear liability and the

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administrative arrangements for implementing our 123 agreement. Let me underline, we have reached an understanding. The deal is done. Both these understandings are squarely within our law, our international legal obligations, and our practice.

Insofar as liability is concerned, during the Contact Group meetings the Indian side presented our position concerning the compatibility of the Civil Liability for Nuclear Damage Act, and the Convention on Supplementary Compensation for Nuclear Damage, which we have signed, and responded to questions from the US Members concerning this position.

The idea of the India Nuclear Insurance Pool as part of the overall risk management scheme for liability was also presented to the US side. Based on the presentations by the Indian side and the discussions thereon, there is a general bilateral understanding that our law is compatible with the CSC. Many of you would be aware that we had not yet finalised the administrative arrangements for the 123 agreement which we signed in September 2008. We have finalised it now. The administrative arrangements text that we have agreed with the US conforms to our bilateral legal arrangements as well as our practice on IAEA safeguards.

On the issue of export controls too we have made progress. The two leaders have committed to work jointly towards the goal of India's phased entry into the Nuclear Suppliers Group, the Missile Technology Control Regime, the Australia Group, and the Wassenaar Arrangement. We are grateful that President Obama supports an early decision on India's membership in all four regimes which will strengthen global non-proliferation and export controls.

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On defence and security, we have finalised the Defence Framework Agreement for the next ten years. Under the Defence Technology and Trade Initiative (DTTI), four projects have been agreed on as pathfinder projects: (1) next generation Raven Minis UAVs, (2) roll on roll off kits for C-130s, (3) mobile electric hybrid power source, (4) Uniform Integrated Protection Ensemble Increment II. We have also agreed on a working group to explore aircraft carrier technology, sharing and design, and also development of jet engine technology. ...

**Question:** On the nuclear deal, in simple words what has been achieved?

**Joint Secretary (D&ISA) Amandeep Singh Gill:** The answer is very simple. As the Foreign Secretary said, we have a deal, we have reached an understanding on civil nuclear liability and finalised the text of the administrative

arrangements to implement the 123 agreement.

**Question:** Madam, what are the assurances that were given on the liability front, particularly the American concerns on section 46? Also, is there any kind of memorandum that the Attorney General would have to give to the Americans because that is something that the White House briefing has just indicated?

**Joint Secretary (D&ISA):** Not section 46 but section 17 of the law has been discussed with the US side in the Contact Group, and the presentations we have given to the US side clarify and underline that these two sections are in conformity with the CSC. Now you mentioned about the memorandum. That is work in progress.

**Question:** ... if the Americans have accepted the same kind of arrangement we have with French and the Canadians.

**Joint Secretary (D&ISA):** There is no administrative arrangement that we require with France. We have an administrative arrangement with Canada and that has been

the template for finalising our administrative arrangement with the US.

**Question:** There was a tracking clause that America was raising that they will track whatever nuclear things are going to us. What is the development on us? And is there any insurance cap in that?

**Joint Secretary (D&ISA):** The text we have agreed with the US conforms to our bilateral legal agreements with the US which are: the 123 agreement and the arrangements and procedures on reprocessing. The text also conforms to India's practice of IAEA safeguards. So, that is the current practice of safeguards in India.

**Question:** You spoke about the idea of insurance pool to address the liability issue. Could you spell out the specific? What is this insurance pool, because there have been speculation all along as to what has been agreed to in today's meeting.

**Joint Secretary (D&ISA):** The insurance pool or what would be called the India Nuclear Insurance Pool is a risk transfer mechanism which is being formed by GICRE and four other public sector undertakings in the general insurance business in India. These companies would together contribute Rs.750 crore to the pool and the balance capacity would be contributed by the government on a tapering basis. So, this is the general shape of the pool. It is similar to 26 such international pools around the world. The details, for example, of the premiums are being worked out. And the United States has committed to work with India to share information and best practices on the formation of this insurance pool. The important thing for you to note is that this is a complete risk management solution for both operators and suppliers without causing undue financial burden.

**Question:** Given that the two companies that are already supposed start those first nuclear reactors in India are tied up with Japanese companies, are these deals really going to have to wait for the Indo-Japan civil nuclear deal to be completed before we complete ours, and are we going to ratify the CSC now?

**Joint Secretary (D&ISA):** Let me take your second question first. We have signed the CSC and we are committed to ratify the convention. On your first question about the supply chain situation with regard to Westinghouse and GE, there are alternatives available, and we do not think that the absence of an agreement with Japan is an obstacle to taking forward civil nuclear cooperation with the United States.

**Question:** ... The Americans have been crying that they did not get a level-playing field. Have you been able to give them a level-playing field in civil nuclear cooperation today? And here onwards it

would really depend if their companies are able to sell you reactors at a price which is comparable to other reactors? Techno-economic cooperation is the way forward?

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**Foreign Secretary:** We have always had a level-playing field. I do not see what the issue is over here. I will ask Amandeep to elaborate on that ....

**Joint Secretary (D&ISA):** On the techno-commercial aspects, that is something for our companies to see. These reactor projects have to be viable in terms of both capital cost and per unit energy cost, and that is something that our companies will work out. But the other two hurdles, as the Foreign Secretary mentioned, the policy hurdles, we have cleared them today. ...

*Source: Excerpted, <http://www.mea.gov.in>, 25 January 2015.*

#### **INTERVIEW – Ratan Kumar Sinha**

#### **Cost Implications of Nuclear Insurance Package are Likely to be Insignificant**

Nuclear power capacity addition is expected to get a boost after India and the US arrived at an agreement to operationalise the civil nuclear deal. In an interview with Sanjay Jog, AEC Chairman Ratan Kumar Sinha spoke on a number of issues.

*Can you please provide details of the creation of insurance pool to provide cover to suppliers who shunned the civil nuclear agreement because it made them liable to pay compensation in the event of a nuclear accident?*

Several major Indian suppliers, based on their interpretation of Section 17 (b) of the Civil Liability for Nuclear Damage (CLND) Act had the apprehension that each one of them, irrespective of the value of the supplies made by them and the contracted product liability period, will have to set

aside a sum equal to the maximum amount of liability (Rs 1,500 crore each) till the end of life of the nuclear plant (for which they made a supply) plus, may be, at least two decades more.

The DAE held discussions with General Insurance Corporation of India (GIC) for development of an insurance package for the operator, as well as suppliers.

Accordingly, the GIC prepared a scheme and would have launched it earlier, but there was a hitch. GIC and its partners were first required to create an insurance pool to provide for a total insured sum of Rs 1,500 crore. Based on Indian insurance regulatory guidelines, the Indian general insurance companies could, based on their current net worth, provide for only about Rs 750 crore.

*What is GIC's new proposal, and has it been approved by the finance ministry?*

Based on the recent trend in growth of their net worth, it is expected that this Indian pool will grow every year reaching the figure of Rs 1,500 crore in the next five years or so. It is a normal practice for international reinsurers to also contribute to building such pools. As a matter of principle, DAE, however, could not accept involvement of foreign inspection for those of its nuclear power plants which are based on indigenous technology, particularly those which are outside the IAEA safeguards.

GIC and their Indian partners considered and proposed two possible options to build this pool. The first one is to get government support for the balance of the sum (Rs 750 crore in the first year, which may progressively reduce with increase in the permitted pool amount). The second option is to issue special bonds for getting the required sum from financial institutions. Both these proposals are currently under consideration of the finance ministry. The insurance-based scheme for the Indian suppliers had been suggested as a way forward to address the concerns raised by suppliers in respect of US- and French-built reactors as well.

The concept of nuclear insurance package in the country arose with the concerns of the Indian

suppliers first. The package to be made by the GIC will be tuned first to the Indian operators and the Indian suppliers. Therefore, logically, it is incorrect to say that the idea of insurance pool has been an outcome of the recent dialogue between the US and India. The recent discussions between the Indian and the US contact groups helped in achieving an understanding by the US side on the utility of the insurance based solution to address the vendor concerns.

*Who will pay the premium?*

It is a common practice that the insured has to pay the premium to the insurer. Under the provisions of the CLND Act, the operator has to take a suitable insurance to meet the requirement of providing compensation upon occurrence of a potential nuclear incident. At present, NPCIL is providing the required assurance by taking bank guarantee. With the availability of nuclear insurance package, NPCIL will have an insurance scheme to meet the above requirement. Naturally, the premium has to be paid by NPCIL for this purpose. Similarly, suppliers are expected to pay the premium in respect of their insurance cover.

*What will be the cost implications?*

The details of the insurance package are yet to be finalised. However, it is expected that its implications on the cost of nuclear products as well as unit energy cost of nuclear power in the country (whether arising from Indian reactors or from the reactors built with foreign technology) will not be significant.

*When do you expect the commencement of negotiations between Nuclear Power Corporation of India Ltd (NPCIL) and GE-Hitachi and Westinghouse?*

The discussions the NPCIL and Westinghouse have led to identification of a reference plant for AP-1000 reactor, receipt of technical assignment (plant specifications), some parts of Preliminary Safety Analysis Report for proposed Indian Plant, interactions of Westinghouse with some Indian suppliers for participation for supply of components, etc. In the context of these discussions, a clarification on availability of a viable insurance against nuclear liability claims

by the operator, should serve to help address the risk perceptions of the suppliers favourably and to potentially have an impact in bringing down the cost of the plant.

In the context of GE-Hitachi, there have been some preliminary discussions between NPCIL and GE-Hitachi so far. It is hoped that after the recent grant of design certification for GR-Hitachi's Simplified Boiling Water Reactor (SBWR) plant by USNRC, further discussions will take place expeditiously.

*When can we expect final agreement to be reached between the NPCIL and AREVA for the 9,900 MWe Jaitapur project in Maharashtra?*

The discussions between NPCIL and AREVA for the supply of Evolutionary Pressurised Reactors (EPRs) have been going on for quite some time. An understanding had been reached with the French side that discussion on CLND related concerns could be held in abeyance till the Indian insurance product is available for domestic suppliers, based on which the required package for the international suppliers could also be made available. The discussions between the two companies today are focussing on various factors related to equipment supply as per reference plant having an impact on the Unit Energy Cost of the electricity produced from the plant.

*Nuclear capacity addition has been delayed due to policy and regulatory issues. Do you expect India will be able to achieve its target of 68,000 MWe of nuclear capacity by 2040?*

Considering an optimistic scenario, DAE has set for itself a target of reaching 63,000 MWe of nuclear installed capacity by the year 2032. It could well be translated into 68,000 MWe by 2040. We expect that by then reactors with international civil nuclear cooperation, amounting to approximately 40,000 MWe installed capacity would be commissioned. We envisage, providing a major part of the target to be met through these contributions, with additional construction of indigenous reactors, including Light Water Reactors of Indian design.

*Source: Interviewed by Sanjay Jog, The Times of India, 29 January 2015.*

## INTERVIEW – Brent Cook

### What to Make of Uranium's Recent Price Moves

As nuclear plant restarts take effect in Japan, both market sentiment and fundamentals are seeing positive boosts. Here to discuss the sea change is expert geologist and astute investor Brent Cook, author of *Exploration Insights*. In this interview with *The Mining Report*, Cook explains the forces behind uranium's recent price uptick, and describes what kinds of uranium mining projects are worth an investment in this market.

**The Mining Report:** Rick Rule has called uranium the most hated commodity and, therefore, one of his favorite investments. However, we have started to hear good news about yellowcake, which is experiencing an uptick in spot price. What's causing that?

**Brent Cook:** We are seeing the re-commissioning of nuclear plants in Japan, a process that should accelerate into 2015. China continues to build nuclear plants; there are roughly 70 new plants being built around the world and hundreds more planned or proposed, plus some of the excess supply has dwindled. Uranium is a long-term play. When I first started working with Rick back in 1997, uranium was the most hated commodity. It was quite a few years before his contrarian thesis was proven right. But when it was, share prices of the few legitimate uranium companies increased tenfold or more. I suspect that his thesis will be proven right again. I would agree that the uranium sector is a place to intelligently deploy some money into the good deposits and the good companies.

**TMR:** Are the restarts in Japan more of a psychological push, or do they significantly impact supply and demand fundamentals? Some Japanese utilities were still buying uranium even while the nuclear reactors were shut down.

**BC:** I think you hit the nail on the head twice there. Restarts in Japan certainly were a boost to sentiment toward uranium, but fundamentally, the change in the Japanese government's view toward nuclear energy has also been positive. The major concern we had—that the 100 million pounds or so that the Japanese utilities held in storage

would hit the market—no longer exists. In fact, they're going to have to start looking down the road to secure additional supply. So the positive is that the perceived supply overhang is gone, plus there is a good chance the utilities will be buying in 2015 and beyond.

**TMR:** Thomas Drolet advised readers to focus on long-term contracts for a more accurate picture of supply and demand. It sounds as if you are leaning toward the same thing. Are utilities getting into the buying mood again?

**BC:** To some degree, yes, long-term contracts are where the majority of sales take place. Additionally, in 2014 more uranium was sold than in 2013, although there is some uncertainty between what has been reported at UxC and what Cameco estimated at its Investor Day in late November. Nonetheless, long-term contracts are up and I have every reason to think they will be up again in 2015. If—or I should say when—the long-term contract market volume reaches the pre-Fukushima levels of 2010, it will represent a doubling of demand and most certainly an increase in the uranium price.

**TMR:** Much of your uranium portfolio is in the Athabasca Basin. Are some areas there better than others?

**BC:** The Athabasca Basin is a premier uranium producer, second only to Kazakhstan, and one of the best places to explore for additional deposits. However, not all deposits in the basin are created equally and one has to consider all the aspects that go into turning a deposit into a mine. It's not just grade. Deep high-grade deposits, although flashy, for the most part have not panned out. The actual cost of defining and developing them is substantial, plus the permitting hurdles and timeline mean you are looking at 10 years or more before the initial shaft is even started. What works best in the Basin are modest grade and shallow

deposits amenable to open-pit mining, preferably hosted in basement rocks. Additionally, one has to look at access, infrastructure and transport between the mine and nearest mill. So, as usual, it is never as easy as the initial few drill holes make it look....

**TMR:** What about outside the Athabasca? Anything else you'd like to mention in the US?

**BC:** I think the safest way to play equities in an increasing uranium price scenario is to stick to companies with legitimate and permitted deposits in relatively safe jurisdictions....

**TMR:** Does Uranerz have the added benefit of giving that supply security to the US?

**BC:** Yes, most definitely. I'm not sure if that's an issue or not,

but some people think so....

*Source: <http://www.equities.com/>, 20 January 2015.*

#### **OPINION – Masakatu Ota**

#### **US Weighed Giving Japan Nuclear Weapons in 1950s**

Top US military officials considered giving the Self-Defense Forces atomic weapons in the 1950s under an arrangement similar to NATO's "nuclear-sharing" deal, declassified documents from the US Joint Chiefs of Staff revealed on January 23, 2015. In February 1958, the Joint Chiefs decided its "position," saying: "The United States would prefer that Japan integrate appropriate atomic weapons into the Japanese self-defense forces."

The decision came five months after the US military and the SDF conducted a joint map exercise assuming the use of nuclear weapons, according to the documents. The nuclear map exercise, conducted in September 1957, had never been revealed to the public until a joint investigation by Kyodo News and Akira Kurosaki,

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an associate professor of Fukushima University, uncovered the documents recently at the US National Archives in Maryland.

As Cold War tensions rose in the 1950s with the Soviet Union's successful nuclear tests and its development of hydrogen bombs, the administration of President Dwight D. Eisenhower dramatically increased its dependence on nuclear arms under its "New Look" policy, which equated them with conventional weaponry. The Joint Chiefs decision on a potential nuclear option for Japan — which had been attacked with atomic bombs just a decade earlier — is consistent with the idea that US Cold War mentality relied on nuclear arsenals as a countermeasure against the massive conventional capability of the Soviet bloc.

A document, dated February 17, 1958, said that "combined US-Japan Map Exercise FUJI was conducted in Japan during the period 24-28 September 1957," during which the use of nuclear weapons was simulated. Although the document does not give a specific venue for the exercise,

an oral record by a former senior Ground Self-Defense Force official, the late Gen. Ryuhei Nakamura, indicated that "FUJI" was held at Camp Drake, a US base that was once located in an area straddling Tokyo and Saitama Prefecture.

The record was left at the National Institute of Defense Studies, a research branch of the Defense Ministry. According to the oral record, the Japanese participants wanted to know how the US military would use tactical nuclear weapons in Japan. The US side, however, did not provide precise information. Still, the Joint Chiefs documents detailed questions raised by the Japanese "co-director" during the joint map exercise.

"Would the United States hold all the nuclear weapons for use by her own delivery systems or would the United States release some weapons for use by Japan?" the document paraphrased the

questions posed by the co-director. According to the paper, the co-director also asked if the US would "prefer Japan to have conventional weapons only," while also querying the sensitive issue of whether Washington would give its blessing for Tokyo acquiring atomic weapons.

"If Japan were to decide to arm herself with nuclear weapons, could she depend upon US support for such a plan?" the document said. A memorandum dated November 20, 1957, by Chief of Naval Operations Adm. Arleigh Burke said "the significance of the questions posed by the Japanese Co-Director...warrants the early consideration of the Joint Chiefs of Staff. "These

questions express the concern of the only country in the world that ever experienced a nuclear attack..." the memorandum added. In response to Burke's suggestion, the Joint Chiefs ultimately decided its positions at a meeting on February 12, 1958.

The Joint Chiefs document dated February 17, 1958, further elaborates on its positions, saying "(t)he provision of such weapons

support to Japan would be primarily dependent on the desires of Japan to be provided with atomic weapons and her development of capability to employ effectively such weapons." In addition to the US preference for integration of nuclear weapons with the SDF, the Joint Chiefs document said, "(the SDF) must eventually be equipped with the most modern conventional and atomic weapons." These Joint Chiefs positions were conveyed to the Commander-in-Chief, US Pacific Command.

Another Joint Chiefs document dated Sept. 17, 1958, noted "(t)he United States is willing to support her allies with atomic weapons, after the NATO pattern, subject to the desire of Japan to acquire such weapons and to develop a capability for their effective employment." However, the Joint Chiefs positions on arming the SDF with nuclear weapons were not formally proposed to the Japanese government.

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Other declassified US documents obtained by *Kyodo News* suggested caution by US policymakers who were familiar with Japan's volatile domestic situation and growing anti-nuclear sentiment following the March 1954 Daigo Fukuryu Maru (Lucky Dragon No. 5) incident, in which a Japanese fishing vessel was exposed to radioactive fallout from the US thermonuclear "Bravo Shot" near the Bikini Atoll in the Pacific.

"The US military considered integration of nuclear weapons into the SDF, and some SDF officials showed interest in this idea," Fukushima University's Kurosaki said. "There was a backdrop that the US administration deepened its dependence on nuclear weapons in its national security strategy. From these contexts, then-Prime Minister (Nobusuke) Kishi stated it is possible for Japan to possess nuclear weapons (for defensive purposes) even under the Constitution," he said.

Kurosaki said he wonders if Japan would have continued to be a nonnuclear power if the Daigo Fukuryu Maru incident had not occurred and anti-nuclear sentiment in the country had not risen so sharply. On the Japanese side, from the mid-1950s to mid-1960s, the Staff College of the Japanese Ground Self-Defense Force taught future top officials about nuclear tactics and doctrines that were imported from the US Command and General Staff College, former top SDF officials told *Kyodo News*...

Nuclear courses at the Staff College in Tokyo were suspended after the public's growing anti-nuclear sentiment culminated in the government crafting the three nonnuclear principles in 1967. "The Lucky Dragon Incident, the (national-level) ban-the-nuclear-bomb movement and three

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nonnuclear principles" greatly impacted the SDF's position, former Gen. Mitsuaki Yokochi said.

*S o u r c e : <http://www.japantimes.co.jp/>, 23 January 2015.*

**OPINION – Jonathan S. Tobin**

**Iran Looking for Missile Base against Israel, not Nuclear Peace**

What was an Iranian general doing hanging around on the Syrian side of the Golan Heights border with Israel? The answer is that, along with several high-ranking figures in the Hezbollah terrorist group, General

Mohammed Ali Allahdadi, a reputed ballistic missiles expert, was there helping to set up a missile base from which the terror group would, with Iranian aid and instructions, strike at the State of Israel. But before he completed his mission Allahdadi was killed along with some of the Hezbollah personnel in an Israel strike on their base near the town of Quenetra.

The mission nipped the Iranian scheme in the bud but it's doubtful that anyone in the Israeli government is under the impression that the strike ended the threat of attack from Iranian forces and their auxiliaries. But the revelation of the Iranian effort near the Golan is significant because it illustrates how deeply involved Iran is in fomenting a new terror war against Israel as well as the peril presented by Western policies that would, at best, make Iran a threshold nuclear power in the years to come.

The purpose of the Iranian effort wasn't just to make mischief for the Israelis under the cover of the chaos engendered by the Syrian civil war. The point of the plot was to allow Hezbollah to create a missile base from which it could rain death and destruction down on Israelis without involving the

country of Lebanon. Hezbollah is still smarting from the negative feedback created by the 2006 war it started with Israel and which left much of that country in ruins. So what the group and its Iranian masters wanted is a secure base from which it could pepper Israel with rockets from the north in much the same manner that Hamas has done from the south. But, fortunately, as it has with various other terror plots involving Hezbollah in Syria, Israeli action has made the execution of this plot more difficult if not impossible in the short run.

But the significance of this goes beyond the threat to Israel's missile defense efforts or its desire to keep the north peaceful even as Hamas stirs the pot in the south. It's no surprise to learn that senior Iranian military personnel are wandering around loose in Syria. Hezbollah and Iranian Revolutionary Guard personnel have been deployed to Syria to aid efforts to preserve the rule of dictator and Iranian ally Bashar Assad. But what is also now becoming clear is that the Iranians are looking to use their entry into Syria as part of an effort to, at the least, revive a northern front military option against Israel. That this effort involved a ballistic missile export should, however, interest observers. While it is possible that the initial hopes for Allahdadi's efforts were limited to attempts to launch the kind of middle-range rockets Hamas lobbed at Israel last summer, it is impossible to ignore the implications of Iran expanding its ballistic missile program to Syria.

While the world has focused its attention on Iran's nuclear program and the effort to force the Islamist

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**If Israelis are more nervous about Iranian intentions in nuclear talks that Tehran has been, it is not just because they may think President Obama has proved himself a terrible negotiator in the peace talks. Rather, it is due to a sensible fear about Syria becoming nothing more than a launching pad for rockets in the same way Gaza has been transformed into a bastion of terror. Throw in the potential for nuclear weapons and you have a formula that ensures chaos and future bloodshed. Unless the US wakes up to this threat and the folly of its stance toward Iran's nuclear infrastructure, the consequences could be catastrophic.**

regime to abandon its ambitions for a bomb, relatively little notice has been paid to Iran's ballistic missile program. Indeed, the Iranians have been as reluctant to discuss their rockets as they have been to reveal the details about their military research on nuclear material. But if Tehran is already sending generals to the border with the Golan to build up a missile threat against the Jewish state, it doesn't take much imagination to think what will happen once the US drops sanctions on the regime as part of a new and weak nuclear deal that let the Iranians keep their program and its infrastructure.

That puts the effort by the Obama administration to appease Iran and to work for a new détente with the regime rather than pressing it to give up its nuclear capability in a very different light.

Previously, when one spoke of Iran's state-sponsored terrorism, it brought to mind their using Hezbollah operatives to launch atrocities such as the 1994 AMIA bombing in Buenos Aires or the attack on Israeli tourists in Bulgaria. But now when we link Iran and terror, it must be acknowledged that it is possible that one day the primary Iranian threat to Israel will be nuclear and that missiles based in Syria will be the method by which Tehran will cause trouble and perhaps even launch a nuke at Israel.

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rockets in the same way Gaza has been transformed into a bastion of terror. Throw in the potential for nuclear weapons and you have a formula that ensures chaos and future bloodshed. Unless the US wakes up to this threat and the folly of its stance toward Iran's nuclear infrastructure, the consequences could be catastrophic.

Source: <https://www.commentarymagazine.com/>, 21 January 2015.

**OPINION – David Hodgkinson, Rebecca Johnson**

### What Can Climate Talks Learn from Fight against Nuclear Weapons?

From the 1950s until the 1990s, nuclear weapons were viewed as the greatest threat to human life on the planet. Jonathan Schell, whose book *The Fate of the Earth* (1998) perhaps best crystallised the danger and fear of such weapons for a popular audience referred to life after a nuclear holocaust as a "republic of insects and grass". Today the world faces a different global threat of our own making: climate change. The Intergovernmental Panel on Climate Change has

documented the possibly catastrophic impacts of unchecked warming. This November, 2015 nations around the world will meet in Paris in an attempt to develop a global climate agreement beyond 2020.

The threat of nuclear war was substantially reduced through several successful strategic arms-control agreements in the 1970s and 1980s. What – if anything – can such successful agreements, designed to address a global threat, tell us about climate change agreements and their success?

**A Brief History of Nuclear Treaties:** On May 26, 1972, the United States and the Soviet Union signed two strategic arms-control treaties: the "Interim Agreement" and the ABM Treaty, as part of ongoing talks to limit nuclear arms. In the Interim Agreement, both superpowers agreed for the first time to limit the number of offensive

nuclear weapons they could deploy, while the missile treaty limited the number of defensive weapons. This was just as important, and worked off the recognition that mutual vulnerability could produce strategic stability.

A second agreement in 1987 between the United States and the Soviet Union eliminated nuclear and conventional ground-launched ballistic and cruise missiles with a range between 500 and 5,500 km....It took nine years to negotiate and, for the first time, required a reduction in warheads deployed on strategic offensive weapons. The

treaty provided that the US cut its ballistic missile warheads by about 38% and the Soviet Union cut its missiles by 48% to equal levels.

START II was signed in 1993 and START III in 2002. The latest START agreement was signed in 2011. Since the 1986 Reykjavic Summit at which the foundations for START were laid, there has been a two-thirds decline in nuclear weapons in the arsenals of Russia and the United States.

**Why did They Work?:** All of these agreements were

designed to address a global threat – nuclear war and a possible nuclear holocaust. There was a clear and present danger, a danger that manifested itself across decades. It was also a danger increasingly (and easily) understood by the public. The danger could be seen: missiles being paraded, missiles being tested, missiles being deployed. Fear, especially in Europe, was almost visceral. There was public support for the agreements....

Public demonstrations against nuclear weapons became defining global moments. The agreements were not multilateral; they involved a small number of parties. The technical issues were often difficult, but the parameters of what needed to be negotiated were clear. The objective was also clear: the reduction of nuclear weapons or a strategy whereby they would not be used. There are, of course, successful multilateral

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nuclear weapons agreements; NPT, for example, to which 189 states are party. It should be noted, however, that the mere fact of the treaty can't prevent proliferation of nuclear weapons, the retention of such weapons or, of course, the desire to obtain them – thus the great number of state parties.

**Could it Work for Climate?:** These arms control treaties show that small numbers of countries can agree on matters that affect the future of the planet. They also show that it helps if the danger is clear and present, and the issues are clearly understood and recognised by the public....Perhaps climate agreements between small numbers of state parties could be the solution, rather than a global deal.

A recent example is the 2014 climate deal between just the US and China in which the US commits (but is not legally bound) to reducing emissions by up to 28% on 2005 levels by 2025. China aims to cease emissions growth before 2030. China and the US account for 42% of global emissions. If the world's four largest emitters, came to an agreement – between China (28%), the US (14%), the EU (10%) and India (7%), together with Russia and Brazil – it would cover about 70% of world emissions. However, for much of the public, unlike the threat of nuclear war, the climate change threat is not a visceral one; this may well account for a lack of progress in concluding legally-binding climate change agreements.

Source: <http://theconversation.com/>, 20 January 2015.

**OPINION – Debalina Ghoshal**

**Poland's Desire to Be Shielded**

As Russia deploys "Iskander" tactical nuclear missiles to Kalingrad, the country's westernmost territory, Poland's apprehensions have increased, with Warsaw calling the move "disturbing" and "alarming". This is an understandable reaction when considering that Kalingrad borders Poland,

a former satellite state of the Soviet Union. Poland's apprehension towards Russia is not new, but in fact has its roots in the 1930s when, despite signing a "non-aggression pact" with Warsaw, the Soviet Union invaded Poland and proceeded to torture a countless number of its citizens. After World War II, Poland also lost some territory to the Soviet Union as it became a part of the Warsaw Pact and it was only after the Cold War that Poland gained its independence.

However, Poland's apprehensions towards Russian activity north of its borders have undoubtedly intensified, especially after the

**It is indeed quite surprising that in July 2014, Poland chose to scrap the development of the Medium Extended Air Defence System (MEADS) that was a joint venture of the United States, Germany, and Italy intended to replace the Patriot systems in the US, the Hawk systems in Germany, and the Nike Hercules systems in Italy.**

Russia-Georgia conflict and even more so after the Ukrainian crisis. Poland feels that Russia's actions in Crimea represent a "long-term trend of Russia shifting the momentum", and the events in Ukraine are only the "first steps." Warsaw further feels that Russia is attempting to regain "the power it lost after the break-up of the Soviet Union", a reality that could deeply affect Moldova, Georgia, Poland, and the Baltic States (Lithuania, Latvia, and Estonia).

On October 6, 2014, *The Daily Star* reported that Poland had urged NATO's new secretary general, Jens Stoltenberg, to go ahead with NATO's missile defence system in Europe. Poland's President, Bronislaw Komorowski, is reported to support the creation of this "pan-NATO" system since he believed that the system makes "deep sense both politically and in terms of defence." Though the discussions on the missile defence system have not explicitly mentioned Russia as a target, there is little doubt that this may be the case, especially for Poland as it refers to the Ukrainian crisis time and time again. These threat perceptions have become so pointed that Poland could also alter its earlier decisions and instead opt to acquire a domestic defence system produced by Polish industries.

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that was a joint venture of the United States, Germany, and Italy intended to replace the Patriot systems in the US, the Hawk systems in Germany, and the Nike Hercules systems in Italy. Reports, however, confirm that Poland was more interested in fielding a defence system for its Wisla project that is already employed by NATO countries due to "operational urgency."

In fact, one of the major reasons why MEADS was not chosen as Poland's missile defence system was because it has not yet been deployed by any other NATO state. In early July 2014, reports came in that Poland has now short-listed Raytheon's Patriot in its anti-missile system bidders list. This of course is because the Patriot is already fielded by NATO states, namely Germany, Spain, Greece, and the Netherlands and of course the United States. Another bidding contender on the top of the list is the EUROSAM consortium with its SAMP/T model.

However, being battle-tested, the Patriot system is surely a favourite of this state which is looking for combat-proven capability. In addition to this, the system is also continuously being modernised in order to address new threats, thereby it possesses the capability to evolve as a state-of art capability. In this regard, in June this year, Raytheon and Poland agreed to jointly develop a "modernised Identification Friend-or-Foe Antenna" for the Patriot air defence system. This would be an integral component of the advanced 360 degree radar of the Patriot. These are secondary radar systems which work independently from the primary radar systems.

Along with this, it is also planned by the United

States, under the European Phased Adaptive Approach, to field missile defence components in Poland, which according to US Secretary of State John Kerry, would be operational by 2018. With recent reports coming in that the United States has already "assumed control of a missile defence base in southern Romania" as a part of the NATO missile defence shield, the proposed plan of making the Poland-based missile defence component operational by 2018 is surely a possibility.

Reports confirm that Poland would employ the SM-3 IIA interceptor missile which would be more powerful and possess a longer range than the SM-3 IB interceptor missile to be deployed at the Romanian Aegis Ashore site. This Block II interceptor missile would provide more coverage to Poland than the Block I interceptors and can destroy short range ballistic missiles and intermediate range ballistic missiles, while also possessing "some capabilities against intercontinental ballistic missiles."

The United States has always made clear to the Russians that the European Phased Adaptive Approach system is meant to counter threats from Iran and not to negate Russia's nuclear deterrent. Nonetheless, it seems that Poland's military modernisation program, amongst which missile defence system procurement is high on the agenda, is eyeing threats from Russia rather than from Iran. Thus, amid varied threat perceptions, it is fitting for Poland to also concentrate on an indigenous missile defence system in order to be able to address its own threat perceptions. The importance of doing so is further supplemented by the fact that the NATO

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missile defence shield would already have several command and control issues due to the varied perceptions of threat. Nevertheless, it can be rightly concluded that Eastern Europe is becoming a nuclear flashpoint.

*Source: <http://www.turkishweekly.net/>, 26 January 2015.*

**Russia has ordered a snap drill of its RVSN, which controls the country's 305 land-based ICBMs and nuclear warheads, according to a statement issued by the unit's high command on January 20, 2015. "Throughout 2015, we have planned at least four similar such drills.**

software along with robust and reliable bus guided the missile flawlessly," said an official...

*Source: <http://www.dnaindia.com/>, 31 January 2015.*

## **RUSSIA**

### **Russia Orders Snap Test of Nuclear Missiles**

Russia has ordered a snap drill of its RVSN, which controls the country's 305 land-based ICBMs and nuclear warheads, according to a statement issued by the unit's high command on January 20, 2015.... "Throughout 2015, we have planned at least four similar such drills."

Last October, 2014 Yegorov said that by the start of 2015, up to 1,000 troops from the RVSN would be charged with what he called 'particularly dangerous' work with nuclear arms. The drills, which aim to educate Russia's missile unit in anti-terrorist combat, are due to take place in the Uzhurskoe rocket facilities, in Siberia, between the central Russian cities of Novosibirsk and Krasnoyarsk.

According to Yegorov, Russia's Ministry of Internal Affairs, Ministry of Emergency Situations and the Federal Security Service are all cooperating with Russia's ballistic missile command in the drills, as some of the exercises will be dedicated to raising the RVSN's responsiveness and effectiveness....

This will be the first drill of the year for Russia's RVSN and comes after the Kremlin's decision last summer, to add an extra 8,500 troops to its 18,000-strong missile unit by 2020. According to the *Moscow Times* some \$650 billion dollars will go into the overhaul of Russia's entire armed forces in the next five years, with the modern replacements somewhat overdue for its aging, Soviet-standard nuclear arsenal....

...The decision was reportedly made by the Russian government behind closed doors in a meeting with US representatives in Moscow in December 2014, coming into effective in 2015. The Pentagon and the US Department of Energy were the US backers

## **NUCLEAR STRATEGY**

### **INDIA**

#### **India Successfully Test-Fires Surface-to-Surface N-Capable 'Agni-5'**

India on 30 January 2015 successfully test-fired its indigenously developed, intercontinental surface-to-surface nuclear capable ballistic missile "Agni-5", which has a strike range of over 5000 kms and can carry a nuclear warhead of over one tonne, from Wheeler's Island off Odisha coast. The missile was launched from a canister mounted on a road-mobile launcher at Wheeler's Island.

The three stage, solid propellant "missile was test-fired from a mobile launcher from the launch complex-4 of the ITR at about 8.06 hours," ITR Director M V K V Prasad said.

"A gas generator at the bottom of the canister pushed the 17.5 metre long, 50-tonne Agni-V out of the canister. The missile, which can take on targets situated more than 5,000 km away, had a dummy pay-load in today's trial," said a senior defense analyst at the ITR here. The missile version was stored and launched from a hermetically sealed canister. The steel container was made of maraging steel. "The missile, witnessed a flawless 'auto launch' and detailed results will be known after all data retrieved from different radars and network systems."

..."The very high accuracy Ring Laser Gyro based Inertial Navigation System (RINS) and the most modern and accurate Micro Navigation System (MINS) had ensured that the missile reaches the target point within few meters of accuracy. "The high speed onboard computer and fault tolerant

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of the project which has already cost Washington \$2 billion dollars since monitoring started 23 years ago. The project had been envisioned to go on until 2018, with the US already having set aside \$100 million towards this year's spending, with 13 Russian facilities due to be put under US surveillance. It was reported the straining of diplomatic relations between the two countries over Russia's military presence in Ukraine contributed to the "unexpected" decision.

The Russian military has sought to pursue joint ventures with partners outside the West since the Ukraine crisis, most recently embarking on a military partnership with Iran, as Russian defence minister Sergey Shoygu announced the two countries would undergo joint training sessions and strengthen military cooperation at a conference in Tehran on 20 January 2015. The drills, which Yegorov says aim to educate Russia's missile unit in anti-terrorist combat, are due to take place in the Uzhurskoe rocket facilities, in Siberia, between the central Russian cities of Novosibirsk and Krasnoyarsk.

Source: <http://www.newsweek.com/>, 20 January 2015.

## BALLISTIC MISSILE DEFENCE

### RUSSIA

#### How Putin Uses Missile Defence in Europe to Distract Russian Voters

Last December...Russia's President Vladimir Putin found time to sign an updated version of Russia's military doctrine. Despite this, the logic behind one of Russia's classic grievances against the West – the deployment of BMD in Europe – has remained largely unexplained.

Russia's 2014 military doctrine lists BMD as Moscow's fourth external military danger. Since the US officially announced the deployment of BMD in Europe in 2004, Russia has persistently referred to the project, run by NATO, as a demonstration of anti-Russian intent. Why after 10 years, does this issue still get such high ranking?

Moscow's confrontational position on missile

defence has proven politically expedient for a Russian government that has built its legitimacy on the necessity to defend Russia from external enemies. Now, when Russia is entering a full-fledged economic crisis that could affect the political allegiances of the Russian population, the Kremlin needs to revive the issue of BMD – a welcome enemy that contributes to the justification for government survival.

The Kremlin has been formally opposing the deployment of BMD on the basis that it would pose a threat to Russia's nuclear deterrent and Russian security. Moscow has been using this strategy to prove Russia is a besieged nation surrounded by hostile powers. Putin used the example of missile defence in his February 2007 speech at the G8 Security Conference in Munich, while Medvedev referred to missile defence as a justification for military upgrades in 2011.

However, Russia's security-based objections to the construction of ballistic missile defence in Europe appear unjustified given the array of countermeasures that Russia could employ to overcome NATO's BMD. As of Sept. 1, 2014, following its obligations under the New START, Russia reported to be in possession of a total of 1,643 warheads and 528 deployed ICBMs, SLBMs and heavy bombers. Additionally, Russia possesses tactical missiles, decoys and chaff, and multiple independently targetable re-entry vehicles.

These are among the many countermeasures that Russia can use to negate the effect of missile defence. Given Russia's offensive capabilities, Russia's argument that missile defence in Europe poses a security threat to Moscow appears exaggerated. Then, why does the Russian leadership keep bringing it up?

**The Political Usefulness of BMD:** Russia's objections seem more logical when examining the domestic utility of hostile rhetoric towards missile defence in Europe. Describing NATO's missile defence as a threat to Russia feeds into the currently-promoted narrative. This paints the West as an aggressive force which aims to change Russia's regime and negate its nuclear deterrent, which Moscow regards as the ultimate guarantee

of its sovereignty. The justification that Russia has to protect itself from the external threat strengthens the need to maintain a strong, centralised government, endure economic woes, and continue to invest in military modernisation.

In his December 4 annual address, Putin used this logic by pointing to missile defence to justify the need to maintain and likely strengthen Russia's defence. He insisted that Russia's policy is reactive, forced by external factors: "We have no intention of becoming involved in a costly arms race - but at the same time we will reliably and dependably guarantee our country's defence under the new conditions. There are absolutely no doubts about this. This will be done."

The strategy to portray BMD as a threat to the Russian population seems effective. A survey conducted by the Russian polling organisation Levada centre in 2007 and again in 2010 revealed that the majority of the Russian constituency believed that the US construction of BMD in Europe presents a larger threat to Russia than the acquisition of offensive military capabilities by Iran or North Korea.

The 2010 Levada poll showed that 55 per cent of the respondents believed that the number one threat to Russian security was the deployment of US BMD in neighbouring states. Only 13 per cent of the respondents stated that Iran's nuclear programme represented the main threat to Russia and 13 per cent indicated that the main threat was North Korea's possession of nuclear weapons.

The 2010 Levada survey could be analysed together with another 2010 Levada poll that confirmed the deeply engrained perception of America's hostile intentions among Russians. Some 73 per cent of the polled Russians indicated that the US was an aggressor that sought to establish control over all

states. In November 2014, another survey showed that 74 per cent of Russians had a negative opinion of the United States – an unprecedented peak in the post-Cold War period.

**We have no intention of becoming involved in a costly arms race - but at the same time we will reliably and dependably guarantee our country's defence under the new conditions. There are absolutely no doubts about this. This will be done.**

In this context, the portrayal of missile defence in Europe as a threat to Russia was important to strengthen Putin's image among the Russian population and elites. A confrontational approach to BMD was, for example, useful before the 2012 presidential

election when Putin built his platform on the image of defending a besieged state. Reconstructing the image of the United States as a Cold War type aggressor facilitated this perception and justified running again on the basis of the need to protect the Russian people from external enemies.

Hence, castigating the United States and NATO again became an effective strategy to win votes. As a part of his 2012 presidential campaign, Putin published seven articles in various Russian newspapers on seven major issues. In the sixth article, entitled "Be Strong: Guarantees of

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National Security for Russia," Putin focused on military issues and linked the construction of missile defence in Europe to strengthening Russia's nuclear arsenal. The soon-to-be again president argued that as missile defence in

Europe threatens Russia's security, Russia has to invest in improving the capability of its nuclear forces to overcome the BMD threat.

This policy entails investing more in weapons modernisation, in Russia's air and space defence, as well as in the military industrial sector. These policies would most likely appeal to the large group of Russian voters with a military outlook and Russians employed in the defence industry and the military bureaucracy. Some reports estimate that these voters could

constitute as much as 40% of Russia's voting population – quite a significant portion of the population to appeal to.

Russia's return to a confrontational BMD position as a tool to distract domestic audiences and contribute to Putin's approval ratings is therefore, a logical manoeuvre. Russia is in the midst of a currency crisis, with the Russian rouble hitting record low exchange rates.

Under pressure by Western sanctions and low oil prices, the Kremlin's energy-dependent coffers may find it challenging to slow the current rates of domestic policy problems that will likely affect public confidence in the Russian leadership. As another Levada survey showed, 80 percent of Russians expect a worsening of Russia's economic performance.

For all of these reasons, BMD has become a political, rather than military, tool for distraction that helps to convince the Russian population of the need to focus on protecting the Russian state, rather than their economic livelihoods.

*Source: <http://www.nato.int>, 29 January 2015.*

#### **SPAIN / TURKEY**

##### **Spain Joins Patriot Missile Defence Mission in Turkey**

Spanish troops joined NATO's Patriot anti-ballistic missile deployment in Adana, Turkey on 26 January 2015, replacing a Dutch unit which had been stationed there since January 2013.

For the past two years, NATO's Patriot deployment on Turkey's south-eastern border has reinforced Turkey's air defences against the threat posed by Syria's ballistic missiles. NATO Foreign Ministers approved the mission in December 2012, after a request from Turkey. At that time, Germany, the Netherlands and the United States each deployed two Patriot missile batteries and soldiers to operate them.

**BMD has become a political, rather than military, tool for distraction that helps to convince the Russian population of the need to focus on protecting the Russian state, rather than their economic livelihoods.**

The Spanish unit is now operational and protecting the south-eastern city of Adana. The German and

American batteries, which are stationed in Kahramanmaras and Gaziantep respectively, also remain in place. NATO continues to follow the ongoing crisis in Syria with grave concern. Over the past two years, NATO has detected hundreds of Syrian short-range missile launches. The Alliance remains fully committed to the

defence of Turkey.

*Source: <http://www.nato.int>, 27 January 2015.*

#### **NUCLEAR ENERGY**

##### **CHINA**

##### **China General Nuclear Says to Launch 5 New Reactors in 2015**

China's biggest reactor operator, CGN, will put another five reactor units into operation in 2015, company executives said, adding that they remain confident in the sector's growth despite approval delays. The state-owned company, parent of Hong Kong Listed CGN Power, completed three new reactors in 2014, taking its total fleet to 11,

spokesman Hu Guangyao told a press conference in Shenzhen late on January 2015. The company had originally planned to complete five reactors in 2014.

China has 22 reactors in operation and a further 26 under construction, but it will need to approve and build at least another 10 units if it is to meet its 2020 capacity target of 58-gigawatts. This would

account for about 3 percent of expected total electricity generation. New approvals were suspended after Japan's Fukushima crisis in 2011. Six new reactor projects were expected to be given the nod by China late in 2014, but no announcement has yet been made.

Hu said the government had its own planning considerations" to take into account, and while

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no projects were approved in 2014, he had "full confidence" in the development of the sector. "The whole restructuring of the energy sector, state requirements about sustainable energy growth and the development of clean energy will all be very beneficial for nuclear," he said. In December, 2014 the government approved designs for CGN's long-awaited homegrown "third-generation" reactor known as the Hualong I, designed jointly with its rival, the China National Nuclear Corporation. CGN said it has already begun preliminary construction on the first Hualong I reactor at the Fangchenggang nuclear base in southern Guangxi. China eventually aims to sell the model overseas.

Source: <http://www.reuters.com/>, 21 January 2015.

## **GENERAL**

### **Thorium Power is the Safer Future of Nuclear Energy**

Nuclear power has long been a contentious topic. It generates huge amounts of electricity with zero carbon emissions, and thus is held up as a solution to global energy woes. But it also entails several risks, including weapons development, meltdown, and the hazards of disposing of its waste products. But those risks and benefits all pertain to a very specific kind of nuclear energy: nuclear fission of uranium or plutonium isotopes. There's another kind of nuclear energy that's been waiting in the wings for decades – and it may just demand a recalibration of our thoughts on nuclear power. Nuclear fission using thorium is easily within our reach, and, compared with conventional nuclear energy, the risks are considerably lower.

**Thorium's Story:** Ideas for using thorium have been around since the 1960s, and by 1973 there were proposals for serious, concerted research in the US. But that program fizzled to a halt only a few years later. Why? The answer is nuclear weapons. The 1960s and '70s were the height of the Cold War and weaponization was the driving force for

all nuclear research. Any nuclear research that did not support the US nuclear arsenal was simply not given priority.

Conventional nuclear power using a fuel cycle involving uranium-235 and/or plutonium-239 was seen as killing two birds with one stone: reducing America's dependence on foreign oil, and creating the fuel needed for nuclear bombs. Thorium power, on the other hand, didn't have military potential. And by decreasing the need for conventional nuclear power, a potentially successful thorium program would have actually been seen as threatening to US interests in the Cold War environment.

Today, however, the situation is very different. Rather than wanting to make weapons, many global leaders are worried about proliferating nuclear technology. And that has led several nations to take a closer look at thorium power generation.

#### ***How Thorium Reactors Work:***

The isotope of thorium that's being studied for power is called Th-232. Like uranium, Th-232 comes from rocks in the ground. A thorium reactor would work like this: Th-232 is placed in a reactor, where it is bombarded with a beam of neutrons. In accepting a neutron from the beam, Th-232 becomes Th-233, but this heavier isotope doesn't last very long. The Th-233 decays to protactinium-233, which

further decays into U-233. The U-233 remains in the reactor and, similar to current nuclear power plants, the fission of the uranium generates intense heat that can be converted to electricity.

To keep the process going, the U-233 must be created continuously by keeping the neutron-generating accelerator turned on. By contrast the neutrons that trigger U-235 fission in a conventional reactor are generated from the fuel itself. The process continues in a chain reaction and can be controlled or stopped only by inserting rods of neutron-absorbing material into the

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reactor core. But these control rods aren't foolproof: their operation can be affected during a reactor malfunction. This is the reason that a conventional fission reactor has the potential to start heating out of control and cause an accident. A thorium fuel cycle, by contrast, can be immediately shut down by turning off the supply of neutrons. Shutting down the fuel cycle means preventing the breeding of Th-232 into U-233. This doesn't stop the heating in the reactor immediately, but it stops it from getting worse.

The increased safety of thorium power does not end there. Unlike the U-235 and plutonium fuel cycles, the thorium reactors can be designed to operate in a liquid state. While a conventional reactor heading to meltdown has no way to jettison the fuel to stop the fission reactions, a thorium reactor design called LFTR features a plug at the bottom of the reactor that will melt if the temperature of the reacting fuel climbs too high. If that happens the hot liquid would all drain out and the reaction would stop.

**Powered Up:** Thorium power has other attractions, too. Its production of nuclear waste would be orders of magnitude lower than conventional nuclear power, though experts disagree about exactly how much: Chinese researchers claim it's three orders of magnitude (a thousandth the amount of waste or less), while US researchers say a hundredth the amount of waste. Thorium would be easier to obtain than uranium. While uranium mines are enclosed underground and thus very dangerous for the

miners, thorium is taken from open pits, and is estimated to be roughly three times as abundant as uranium in the Earth's crust.

**But perhaps the most salient benefit of thorium power, in our geopolitically dicey world, is that the fuel is much harder to turn into a bomb. Thorium itself isn't fissile. The thorium fuel cycle does produce fissile material, U-233, which theoretically could be used in a bomb. But thorium would not be a very practical route to making a weapon, especially with LFTR technology.**

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be exposed to an extremely dangerous isotope, U-232, unless they had a robot to carry out the task.

**China has announced that its researchers will produce a fully functional thorium reactor within the next 10 years. India, with one of the largest thorium reserves on the planet but not much uranium, is also charging ahead. Indian researchers are planning to have a prototype thorium reactor operational early next year, though the reactor's output will be only about a quarter of the output of a typical new nuclear plant in the west. Norway is currently in the midst of a four-year test of using thorium fuel rods in existing nuclear reactors. Other nations with active thorium research programs include the United Kingdom, Canada, Germany, Japan, and Israel.**

**Future Fuel:** China has announced that its researchers will produce a fully functional thorium reactor within the next 10 years. India, with one of the largest thorium reserves on the planet but not much uranium, is also charging ahead. Indian researchers are planning to have a prototype thorium reactor operational early next year, though the reactor's output will be only about a quarter of the output of a typical new nuclear plant in the west. Norway is currently in the midst of a four-year test of using thorium fuel rods in existing nuclear reactors. Other nations with active thorium research programs include the United Kingdom, Canada, Germany, Japan, and Israel.

There are some drawbacks to thorium fuel cycles, but they

are highly technical. For instance, thorium reactors have been criticized as potentially having more neutron leak compared with conventional reactors. More neutron leak means more shielding and other protection is needed for workers at the power plant. And as in most types of alternative energy, thorium power faces a lack of funding for research and of financial incentives for power companies to switch over.

In recent decades, stories about safe, green nuclear power in popular media have tended to focus on the quest for nuclear fusion. Certainly, we can expect, and should hope, for continued progress toward that type of power. But while that happens, the investments by China, India, and other countries suggest that thorium is *en route* to contribute to the grid in the near term – and to dramatically improve the world's energy sustainability in the process.

Source: <http://blogs.discovermagazine.com/>, 16 January 2015.

### **First 'Exceptional Load Delivered to ITER**

Although a number of smaller components for the project's electrical network have been delivered to the construction site since last September, the delivery of the 87-tonne transformer marks the first to be classified as a "highly exceptional load". Such loads require travel by night on the specially adapted route – the so-called Iter Itinerary – between the Mediterranean Sea and the Iter site. The transformer was procured by the US Domestic Agency for Iter and manufactured in Korea by Hyundai Heavy Industry. It is part of the USA's 75% contribution to the project's steady state electrical network. Three other identical transformers will be delivered to Iter over the coming months.

The component left Hyundai Heavy Industry's plant

in Ulsan, Korea on 16 November 2014 and, following a month-long sea voyage, reached Marseille's industrial harbour, Fos-sur-Mer. After being placed in temporary storage, the transformer was loaded on to a trailer on 12 January 2015 and transported by barge across the inland sea Etang de Berre. It was then transported along the 104 km (65 mile) road route to Cadarache, reaching the Iter site on 14 January 2015.

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Speaking at a ceremony to mark the arrival of the first exceptional load, ITER Organization director general Osamu Motojima said, "Today's operation will need to be replicated some 250 times before we can complete the assembly of the Iter Tokamak. And some of the components will be much larger, heavier and more difficult to handle than the one that was delivered today."

The transformer – which will be connected to the 400 kV switchyard and reduce the voltage to 22 kV to power the Iter project's plant systems – has been moved to a storage area prior to installation.

**The Iter project aims to take nuclear fusion research to a new level with the largest ever Tokamak unit, which should be capable of sustaining plasmas that produce 500 MWt for as long as seven minutes. The EU is funding half of the cost while the remainder comes in equal parts from six other partners: China, Japan, India, Russia, South Korea and the USA. The facility is expected to reach full operation in 2027.**

The heaviest convoy that will travel along the Iter Itinerary will weigh 800 tonnes (including the transport vehicle), and loads can be up to be 10.4 metres high, the longest 33 metres, and the widest 9 metres. The Iter project aims to take nuclear fusion research to a new level with the largest ever Tokamak unit, which should be capable of sustaining plasmas that

produce 500 MWt for as long as seven minutes. The EU is funding half of the cost while the remainder comes in equal parts from six other partners: China, Japan, India, Russia, South Korea and the USA. The facility is expected to reach full operation in 2027.

Source: <http://www.world-nuclear-news.org/>, 20 January 2015.

**JAPAN**

**Government Mulls 15%-20% Target for Nuclear Power Output by 2030**

Japan is mulling setting the proportion of electricity to be generated by nuclear power at around 15 to 20% in 2030, lower than the 28.6% in fiscal 2010 before the Fukushima nuclear disaster, government officials said on January 22, 2015. The government will also consider providing ranges to the proportions of nuclear power and renewable energy to avoid setting clear percentages amid strong antinuclear sentiment....PM Shinzo Abe's government has pledged to reduce the country's dependence on nuclear power and introduce clean energy as much as possible, while placing nuclear power as an "important base-load power source" despite the nuclear accident.

The industry ministry will convene a panel of experts on January 30, 2015 to begin full-fledged debate on the so-called energy mix to reach a conclusion before a summit of the Group of Seven industrialized nations slated for June in Germany, where Japan hopes to show its stance to address greenhouse gas emissions. Japan, one of the biggest greenhouse gas emitters, has not set a post-2020 emission target due to uncertainty over how many of its 48 commercial reactors – all of which were gradually taken offline after the Fukushima meltdowns – will go back online.

A dominant view within the government is that the combined proportion of electricity generated by nuclear power and renewable energy be set at around 45% in light of a need to reduce greenhouse gas emission. The government has also yet to make its stance clear about whether to allow construction of new nuclear power plants down the road. Economy, Trade and Industry Minister Yoichi Miyazawa has said the government

"does not envision" replacing reactors that are too old to be restarted with new ones.

**Japan is mulling setting the proportion of electricity to be generated by nuclear power at around 15 to 20% in 2030, lower than the 28.6% in fiscal 2010 before the Fukushima nuclear disaster, government officials said on January 22, 2015.**

plants would be less than 20% the current level in 2036.

*Source: <http://www.japantimes.co.jp>, 23 January 2015.*

**Japan will Prosper from Nuclear Restarts**

A scenario with 25% nuclear power would best suit Japan's policy goals, according to the Institute of Energy Economics, Japan (IEEJ). In the time to 2030 it would be cheaper than a non-nuclear

**Under new nuclear safety regulations adopted following the Fukushima meltdowns, nuclear reactors are not allowed to operate more than 40 years in principle to ensure safety, which means installed capacity of nuclear plants would be less than 20% the current level in 2036.**

scenario and would help the country return to a positive trade balance. Japan will need to use every available power generation technology up to 2030, according to a recent presentation by the IEEJ. Its Energy Data and Modelling Center produced three scenarios for Japan's future energy mix. In each, the share of mostly imported fossil fuels remained in the 50-65% range

while proportions of renewables and nuclear were varied more widely.

Scenario I, with no nuclear power, scored worse than the others on every one of the IEEJ's economic environmental and security measures - except for the non-production of radioactive waste. Scenario III with 25% nuclear power was favoured by the IEEJ, which said it "can be regarded as the closest to what should be aimed for" considering government policies now in place. In 2030 it would have 42 GWe of nuclear capacity in operation, including the completion of three reactors currently under construction. These units would

be assumed to operate for a 60-year lifespan at around 80% average capacity and would produce 25% of Japan's electricity, while renewables provide the same and fossil fuels make up the other half.

This compares with the 30% share of electricity that came from nuclear power before the Great East Japan Earthquake and the subsequent nuclear accident at Fukushima Daiichi. Currently all of Japan's nuclear power reactors are shut down awaiting permission to restart from regulators. The first restarts should come in the first half of 2015.

Benefits of Scenario III over non-nuclear Scenario I include power prices of ¥16.4/kWh instead of ¥21.0/kWh and 67 million tonnes fewer carbon dioxide emissions per year. The country could have 28% self-sufficiency in energy compared to 19% without nuclear power, saving ¥2.1 trillion (\$17.8 billion) per year by importing 19.1 million tonnes less LNG every year. According to the IEEJ this also means Japan could return to a positive trade balance of ¥1.3 trillion (\$11.0 billion) per year instead of a deficit of ¥2.3 trillion (\$19.5 billion) under the non-nuclear Scenario I.

Without nuclear power, Scenario I would see renewables and fossil fuel both increase to 35% and 65% of electricity generation respectively. In Scenario III renewables were 25% and fossil fuel was 50% compared to nuclear's 25%. Scenario II was roughly between the two, while Scenario IV saw renewables at 20% and nuclear at 30% but this saw diminishing benefits compared to the IEEJ's favourite Scenario III. Energy efficiency was a factor in all of the scenarios and was expected to limit the growth of electricity consumption to 7% between 2013 and 2030, despite further electrification.

*Source: World Nuclear News, 27 January 2015.*

## **INDIA**

### **Indian Nuclear Deals Still Complicated for US Firms Despite Claims of Obama-Modi Breakthrough**

India and America's declaration of a breakthrough in contentious nuclear energy cooperation has been met with a lukewarm response from industry and analysts. Few expect the potentially lucrative

Indian market to suddenly become less complicated for US nuclear companies. President Barack Obama's three-day visit to New Delhi raised hopes for concrete plans to tackle India's fossil fuel dependency and to resolve a four-year standoff over liability that prevented US and Japanese nuclear energy development on Indian soil. Instead, there were vague commitments and public displays of chumminess between Obama and Prime Minister Narendra Modi.

The two leaders said they agreed to advance a 2008 civil nuclear deal long stalled by concerns about India's reluctance to allow US tracking of fissile material. It has also been held up by American concerns with an Indian law that makes US nuclear suppliers, not operators of nuclear plants, liable for accidents.

Since India passed the liability law in 2010, only government-backed nuclear firms in Russia and France have discussed entering India's market, annoying Washington which brokered India's special status as a nuclear nation despite its refusal to sign the global treaty on the non-proliferation of nuclear weapons.

The apparent US-India breakthrough was in narrowing differences on the liability issue. ...Modi has placed new urgency on India's nuclear ambitions, with the aim of vastly expanding atomic energy capacity to account for about half the country's total electricity supply by 2050. Nuclear power is one way India, the third biggest emitter of greenhouse gases, could cut its emissions and also reduce air pollution from coal-fired power plants. But it is both expensive and water intensive, testing two resources already in short supply in India. In December, Modi reached a deal for 12 new Russian reactors, and in September secured access to Australian uranium. He was unable, however, to reach an agreement last year with Japan, a US ally with decades of nuclear energy expertise.

Indian and US officials said part of the solution to the liability impasse could be a \$122 billion insurance scheme proposed by India. That would be funded by India's government and Indian nuclear companies, and be managed by the state-

run General Insurance Corporation of India, according to Indian nuclear negotiator Amandeep Gill. Analysts questioned how that would work in practice.

... An earlier deal with Westinghouse Electric Co. for a 6,600-megawatt nuclear plant has languished while the liability dispute raged. The Toshiba-backed company is still eyeing another \$50 billion contract to build reactors in Modi's home state of Gujarat. "We've lost some time and we've fallen a bit behind" with construction agreements with Indian builders on hold, Westinghouse CEO Daniel Roderick said in an interview with NDTV. "What I'm worried about is we could lose another two or three years if we don't really have a mandate from the government." The liability insurance program would also likely mean that commercial nuclear projects become more expensive. The US is the sixth-largest investor in India and the two countries want to boost their trade to \$225 billion by 2025 from last year's \$62 billion.

*Source: Excerpted from article by Katy Daigle, <http://www.usnews.com>, 27 January 2015.*

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### **Larsen & Toubro Hopes to Build Nuclear Reactors as Nuclear-Deal Logjam Ends**

Larsen & Toubro hopes to build nuclear reactors in partnership with Westinghouse Electric Company and is exploring other partnerships after India and the US cleared the way for implementing a bilateral agreement signed in 2008. Prime Minister Narendra Modi and US President Barack Obama...said understanding had been reached on issues of civil nuclear liability and administrative arrangements for civil nuclear cooperation.

They looked forward to US-built nuclear reactors contributing to India's energy security at the earliest, according to a statement issued by the two leaders. "We believe it is a positive for India's nuclear power plans. While the details on the liability issue and insurance pool are not yet available, there is some relief that the two countries have reached some understanding and that things are moving in the right direction," said

MV Kotwal, whole-time director & president (heavy engineering) at the engineering major.

"Our interactions with Westinghouse have been on-going and we hope to move forward quickly with our relationship with them. This will, of course, be dependent on their further discussions and negotiations with NPCIL," said Kotwal, who heads L&T's nuclear power business. The landmark civilian nuclear accord that India and the US signed in 2008 during the first term of the UPA government was stalled by a clause making equipment suppliers liable for accidents.

"We have built extensive capacity but the way things were moving for India's nuclear power programme made us feel that things may not happen soon. The Fukushima accident made it look even more difficult. But the recent developments are very positive and we are optimistic that we will now be able to take the business to the next level," Kotwal said. L&T, in partnership with the NPCIL, set up a forging facility at Hazira in Gujarat at an investment of 2,000 crore for the nuclear power sector. The facility has been taking orders from other sectors to cut losses.

In 2009, L&T signed an agreement with Toshiba-controlled Westinghouse to manufacture and sell its AP1000 nuclear reactor that runs on pressurised water technology. The project has already been awarded land in Gujarat and a \$10 million feasibility study has been conducted. But work has not progressed due to lack of clarity. Westinghouse is keen to go ahead with the India project, Reuters reported, citing Daniel Roderick, president and CEO. "The other major factors for India would be land acquisition and financing for these projects, apart from the capital & operational costs and the resultant tariff," Kotwal of L&T said. ...

*Source: Article by Rachita Prasad, The Economic Times, 28 January 2015.*

### **MALAYSIA**

#### **IAEA's Amano Promotes Importance of Nuclear for Development**

Mr Amano said in a speech in Malaysia that the

IAEA, an independent agency within the UN, is much more than the "world's nuclear watchdog" which the media likes to write about. He said preventing the spread of nuclear weapons is a core activity, but through the IAEA Technical Cooperation programme, the agency also makes nuclear technology available to developing countries for peaceful purposes.

In Malaysia, recent projects include improving human resources in hybrid imaging. This involves the use of new diagnostic tools in hospitals that make it easier for doctors to study patients' internal organs for evidence of cancer or other serious diseases. Mr Amano said Malaysia is taking part in an IAEA project to study possible radioactive contamination of the seas of the Asia-Pacific region after the March 2011 Fukushima Daiichi accident.

With IAEA assistance, Malaysian specialists are looking into the use of nuclear techniques to develop new varieties of rice, and to improve soil and water management. The use of food irradiation to control damaging pests is growing in importance. "This will make it easier for Malaysian producers to export pineapples, papayas and other fruits to important markets such as the United States," Mr Amano said. He said that when he last spoke to the UN General Assembly a few months ago, he asked member states to help ensure that the importance of science and technology is "explicitly recognised as a central part of the post-2015 development agenda".

"I believe that nuclear science and technology have much to contribute to sustainable development in many areas, including some which I have already mentioned – human health, agriculture, water management and industrial applications, as well as in energy." In addition to its work on cancer, the IAEA has recently helped a number of African countries to deal with the Ebola virus by making special rapid diagnosis kits available.

Nuclear technology is also being used to suppress

insects which carry diseases – for example, tsetse flies. Mr Amano said the best known application of nuclear technology is nuclear power. Malaysia, an IAEA member state since 1969, is one of a number of countries which are considering nuclear power as a possible option for the future. Malaysian media quoted the PM's office as saying that a decision on whether or not to deploy nuclear energy for power generation will only be made upon the completion of a comprehensive set of studies. A minister was quoted as saying current studies were focused on "the evaluation of the national and legal regulatory infrastructure for a

comprehensive national nuclear governance in line with the latest international best practice".

Source: <http://www.nucnet.org/>, 23 January 2014.

#### **UK**

#### **UK Nuclear Plant Gets Ten-Year Extension**

Dungeness B's two 545 MWe AGR reactors started up in 1983 and 1985 respectively. The plant's life extension is part of EDF Energy's strategy to keep its UK nuclear fleet in operation until at least 2023 – the date

that its planned new nuclear plant at Hinkley Point C is due to be commissioned. "This means existing nuclear can hand over directly to the next generation of nuclear power stations without the need for more fossil fuel generation," said EDF Energy CEO Vincent de Rivaz. Hinkley C is still subject to a final investment decision.

The life extension follows a £150 million (\$228 million) investment program at the plant, including a £75 million (\$114 million) upgrade to control room computer systems and enhanced flood defences costing £8 million (\$12 million). Extensive reviews of the plant's safety cases have been carried out, and the plant will also be subject to continuing independent safety reviews by the UK's ONR. EDF is currently investing around £600 million (\$911 million) per year into its eight UK nuclear power plants. The case for investment in Dungeness B and the company's other nuclear power stations has been supported by the

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existence of the UK's electricity capacity market, which it said "gives investors confidence in highly challenging conditions."

Keith Parker, chief executive of the UK Nuclear Industry Association, described the decision to extend Dungeness B's operating life as "excellent news for the local, regional and national economy". Keeping all of the UK's AGRs in operation until the commissioning of Hinkley Point C would help maintain security of supply and avoid the generation of "millions of tonnes of CO2," he added.

**Strategic Partnerships:** EDF Energy announced the Dungeness extension alongside partnerships to support the ongoing operation of its UK fleet. These include a strategic nuclear partnership between EDF Energy, Amec Foster Wheeler, Cavendish Nuclear, Atkins and Doosan Babcock to share knowledge and expertise in support of EDF Energy's nuclear stations; a £150 million (\$228 million), five-year contract with Cape plc to supply access, insulation and services for all of EDF Energy's nuclear power stations; and a contract with Cavendish Nuclear, part of Babcock International, for carrying out inspections of graphite in the reactors, maintaining gas circulators and providing support. The agreement with Cavendish Nuclear is worth around £40 million (\$61 million) per year, EDF Energy said....

Source: <http://www.world-nuclear-news.org/>, 20 January 2015.

## USA

### US House Passes Low-Dose Radiation Bill

The Low Dose Radiation Research Act of 2015 (HR 35) directs the two organisations to carry out a research program "to enhance the scientific understanding of and reduce uncertainties associated with the effects of exposure to low dose radiation in order to inform improved risk

management methods." The study is to be completed within 18 months. The researchers must identify current scientific challenges to understanding the long-term effects of ionizing radiation; assess the status of current low dose research in the US and elsewhere; formulate overall scientific goals for the future of US low-dose radiation research; and recommend a long-term strategic research agenda to address and overcome the identified scientific challenges.

The US Secretary of Energy must then deliver a five-year research plan in response to the study's findings and recommendations. The bill follows legislation passed in November 2014 authorizing the DOE to carry out research on the risks posed by low-dose ionizing radiation.... "Given the pervasiveness of nuclear technologies in our modern world – for electricity generation, medical imaging and treatment, calibration of industrial equipment, and myriad other applications - it just makes sense that we better understand the health effects of low doses of radiation." The risks from low levels of radiation are an area of widespread debate. In December 2012, the UNSCEAR highlighted the need for caution in extrapolating the effects of low radiation doses on large populations....

Source: <http://www.world-nuclear-news.org/>, 20 January 2015.

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## NUCLEAR COOPERATION

### CHINA-UK

#### Questions about UK Scrutiny of Chinese Nuclear Tie-Up

Chinese involvement in UK energy schemes remains controversial, not least because of the historical links between its industry and the military. The National Security Council is supposed

to review critical projects. But ministers have consistently refused to say whether this has been the case.

The BBC requested information, under Freedom of Information laws, about whether the National Security Council had discussed China's investment in a proposed new Hinkley C reactor as part of a consortium led by French firm EDF and if it had, whether it had been approved. In a delayed response, the government confirmed the information was held by the Cabinet Office but refused to say whether the NSC had approved or even discussed China's expected 30-40% stake in the Somerset project or the implications of its long-term aim of building nuclear reactors of its own in the UK....

**'Risks Assessment'**: National security considerations could only be overridden in exceptional circumstances, he said, adding that "the balance of the public interest favours withholding this information". But Derek Smith, head of communications for the NSC, told the BBC that foreign investment in critical national infrastructure projects like Hinkley C fell under the aegis of the body, established by David Cameron in 2010.

According to him, "The NSC brings together the economic and security arms of the government and is the forum that ultimately balances the risks and opportunities of inward investment decisions." The Cabinet Office said Chinese companies had "strong credentials and an established track record in delivering safe nuclear power over the past thirty years" and any company involved in the UK's nuclear power industry does so in accordance with the most

stringent regulations in the world.

**'Expediency'**: The Labour MP Dr Alan Whitehead, a member of the Energy and Climate Change Committee, said the government's refusal to say

whether it had followed its own rules was "not acceptable". "There is clearly an issue of national security about a Chinese government stake in and possible control of the building and operation of a British nuclear power plant." "Refusing to discuss it by hiding behind supposed national security will cause most people to conclude that expediency is trumping security in the review process."

"The government should therefore make public the details of the discussions in the NSC and other key decisions such as within the HM Treasury on the UK Guarantee Scheme to inform the public and the wider EU about the cost, security and overall value of the project," he said. French firm EDF had been due to make

a final investment decision in Hinkley C by the end of 2014 but the project is still in the balance, not least because of the debts weighing down the

French reactor developer Areva. Similar reactor projects in France and Finland are running hugely over budget and behind schedule.

Meanwhile China is poised to increase its influence in the UK energy market with reports that the state owned China General Nuclear Corporation was preparing to pay an estimated £100m for an 80% stake in three UK wind farms which would be Beijing's first purchase of onshore wind

generation capacity in the west.

Source: <http://www.bbc.com/>, 15 January 2015.

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## RUSSIA-USA

### Russia-US Nuclear Material Security Cooperation Discontinued

According to US media reports, Moscow and Washington have officially ceased 20 years of co-operation over securing storage of nuclear material in Russia. Russia's Rosatom warned that no new contracts with the US were expected in 2015. The declaration on stopping co-operation in the nuclear material protection sphere was signed on Dec. 16, 2014....The decisive talks took place in Moscow over in Nov. 2014, but the outcome remained secret until mid-January, 2015....

After the collapse of the Soviet Union, the US assisted Russia in securing its huge stockpiles of weapons-grade plutonium and highly enriched uranium, as well as financing dismantling nuclear weapons. Over the two decades of the Cooperative Threat Reduction programs, the US reportedly spent \$2 billion, with \$100 million allocated for 2015 and plans to continue the programs until at least 2018. The money was spent on creating a computerized record keeping system, personnel training, inventory of fission materials, and withdrawal of fission materials from former Soviet republics.

Starting from Jan 1, 2015 joint security operations at Russia's 18 civilian facilities with weapons-grade nuclear material have been discontinued, as well as further security upgrades in 7 'closed nuclear cities' hosting military and civilian nuclear laboratories, institutes and nuclear research centers. Russian authorities scotched America's plans to install radiation sensors in the country's airports, seaports and border crossings that would monitor Russia's fission material circulation to "catch potential nuclear smugglers," according to the official version.

Russia also stopped work on diluting its weapons-grade plutonium and uranium stock into a "less dangerous" form, previously conducted at two facilities. Installation of high-tech surveillance systems at 13 nuclear material storage buildings in Russia has also been called off. "They need continuous attention and international cooperation," said Siegfried S. Hecker, a former head of the Los Alamos National Laboratory, who has traveled to Russia more than 40 times since 1992. ... The crisis in Russia-US relations over developments in Ukraine has been deepening throughout 2014, and has finally affected the business of international control over radioactive materials....

Source: <http://rt.com/news/>, 20 January 2015.

## NUCLEAR NON-PROLIFERATION

### IRAN

#### US to Award Iran \$11.9 Billion through End of Nuke Talks

**After the collapse of the Soviet Union, the US assisted Russia in securing its huge stockpiles of weapons-grade plutonium and highly enriched uranium, as well as financing dismantling nuclear weapons. Over the two decades of the Cooperative Threat Reduction programs, the US reportedly spent \$2 billion, with \$100 million allocated for 2015 and plans to continue the programs until at least 2018.**

The Obama administration on January 21, 2015, paid \$490 million in cash assets to Iran and will have released a total of \$11.9 billion to the Islamic Republic by the time nuclear talks are scheduled to end in June 2015, according to figures provided by the State Department. [The] \$490 million release, the third such payment of this amount since Dec. 10, 2014 was agreed to by the Obama administration under the parameters of another extension in negotiations over

Tehran's contested nuclear program that was inked in Nov. 2014.

Iran will receive a total of \$4.9 billion in unfrozen cash assets via 10 separate payments by the United States through June 22, 2014 when talks with Iran are scheduled to end with a final agreement aimed at curbing the country's nuclear work, according to a State Department official. Iran received \$4.2 billion in similar payments

under the 2013 interim agreement with the US and was then given another \$2.8 billion by the Obama administration in 2014 in a bid to keep Iran committed to the talks through November 2014, when negotiators parted ways without reaching an agreement. Iran will have received a total of \$11.9 billion in cash assets by the end of June 2015 if current releases continue on pace as scheduled.

Source: <http://www.foxnews.com/>, 21 January 2015.

### **Europe and Iran: The Nuclear Dispute and the Syrian Crisis**

Following a meeting of the EU foreign ministers in late December 2014 the EU High Representative for Foreign Affairs and Security Policy Federica Mogherini stated, "Iran is not only the country with which we have nuclear talks, it is also a regional important player [sic] and this practically means that we will have to engage with Iran also on its neighborhood." This statement highlights the two issues under intense discussion between the EU and Iran – the nuclear dispute and the crisis in Syria. In recent months much attention has been focused on potential rapprochement between Washington and Tehran. This might or might not happen. Meanwhile, the EU has been a key player in the on-going diplomatic efforts with Iran.

Historically, the EU has viewed Iran as an important regional power. Following the uncertainties that accompanied the Iranian revolution and the Iran-Iraq war, Brussels and Tehran began regular consultations to improve relations. These efforts, however, have been interrupted by strong disagreement over Iran's nuclear program and, since 2011, the on-going civil war in Syria.

**The Nuclear Dispute:** The goal of the EU policy on Iran's nuclear dispute is to "achieve a

comprehensive, negotiated, long-term settlement which restores international confidence in the exclusively peaceful nature of the Iranian nuclear program, while respecting Iran's legitimate right to the peaceful use of nuclear energy under the NPT." This declared objective is not different from that of the United States. Brussels, however, had initially adopted a different tactic than Washington. Since the early days of the 1979 Revolution relations between Washington and Tehran have been dominated by mutual hostility and mistrust.

The United States has sought to isolate and contain Iran. On the other side, the Europeans have taken a less confrontational approach and sought to influence Iran's domestic and foreign policies by engaging the country in commercial and diplomatic relations. Stated differently, the Americans played the role of "bad cop" while the Europeans played the role of "good cop". Eventually the two roles have converged and neither has succeeded. Iran has continued to make progress on its nuclear program.

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Against this background Tehran and Brussels sought to establish cooperative relations in the aftermath of the Iran-Iraq war (1980-88). These efforts, however, were restrained by disagreements over the fatwa against Salman Rushdie and allegations of Iranian involvement in terrorist activities. Despite these obstacles and setbacks, the Iranian and European sides initiated the so-called 'critical dialogue', which later evolved

into a comprehensive one. The Europeans sought to use growing trade and commercial ties as well as flourishing political dialogue to change Iran's policy in four areas: human rights, the Arab-Israel conflict, its alleged sponsoring of terrorism, and its proliferation of weapons of mass destruction.

Gradually, the nuclear issue has dominated

relations between the two sides, particularly since the early 2000s when more information on the nuclear program became available. The revelation of previously undeclared nuclear activities in 2002 was coupled with two other developments. First, the EU became more concerned about the proliferation of WMD and articulated a broad strategy signaling a rising European role. This strategy was officially declared in the mid-2000s. Second, the United States' invasion of Iraq in 2003 heightened tensions in the Middle East. Europe was concerned that Washington might start another war against Iran, which would further destabilize its backyard.

**Gradually, the nuclear issue has dominated relations between the two sides, particularly since the early 2000s when more information on the nuclear program became available. The revelation of previously undeclared nuclear activities in 2002 was coupled with two other developments. First, the EU became more concerned about the proliferation of WMD and articulated a broad strategy signaling a rising European role.**

It was the combination of these developments that laid the ground for European-Iranian nuclear negotiations. These diplomatic efforts were led by France, Germany and the United Kingdom and started in 2003. Following the election of President Mahmoud Ahmadinejad in 2005, Tehran resumed enriching uranium, and the IAEA referred Iran to the UNSC. Within this context the UNSC issued four resolutions (1737 of Dec. 2006, 1747 of March 2007, 1803 of March 2008, and 1929 of June 2010) that imposed strict and comprehensive economic sanctions on Iran.

In parallel, the European Union imposed additional sanctions. These included prohibitions on trade in goods and technologies that could contribute to the nuclear program. In addition, in 2012 the EU added a number of measures focusing on Iran's energy sector including a ban on importing oil and natural gas and on exporting technology and equipment. As a result of these strict sanctions EU imports from Iran dropped

**It is important to point out that Iran categorically denies any interest in making nuclear weapons and claims that its nuclear program is solely focused on civilian nuclear energy. Since the election of President Rouhani in 2013 the differences between the two sides have significantly narrowed.**

from 17.3 billion Euro in 2011 to 0.8 billion and exports from 10.5 billion Euro to 5.5 billion. Meanwhile, the negotiating track was not completely abandoned. High Representative Catherine Ashton led several rounds of negotiations with Iran in what became known as the 5+1 or E3+3.

It is important to point out that Iran categorically denies any interest in making nuclear weapons and claims that its nuclear program is solely focused on civilian nuclear energy. Since the election of President Rouhani in 2013 the differences between the two sides have significantly narrowed. The on-going negotiations seek to overcome the few, but major, remaining obstacles. The two sides claim

that the nuclear track is separate from other regional disputes. However, one can argue that reaching an agreement on one track would facilitate an understanding on the other.

**The Syrian Crisis:** The EU's stance on the Syrian crisis was clearly re-stated in the latest meeting of the Foreign Affairs Council, held in Brussels in mid-December. The foreign ministers emphasized that the EU will continue to encourage all efforts to reach a political solution in order to maintain the unity, sovereignty, and territorial integrity of Syria, as well as its multi-ethnic and multi-religious character. They added that a lasting solution to the conflict can only be achieved through a Syrian-led

political process leading to a transition. Finally, the EU foreign ministers expressed their willingness to engage with all regional and international actors with influence over the Syrian parties. In short, the EU wants to engage with Iran.

Nevertheless, it remains EU policy that President Bashar Al-Assad should step down. While Tehran does not advocate that Assad should stay in power for life, it has strongly backed his regime since the beginning of the uprising in March 2011.

The Iranians do not see the crisis in Syria as a part of the broader uprising in the Arab world (the so-called Arab Spring) that toppled the regimes in Tunisia, Libya, Egypt and Yemen. Rather, Tehran believes that Saudi Arabia, Qatar, Turkey, and Israel are involved in a conspiracy to train and fund terrorist groups. Their goal is not limited to toppling the Assad regime. Instead, their objective is to weaken Iran's strategic interests.

The creation of Hezbollah in the early 1980s has been one of the most important achievements of the Iranian revolution. The Lebanese party continues to play a key role in Iran's security strategy as an instrument of deterrence and retaliation against potential Israeli and/or American attacks. Thus, maintaining a connection to Hezbollah through a friendly regime in Damascus is a fundamental Iranian national security issue. In other words, maintaining supply routes to Hezbollah via a friendly regime in Syria (or at least part of it) is seen in Tehran as part of the country's defense strategy. Major General Qassem Suleimani, the architect of Iran's military effort in Syria and the head of its Qods Forces recently asserted, "Syria is the front line of the resistance."

Within this context, Iran has been paying a huge price for supporting President Assad. History shows that when it comes to perceived national security and survival, governments are willing to pay whatever price is needed. This, however, does not rule out a compromise. Indeed, Tehran has proposed several plans to prevent foreign intervention, stop violence, provide humanitarian assistance and hold free elections. In short, Iran is open to a political solution under which the Syrian

government and opposition would negotiate an end to the crisis.

**The Way Forward:** The nuclear dispute and the Syrian crisis are two major obstacles towards a rapprochement between Tehran and Brussels. Officially the two sides share similar goals: (A) for Iran to have the acknowledged right to be a civilian nuclear power, and (B) to establish a sovereign, united and prosperous Syria. The on-going negotiations have brought the two sides closer. Still, more work is needed.

Source: <http://oilprice.com>, 22 January 2015.

## **NORTH KOREA**

### **North Korea Nuclear Chief Meets with US Negotiators Amid Standoff**

US academics and former senior officials met North Korea's chief nuclear negotiator in Singapore on January 18, 2015 to get a feel for each other's positions amid a years-long standoff over the North's nuclear weapons buildup. ... The US and North Korea have no formal diplomatic ties, but

former US officials occasionally meet the North's diplomats in a bid to settle the impasse over Pyongyang's pursuit of a long-range nuclear-armed missile that could hit the US mainland. ...North Korea has indicated willingness to rejoin the long-stalled talks, but has balked at US demands it first take concrete steps to show it remains committed to the denuclearization goal.

In early January 2015, North Korea told the US that it was willing to impose a temporary moratorium on its nuclear tests

if Washington scraps planned military drills with South Korea in 2015. Washington called the linking of the military drills with a possible nuclear test "an implicit threat", but said it was open to dialogue with North Korea.

Source: <http://www.theguardian.com>, 18 January 2015.

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NUCLEAR SAFETY

USA / RUSSIA

**Russia Urges Continued Cooperation with USA**

As part of this effort, Russia has to date received back from 14 countries fresh and irradiated HEU fuel from research reactors for down-blending, which has "eliminated the risk of the unauthorized use" of such material, it added. Russia also plans to receive back HEU fuel from Uzbekistan, Kazakhstan and Poland. Since 2002, Russia has received back 2136 kg of HEU fuel.

"We firmly believe that the use of nuclear energy is a long-term strategic area [that] cannot and should not depend on changes to the political situation. We'll be ready for the resumption of cooperation when the American side is ready, strictly on the basis, of course, of equality, mutual benefit and mutual respect," Rosatom said.

Russia is the only country that has down blended 500 metric tons of HEU fuel to low enriched uranium fuel that can be used in civil nuclear energy programs, Rosatom said. In November 2013 Russia reportedly told the USA that it was planning to reduce its participation in 2014 in a joint effort to secure nuclear materials on Russian territory.

Rosatom director general Sergey Kirienko was said to have told senior officials in US President Barack Obama's administration that no new projects in Russia are "envisioned" in 2015.

Then, in April 2014, Rosatom said the US DoE had announced it had suspended a number of joint civil nuclear energy projects with Russia because of Russia's "actions in Ukraine", meaning Russia's

annexation of Crimea. And in May 2014 a joint cooperation program begun only ten months previously was suspended, said Rosatom, "on the initiative of the American side." But in September, 2014 US Energy Secretary Ernest Moniz told the 58th session of the General Conference of the IAEA that the USA would not refuse to cooperate with Russia on nuclear safety or in the areas of nuclear power and research.

Source: <http://www.world-nuclear-news.org/>, 22 January 2015.

NUCLEAR WASTE MANAGEMENT

JAPAN

**In early January 2015, North Korea told the US that it was willing to impose a temporary moratorium on its nuclear tests if Washington scraps planned military drills with South Korea in 2015. Washington called the linking of the military drills with a possible nuclear test "an implicit threat", but said it was open to dialogue with North Korea.**

**Storage of Fukushima Clean-up Waste to Start**

In August 2014, the then governor of Fukushima Prefecture Yuhei Sato approved a central government plan to construct an interim storage facility on land on the border between the neighbouring towns of Futaba and Okuma. Authorities in Okuma gave their consent to the plan in December 2014. On 13 January

2015 Futaba mayor Shiro Izawa said that the town now also accepts the construction of the waste facility. He was cited by the *Jiji* news agency as saying, "We cannot move forward toward reconstruction unless we make a tough decision."

**As part of this effort, Russia has to date received back from 14 countries fresh and irradiated HEU fuel from research reactors for down-blending, which has "eliminated the risk of the unauthorized use" of such material, it added. Russia also plans to receive back HEU fuel from Uzbekistan, Kazakhstan and Poland.**

The following day, the Japanese government allotted JPY 75.8 billion (\$645 million) for the construction of temporary storage facilities for waste from clean-up activities in Fukushima Prefecture. This figure includes JPY 4.4 billion (\$37 million) for land purchases, JPY 70.7 billion (\$601 million) for construction and JPY 700 million (\$6 million) for research.

Environment minister Yoshio

Mochizuki said in a 16 January statement, "In order to proceed with the decontamination and reconstruction of Fukushima, it is essential to develop interim storage facilities to safely and intensively manage soil and waste generated by decontamination."

The government has said that waste would be stored at the facility for up to 30 years, after which it would be transported to planned disposal

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facilities. Of the 150,000 residents who evacuated the area around the Fukushima Daiichi plant, some 72,800 lived in the towns and villages of Futaba district. Being close to the nuclear power plant, Futaba district was heavily dependent economically on the plant, with much of its industry geared towards the power sector.

*Source: <http://www.world-nuclear-news.org/>, 19 January 2015.*



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

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