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PRESS RELEASE – MEA

FAQs and Answers on Civil Liability for Nuclear Damage Act 2010 and Related Issues

Q1. What is the understanding reached with the US on January 25, 2015 during the visit of President Obama to India?

Ans. India and the US have reached an understanding on the issues related to civil nuclear liability and finalized the text of the Administrative Arrangement to implement the September 2008 bilateral 123 Agreement. This will allow us to move towards commercial negotiations on setting up reactors with international collaboration in India and realize the significant economic and clean energy potential of the civil nuclear understanding of 2005-2008.

Q2. How was this understanding reached?

Ans. It may be recalled that during PM's visit to the US in September 2014, the two leaders reaffirmed their commitment to implement fully the India-US civil nuclear cooperation agreement and established a Contact Group on advancing the implementation of civil nuclear energy cooperation. The Group, comprising representatives from MoEA, DAE, NPCIL, MoF, Ministry of Law & Justice, in addition to the representatives from US Government, also had an interface with the companies – NPCIL on the Indian side and Westinghouse and General Electric on the US side. It met three times in New Delhi (16-17 Dec 2014),

The Indian side presented its position concerning the compatibility of the CLND Act and the Convention on Supplementary CSC. The idea of the India Nuclear Insurance Pool as a part of the overall risk-management scheme for liability was also presented to the US side. There is a general understanding that India's CLND law is compatible with the CSC, which India has signed and intends to ratify.

Vienna (6-7 Jan 2015) and London (Jan 21-22, 2015). Based on these discussions, an understanding was reached with the US on the two outstanding issues on civil nuclear cooperation, which was confirmed by the leaders on January 25, 2015.

Q3. Has India agreed to amend its Civil Liability for Nuclear Damage Act of 2010 (CLND Act 2010) and the CLND Rules of 2011? If not now, would they be amended in the future?

Ans. There is no proposal to amend the Act or the Rules.

Q4. How have US concerns over the CLND Act then been resolved?

Ans. During the course of the discussions in the Contact Group, using case law and legislative history, the Indian side presented its position

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concerning the compatibility of the CLND Act and the Convention on Supplementary CSC. The idea of the India Nuclear Insurance Pool as a 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 discussion thereon, there is a general understanding that India's CLND law is compatible with the CSC, which India has signed and intends to ratify.

Q5. What is the CSC?

Ans. The objective of the 1997 Convention on Supplementary CSC is to establish a worldwide liability regime and to increase the amount of compensation available to the victims of nuclear accidents. A State which is a party to either the 1963 Vienna Convention or the 1960 Paris Convention could become a party to the CSC. A State which is not a party to either of these conventions could also become a party to the CSC if its national law on nuclear liability is in compliance with the provision of the CSC and its Annex, which is an integral part of the CSC. India not being party to the Vienna or the Paris Conventions signed the CSC on 29 October 2010 on the basis of its national law namely the CLND Act.

Q6. Is India's CLND Act compatible with the CSC?

Ans. The provisions of the CLND Act are broadly in conformity with the CSC and its Annex in terms of channeling the strict/absolute legal liability to the operator, the limitations of the liability in amount and time, liability cover by insurance or financial security, definitions of nuclear installation, damage, etc. In fact, the CLND Act provides the basis for India joining an appropriate international liability regime such as the CSC. Article XVIII of CSC requires that the national law of a Contracting Party that is not a Party to either the Vienna Convention or the Paris Convention has to comply with the provisions of the Annex to this

Convention. The CLND Act is compliant with the Annex to the Convention.

Q7. Does the Act channel the liability to the Operator of a nuclear plant as envisaged under CSC?

Ans. Section 4(1) provides that the Operator of the nuclear installation shall be liable for nuclear damage caused by nuclear incident. Further, Section 4(4) provides that the liability of the Operator of the nuclear installation shall be strict

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and shall be based on the principle of no fault liability. Section 8(1) provides that the Operator shall before he begins operation of his nuclear installation, take out insurance policy or such further financial security covering his liability. All these provisions along with the long title of the Act are clear and ensure that the liability is strict, and channeled to the Operator through a no fault liability regime.

Q8. What about Section 17 and the right of recourse against the supplier in Section 17(b)? Are they not going beyond the Annex to the Convention?

Ans. Section 17 of the Act provides that the operator of the nuclear installation, after paying the compensation for nuclear damage in accordance with section 6, shall have the right to recourse where -

- a. Such right is expressly provided for in a contract in writing;
- b. The nuclear incident has resulted as a consequence of an act of supplier or his employee, which includes supply of equipment or material with patent or latent defects or sub-standard services;
- c. The nuclear incident has resulted from the act of commission or omission of an individual done with the intent to cause nuclear damage.

Article 10 of the Annex to the CSC covers situations

envisaged in Sections 17(a) and 17(c); Section 17 (b) is ostensibly in addition to situations identified for the right of recourse provided in Article 10 of the Annex to the CSC. However, the situations identified in Section 17(b) relate to actions and matters such as product liability stipulations/ conditions or service contracts. These are ordinarily part of a contract between the operator and the supplier. This situation is not novel but is rather a normal element of a contract.

Thus this provision is to be read along with/in the context of the relevant clause in the contract between the operator and supplier on product liability. It is open for the operator and the supplier to agree on the terms of their contract relying on the applicable law. The parties to a contract generally elaborate and specify the extent of their obligations pursuant to warranty and indemnity clauses that are normally part of such contracts.

Article 10(a) of the CSC Annex does not restrict in any manner the contents of the contract between the operator and the supplier including the basis for recourse agreed by the operator and supplier. Therefore, in view of the above, in so far as the reference to the supplier in Section 17(b) is concerned, it would be in conformity with and not in contradiction of Article 10(a) of the CSC Annex. Its operationalization will be through contract conditions agreed to by the operator and the supplier.

Q9. Does Section 17 establish a mandatory statutory right of recourse?

Ans. Section 17 states that the operator shall have a right of recourse. While it provides a substantive right to the operator, it is not a mandatory but an enabling provision. In other words it permits but does not require an operator to include in the contract or exercise a right of recourse. However, even though there is no mandatory legal requirement under the CLND Act to provide for a right of recourse in a contract, there may be policy

reasons for having a risk sharing mechanism including a right of recourse.

As a matter of policy, NPCIL, which is a public sector undertaking, would insist that the nuclear supply contracts contain provisions that provide for a right of recourse consistent with Rule 24 of CLND Rules of 2011. Article 10 of the CSC Annex does not specify what position either the operator or the supplier can take in contract negotiations. In this regard, the India Nuclear Insurance Pool has been instituted to facilitate negotiations between the operator and the supplier concerning a right of recourse by providing a source of funds through a market based mechanism to compensate third parties for nuclear damage. It would enable the suppliers to seek insurance to cover the risk of invocation of recourse against them.

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Q10. Who is the 'supplier'? Is the supplier always a foreign company?

Ans. Rule 24 of the CLND Rules explains that 'supplier' shall include a person who:

- (i) manufactures and supplies, either directly or through an agent, a system, equipment or component or builds a structure on the basis of functional specification; or
- (ii) provides build to print or detailed design specifications to a vendor for manufacturing a system, equipment or component or building a structure and is responsible to the operator for design and quality assurance; or
- (iii) provides quality assurance or design services.

The supplier may not always be a foreign company; there may be domestic suppliers who fulfill the above criteria and in some cases the operator (NPCIL) itself may be a supplier as it provides build to print or detailed design specifications to a vendor.

Q11. Does Section 46 permit claims for compensation for nuclear damage to be brought under statutes other than the CLND Act?

Ans. Concerns over the broad scope of Section 46 have been raised by suppliers, both domestic and foreign. Section 46 of the CLND Act provides that “the provisions of this Act shall be in addition to, and not in derogation of, any other law for the time being in force, and nothing contained herein shall exempt the operator from any proceeding which might, apart from this act, be instituted against such operator”. The language in section 46 of CLND Act 2010 is similar to such language in several other legislations such as Telecom Regulatory Authority Act, Electricity Act, SEBI Act, Insurance Commission Act. Such language is provided routinely to underline that other relevant laws continue to be operable in their respective domains.

Q12. Does Section 46 extend to suppliers in violation of the CSC?

Ans. No. The CLND Act channels all legal liability for nuclear damage exclusively to the operator and Section 46 does not provide a basis for bringing claims for compensation for nuclear damage under other Acts. That this section applies exclusively to the operator and does not extend to the supplier is confirmed by the Parliamentary debates at the time of the adoption of this Act. It may be noted that the CLND Bill was adopted by a vote. During the course of the vote on various clauses of the Bill, in the Rajya Sabha two amendments were moved for clause 46 that finally became Section 46 of the CLND Act that inter-alia sought to include suppliers in this provision. Both those amendments were negatived. A provision that was expressly excluded from the statute cannot be read into the statute by interpretation. It is well-settled principle of law that every statute is to be interpreted in accordance with the intention of the legislature or maker of the Statute (M/s. Turtuf

Section 46 exclusively covers the remedies that are available against the operator. It does not exempt the operator from any other proceedings instituted against him, apart from this Act, nor derogates from any other law in force in India.

The India Nuclear Insurance Pool is a risk transfer mechanism formed by GIC Re and 4 other PSUs who will together contribute a capacity of Rs 750 crores out of a total of Rs 1500 crores. The balance capacity will be contributed by the Government on a tapering basis.

Safety Glass Industries V Commissioner of Sales Tax U.P., 2007 (9) SCALE 610, and State of Kerala & Anr V P.V. Neelakandan Nair & Ors, 2005 (5) SCALE 424).

Q13. Does Section 46 allow victims to go to foreign courts against the operator or the supplier?

Ans. Section 46 exclusively covers the remedies that are available against the operator. It does not exempt the operator from any other proceedings instituted against him, apart from this Act, nor derogates from any other law in force in India. The provision “in addition to and not in derogation of” has to be given its normal plain meaning. Section 46 does not affect the applicability of other laws. Therefore it does not exempt the operator from application of other laws covering matters other than the civil liability for nuclear damage. At the same time it does not create the grounds for victims to move foreign courts. In fact that would be against the basic intent of the law to provide a domestic legal framework for victims of nuclear damage to seek compensation. The fact that a specific amendment to introduce the jurisdiction of foreign courts was negatived during the adoption of the CLND Bill buttresses this interpretation.

Q14. How will the proposed insurance pool operate for operators and suppliers?

Ans. The India Nuclear Insurance Pool is a risk transfer mechanism formed by GIC Re and 4 other PSUs who will together contribute a capacity of Rs 750 crores out of a total of Rs 1500 crores. The balance capacity will be contributed by the Government on a tapering basis. The pool will cover the risks of the liability of the nuclear operator under Section 6(2) of the CLND Act and of the suppliers under Section 17 of the Act. The Pool envisages three types of policies, including

a special suppliers' contingency policy for suppliers other than turn key suppliers. Operators and suppliers instead of seeing each other as litigating adversaries will see each other as partners managing a risk together. This is as important for Indian suppliers as it is for US or other suppliers. An international workshop will be held in India to exchange information on international experience with the 26 insurance pools operating around the world in countries such as France, Russia, South Africa and the US

Q15. What are the kind of insurance policies and premiums envisaged under the Pool?

Ans. The Pool covers risks pertaining to the liability of the nuclear operator under Section 6(2) of the CLND Act as well as the liability of the suppliers under Section 17. Three types of policies are envisaged: a Tier 1 policy for operators; a Tier 2 policy for turn key suppliers and a Tier 3 policy for suppliers other than turn key suppliers. The pricing of premiums will depend on factors such as risk probability, possible severity of damage and exposure to people and property around nuclear installations. GIC Re, the Pool Administrator, is engaged with NPCIL and others to work out the premiums based on risk appraisal. To assist this exercise, a Probabilistic Safety Assessment based study has been carried out by DAE. The scheme is scientific, market based, and benchmarked to international best practices innovated to suit the Indian circumstances.

Q16. Wouldn't this burden the taxpayer and raise costs of nuclear power?

Ans. It should be understood that there is no extra burden on the taxpayer or the Government. The CLND Act already requires NPCIL (Operator) to maintain a financial security to cover its maximum liability for civil nuclear damage (Rs 1500 crores). Currently, NPCIL takes out a bank guarantee for this amount against which it pays an annual fee. With the INIP, a market based international best

practice will be followed. The NPCIL will take out insurance under the Pool for the same amount and just as it pays an annual fee now it will pay an annual insurance premium to the Pool. The Government will indeed make available Rs 750 crores to the Insurance Pool for the first few years till the insurance companies are able to maintain it on their own.

However, the Government will earn a proportionate share of the premium on this sum, which will be utilized only in case of a nuclear accident. The impact on the cost of power plants of the premium payments by operator and suppliers is expected to be minimal. The international experience of 26 insurance pools is that the operators pay only a very small fraction of the total cost of the plants.

Section 6(1) of the CLND Act presently prescribes that the maximum amount of liability in respect of each nuclear incident shall be the rupee equivalent of three hundred million SDRs. As the current value of 1 SDR is about Rs 87, three hundred million SDRs are equivalent to about Rs 2610 crores.

Q17. How much compensation is payable under the CLND Act?

Ans. Section 6(1) of the CLND Act presently prescribes that the maximum amount of liability in respect of each nuclear incident shall be the rupee equivalent of three hundred million SDRs. As the current value of 1 SDR is about Rs 87, three hundred million

SDRs are equivalent to about Rs 2610 crores. Section 6(2) of the Act lays down that the operator's maximum liability shall be Rs 1500 crore. In case the total liability exceeds Rs 1500 crores, as per Section 7 (1) (a) of the CLND Act, this gap of Rs 1110 crores will be bridged by the Central Government. Beyond Rs 2610 crores, India will be able to access international funds under the CSC once it is a party to that Convention.

Section 7 (2) of the CLND Act provides that the Central Government may establish a "Nuclear Liability Fund" by charging such amount of levy from the operators, in such manner, as may be prescribed. The constitution of a Nuclear Liability Fund has been under consideration for some time. Such a Fund is proposed to be built up over 10 years by levying a small charge on the operators based on the power generated from existing and new nuclear plants. This is not expected to affect

the consumer's interests.

Q18. Could operators and suppliers be asked to pay more compensation in the future on existing contracts than currently provided under the law?

Ans. As regards the question of possible enhancement of the amount of compensation in the Act in future and its effect on recourse against suppliers with respect to existing contracts, there is well established jurisprudence that a change in law cannot alter the terms of an existing contract made under the then extant law. A retrospective law which affects the substantive vested rights of a Party under a contract would not be sustainable in a court of law. In *M/s Purbanchal Cables & Conductors Pvt. Ltd. V Assam State Electricity Boards & Another*, [2012] 6 S.C.R. 905, the Supreme Court held that though the legislature can make laws with retrospective effect, the test is that it should not take away vested rights or impose new burdens or impair existing obligations.

Q19. What are the next steps?

Ans. It will be now up to the companies to follow up with their own negotiations and come up with viable techno-commercial offers and contracts consistent with our law and our practice so that reactors built with international collaboration can start contributing to strengthening India's energy security and India's clean energy options.

Source: <http://www.mea.gov.in>, 08 February 2015.

OPINION – KS Parthasarathy

Nuclear Power Roadmap for India

During the 102nd Indian Science Congress at Mumbai, the session on 'Holistic Approach to Atomic Energy: Present and Future' held on January 5 gave a bird's eye-view of recent developments. Dr Anil Kakodkar, former chairman, AEC, chaired the session. Dr Bernard Bigot, chairperson, French Alternative Energies and AEC

noted the report of the Intergovernmental Panel for Climate Change for the year 2014 that "human influence on the climate system is clear, and recent anthropogenic emissions of greenhouse gases are the highest in history."

He revealed that European energy supply now relies on 80 per cent fossil fuel. De-carbonisation is high on European agenda. Dr Bigot stated that France chose sodium cooled fast neutron reactors as its 4th Generation reactors. The technology is ideal for efficient and safe plutonium multi-recycling, for fully (X100) tapping the energy content of natural uranium resources and for optimization of high-level radioactive waste management. He assured the audience that the technology can be ready by 2040, before the renewing of the present nuclear fleet.

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Life of N-Power Plants:

Dr Bigot expects the life of the existing Generation II nuclear power plants to be extended till 2040, Generation III deployment till 2070 and Generation IV from 2030 to well over 2080. The Energy transition bill envisages deployment of solar, biomass and wind progressively from 2030-2080; Fusion systems may get deployed by 2080 onwards. He envisaged a role for large energy storage, Generation IV reactors, and nuclear fusion systems during 2040-2050.

In his presentation, Dr SP Sukhatme, Professor Emeritus, IIT, Bombay, pointed out that a general increase in the mean annual consumption of electricity is a necessary condition for a better quality of life in India. He argued that having high enough value by itself is not sufficient.

The distribution needs to be equitable. Since no direct data are available, he attempted to deduce the present power distribution in India from data available for the world as a whole. His concluded that presently not only is the mean value at 868.6 kWh low, but the distribution is skewed and highly inequitable. For instance, 65.5 per cent of the

population consume less than the mean and 15 per cent have access to less than 100 kWh.

He showed that the present variation can be approximated to be a Poisson-like Weibull distribution which is highly inequitable. The study also suggests a distribution for the future in which not only is the mean annual per capita value higher, but the variation can be approximated by a Gaussian-like Weibull distribution which is more equitable.

Sekhar Basu, Director, BARC, gave a kaleidoscopic view of the applications of radioisotopes in healthcare (therapeutic and diagnostic medicine), agriculture (crop improvement and food preservation) and industry (radiography, radiotracers and nucleonic gauges). Forty one Bhabhatron II units, the indigenous tele-therapy units are in service now. BARC and the Board of Radiation and Isotope Technology supply radiopharmaceuticals to 150 centres.

BARC released 42 crop varieties for commercial cultivation in different agro-climatic zones in the country. Their improved characters include higher yield, earliness, large seed size, resistance to biotic and abiotic stresses. Radiation processing kills quarantine pests, delays ripening of certain fruits and extends their shelf life. It is an effective alternative to chemical fumigants.

India has developed desalination technologies. He added that India has the largest nuclear desalination plant in the world. BARC has developed membrane based units to remove contaminants such as fluoride, arsenic and iron and excess salinity from groundwater. BARC transferred technologies to many entrepreneurs for making low cost membrane based devices. India can reprocess spent fuel and treat high level nuclear waste. It operates two reprocessing plants at full capacity meeting international performance standards. Basu described the 21metre dia, Major Atmospheric Cherenkov Experiment (MACE)

India has been in the global forefront in addressing each of the following five requirements essential for a sustainable, large-scale nuclear development: No unacceptable offsite impact; capability to address non-electrical energy needs with nuclear energy; sustainability of nuclear fuel resources; sustainable management of spent nuclear fuel; an evidence-based radiological protection regime. India is the only country to develop and demonstrate separation of long-lived actinides and fission products with more than 99% efficiency.

Telescope for detection of gamma rays, which will be commissioned at Ladakh in 2016. Scientists will operate this facility remotely from Trombay.

Other contributions included the development of strategic material and delivery platforms and the land based prototype propulsion plant in operation since 2006. "All these developments have taken place in a regime of technology denial. Our objectives are; self reliance, sustainability, excellence and make our nation stronger. Our strength comes from homegrown expertise in all areas of nuclear science and technology," Basu concluded.

Dr Ratan Kumar Sinha summarized the current status of nuclear power programme and future plans. Stage 1 of India's nuclear power programme consists of pressurized heavy water reactors and light water reactors. India plans to construct 16 PHWRs each of 700 MWe capacity and 28 additional imported LWRs with a total capacity of 35,500 MWe. Stage 2 will consist of fast breeder reactors and Stage 3 thorium based reactors. The ultimate aim is to construct a mix of indigenous PHWRs, and FBRs and LWRs based on foreign technical cooperation. Total capacity by 2032 will be 63,000MWe.

Dr Sinha stated that nuclear power generation increased from 18, 803 million units in 2009-2010 to 35,333 million units by 2013-2014. The plant load factor increased from 61 per cent to 83 per cent during the same period. The Unit 5 of the Rajasthan atomic power station operated continuously for 765 days, second longest in the history of nuclear power and the longest in the last two decades.

India has mastered all technologies related to nuclear power and fuel cycle and associated critical materials. Dr Sinha noted that India has been in the global forefront in addressing each of the following five requirements essential for a sustainable, large-scale nuclear development: No unacceptable offsite impact; capability to address

non-electrical energy needs with nuclear energy; sustainability of nuclear fuel resources; sustainable management of spent nuclear fuel; an evidence-based radiological protection regime. He gave examples to prove his claim. India is the only country to develop and demonstrate separation of long-lived actinides and fission products with more than 99% efficiency. It is a very important development in long-term management of spent fuel.

Fusion Plasma Research: While describing related technologies, he revealed that India is the only country to successfully operate molten Pb-Bi loop at 1000 degree C and 5th country to demonstrate Iodine-Sulphur process in closed glass loop. Dr Dhiraj Bora, Director, Institute of Plasma Research, described the fusion plasma research being carried out in India, beginning from the 80s. The Institute of Plasma Research, set up the department of Science and Technology in 1986 designed, built and commissioned Aditya, the first Indian Tokamak in September 1989. India competed the construction of Superconducting Steady State Tokamak (SST-1) in June 2013. India hopes to complete the Superconducting Steady State Tokamak 2 (SST-2) by 2027, carry out studies for a DEMO reactor by 2037 and construct Fusion Power Reactor by 2050.

Source: The author is former Secretary, AERB. Navhind Times, 07 February 2015.

OPINION – Mark Hibbs

Tracking India's Imported Uranium

India is busily negotiating bilateral agreements with its nuclear trading partners to assure them that the uranium they supply to India will not end up in Indian nuclear weapons. This is a standard practice for states involved in nuclear cooperation, yet India has set out to weaken the information sharing provisions in its agreements with Canada,

the United States, and soon Australia. All three supplier states support India's bid for membership in the NSG, but India's behavior here hardly supports New Delhi's contention that it is like-minded.

These negotiations follow from an Indian commitment to the United States, pursuant to a bilateral agreement for peaceful nuclear cooperation, to separate its civilian and military nuclear activities. In part on this basis, in 2008 the NSG lifted nuclear trade sanctions against India imposed in 1974 after India had used Canadian uranium, which had been provided to India on condition that it would be used only for peaceful use, to produce plutonium for a nuclear explosive.

Since 2008, foreign suppliers have been permitted to conclude contracts to supply uranium to India. Conditions for this trade are set down in bilateral nuclear cooperation agreements in which India has pledged to use all nuclear materials it obtains from outside suppliers for peaceful purposes. All of the countries which are selling uranium to India are parties to the NPT. That commits them to make sure their exports do not contribute to the manufacture of nuclear weapons in India.

India is not being singled out in this regard. The United States and the European Union, as well as Australia and Canada – in recent decades the world's two leading uranium producers and exporters – have concluded so-called administrative arrangements with scores of foreign countries that permit supplier states to track the whereabouts of all the uranium they export. Although there is significant diversity in the agreements amongst nuclear trading states about how to share information, they constitute a standard evolved over time to ensure that such trade does not violate international rules.

In the nonproliferation interest, uranium exporters'

AEA safeguards, which may apply to foreign-sourced uranium in India's civil nuclear program, do not consider the origin of the uranium subject to safeguards. That's important because some producers whose uranium market shares are on the rise, such as Kazakhstan and some African states, do not scrupulously track the uranium they export. Their uranium safeguards policies put commercial pressure on other supplier states to follow suit in India.

nuclear cooperation agreements are designed to ensure that exported uranium is not enriched to weapons-grade, is not re-transferred to third parties, and is not reprocessed to separate plutonium without consent.

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The goal of accounting is to make sure that uranium exported under a peaceful-use pledge is not used for nuclear weapons and to identify nuclear material that is subject to any other obligations agreed with a supplier state. A supplier state can account for its uranium as it moves through India's fuel cycle, first by identifying ("flagging") the uranium carrying its obligations, and then by accounting for it at each stage in the fuel cycle, including conversion, fuel fabrication, irradiation, and reprocessing. The accounting is made possible by provision of data on fuel burnup rates, process losses, and other parameters concerning what physically and chemically happens to the uranium as it is used. This data could be provided by India to its foreign uranium suppliers, but India so far has not agreed to provide all the data that was requested by Canada and the US and it may balk at cooperating with Australia, Japan, and other countries.

Canada may try to compensate for lack of Indian

cooperation by using some commercial operations data on Canadian-design reactors. The US may fall back on data from fabrication in the US of fuel using US-obligated uranium destined for Indian

reactors. Both sets of data may permit some level of assurance that India is using the uranium in peaceful applications and fulfilling its bilateral obligations, but in general fall short of standard practices of information provision.

... Australian lawmakers will debate Canberra's ongoing uranium safeguards discussions with India. They should take note that, unless perhaps all Australian uranium destined for India were to be processed and fabricated into fuel before

being exported to India, the US approach would not cover all Australian uranium destined for India. Under its agreement with India, Australia may supply India with bulk uranium as well as fabricated nuclear fuel. Indian cooperation with Australia therefore seems essential to meet the

tracking requirements of Australian safeguards policy and the best solution would be for India to provide the information which Australia needs. Again, it is worth reiterating that what is being requested of India is standard practice; New Delhi is not being asked to uphold a higher standard.

Parliamentarians should consider that what Australia

requires in its arrangement with India may have signal impact this May when the NPT's 189 parties review the treaty. They might also consider that the international reputation of Australia's uranium industry has increasingly depended upon transparent implementation of national policies, including on nonproliferation.

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As India's weight in the world grows, its nuclear industry is forming partnerships with the world's leading suppliers of power reactors and nuclear fuel. For good reasons, including global warming, India's foreign partners support this development, and nuclear companies worldwide are eager to seize new business opportunities in selling equipment and uranium to India.

But India and uranium suppliers must know that the separation of military and peaceful-use nuclear activities is a cornerstone of the world's nuclear governance system. States that dismiss as inconvenient controls designed to verify that separation signal instead that it matters little if their commerce might contribute to production of nuclear weapons. Australia, Canada, and the United States have shown leadership in uranium governance and they should continue to do so – including in the NSG which under the 2008 India exception decision required that all its uranium suppliers account for their exports to India.

Lack of full Indian cooperation with foreign uranium suppliers will damage New Delhi's case for membership in multilateral trade control bodies like the NSG it keenly wants to join. If India is seeking to weaken standard practices in its bilateral negotiations, what message does that send about its likely behavior were it to be invited to join multilateral regimes? If uranium supplier states are deterred from accounting for their uranium in India, that would inform all NPT parties that have pledged to renounce nuclear weapons that it doesn't matter whether nuclear goods, sold on condition

that they will be used peacefully, might be used to make deadly arms.

Source: Mark Hibbs is a research scholar in the Nuclear Policy Programme at the Carnegie Endowment for International Peace, Washington, D.C. The Diplomat, 06 February 2015.

OPINION – Lawrence S. Wittner

US And Russia Once Again Ramping Up Nuclear Arms Race

Lack of full Indian cooperation with foreign uranium suppliers will damage New Delhi's case for membership in multilateral trade control bodies like the NSG it keenly wants to join. If India is seeking to weaken standard practices in its bilateral negotiations, what message does that send about its likely behavior were it to be invited to join multilateral regimes.

A quarter-century after the end of the Cold War and decades after signing landmark nuclear arms control and disarmament agreements, are the US and Russian governments once more engaged in a potentially disastrous nuclear arms race with one another? It certainly looks like it.

With approximately 15,000 nuclear weapons between them, the US and Russia

already possess about 93 percent of the world's nuclear arsenal, making them the world's nuclear hegemony. But, apparently, like great powers throughout history, they do not consider their vast military might sufficient, especially in the context of their growing international rivalry.

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Although, in early 2009, President Barack Obama announced his "commitment to seek the peace and security of a world without nuclear weapons," the US government has moved well along toward implementing an administration plan for US nuclear "modernization." This entails spending \$355 billion over a 10-year period for a massive renovation of US nuclear weapons plants and laboratories. Moreover, the cost

is scheduled to soar after this renovation, when an array of new nuclear weapons will be produced.

“That’s where all the big money is,” noted Ashton Carter, recently nominated as US secretary of defense. “By comparison, everything that we’re doing now is cheap.”

The Obama administration has asked the Pentagon to plan for 12 new nuclear missile-firing submarines, up to 100 new nuclear bombers and 400 land-based nuclear missiles. According to outside experts and a bipartisan, independent panel commissioned by Congress and the DoD, that will bring the total price tag for the US nuclear weapons buildup to approximately \$1 trillion.

For its part, the Russian government seems determined to match – or surpass – that record.

With President Vladimir Putin eager to use nuclear weapons as a symbol of Russian influence, Moscow is building, at great expense, new generations of giant ballistic missile submarines, as well as nuclear attack submarines that are reportedly equal or superior to their US counterparts in performance and stealth. Armed with nuclear-capable cruise missiles, they periodically make forays across the Atlantic, heading for the US

coast. Deeply concerned about the potential of these missiles to level a surprise attack, the US military has already launched the first of two experimental “blimps” over Washington, D.C., designed to help detect them.

The Obama administration also charges that Russian testing of a new medium-range cruise missile is a violation of the 1987 Intermediate Nuclear Forces treaty. Although the Russian government denies the existence of the offending missile, its rhetoric has been less than diplomatic. As the Ukraine crisis developed, Putin told a public audience that “Russia is one of the leading nuclear powers” and foreign nations “should understand it’s best not to mess with us.” Pravda was even more inflammatory. In an article published last November, “Russia prepares a nuclear surprise

for NATO,” it bragged about Russia’s alleged superiority over the US in nuclear weaponry.

Not surprisingly, the one nuclear disarmament agreement signed between the US and Russian governments since 2003 – the New START treaty of 2011 – is being implemented remarkably slowly. New START, designed to reduce the number of deployed strategic nuclear weapons (the most powerful ones) in each country by 30 percent by 2018, has not led to substantial reductions in either nation’s deployed nuclear arsenal. Indeed, between March and October 2014, the two nations each *increased* their deployed nuclear forces. Also, they maintain large

arsenals of nuclear weapons targeting one another, with about 1,800 of them on high alert, ready to be launched within minutes against the populations of both nations.

The souring of relations between the US and Russian governments has been going on for years, but it has reached a very dangerous level during the current confrontation over Ukraine. In their dealings with this conflict-torn nation, there’s plenty of fault on both sides. US officials should have

recognized that any Russian government would have been angered by NATO’s steady recruitment of East European countries – especially Ukraine, which had been united with Russia in the same nation until recently, was sharing a common border with Russia and was housing one of Russia’s most important naval bases (in Crimea). For their part, Russian officials had no legal basis for seizing and annexing Crimea or aiding heavily armed separatists in the eastern portion of Ukraine.

However reckless the two nuclear behemoths have been, this does not mean they have to continue this behavior. Plenty of compromise formulas exist – for example, leaving Ukraine out of NATO, altering that country’s structure to allow for a high degree of self-government in the war-

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torn east and organizing a UN-sponsored referendum in Crimea. And possibilities for compromise also exist in other areas of US-Russian relations.

Failing to agree to a diplomatic settlement of these and other issues will do more than continue violent turmoil in Ukraine. Indeed, the disastrous, downhill slide of both the US and Russia into a vastly expensive nuclear arms race will bankrupt them and, also, by providing an example of dependence on nuclear might, encourage the proliferation of nuclear weapons to additional nations. After all, how can they succeed in getting other countries to forswear developing nuclear weapons when – 47 years after the US and Soviet governments signed the nuclear NPT, in which they pledged their own nuclear disarmament – their successors are engaged in yet another nuclear arms race? Finally, of course, this new arms race, unless checked, seems likely to lead, sooner or later, to a nuclear catastrophe of immense proportions. Let’s hope the US and Russian governments calm down, settle their quarrels peacefully and return to a policy of nuclear disarmament.

Source: <http://www.nj.com/opinion/index.ssf>, 02 February 2015.

NUCLEAR STRATEGY

RUSSIA

Russia’s Nuclear Strategy Raises Concerns in NATO

Concern is growing in NATO over Russia’s nuclear strategy and indications that Russian military planners may be lowering the threshold for using nuclear weapons in any conflict, alliance diplomats say. NATO officials have drawn up an analysis of Russian nuclear strategy that will be discussed by alliance defence ministers at a meeting in Brussels on 3rd February. The study

comes amid high tension between NATO and Russia over the Ukraine conflict and rising suspicions on both sides that risk plunging Europe back into a Cold War-style confrontation. Western concerns have also been fuelled by increasingly aggressive Russian air and sea patrolling close to NATO’s borders, such as two Russian “Bear” nuclear-capable bombers that flew over the English Channel in February 1st week.

The threat of nuclear war that once hung over the world has eased since the Cold War amid sharp reductions in warheads but Russia and the US, NATO’s main military power, retain massively destructive nuclear arsenals. Russia’s nuclear strategy appears to point to a lowering of the threshold for using nuclear weapons in any conflict, NATO diplomats say. “What worries us most in this strategy is the modernisation of the Russian nuclear forces, the increase in the level of training of those forces and the

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possible combination between conventional actions and the use of nuclear forces, including possibly in the framework of a hybrid war,” one diplomat said.

Russia’s use of hybrid warfare in Ukraine, combining elements such as unmarked soldiers, disinformation and cyber attacks, has led NATO’s military planners to review their strategies for dealing with Russia. All the NATO countries, except France which is not a member, will meet on 3rd February as part of NATO’s Nuclear Planning Group, which NATO officials describe as a routine meeting focusing on the safety and effectiveness of NATO’s nuclear deterrent.

Implications: But all 28 ministers, including US Defense Secretary Chuck Hagel, will have a broader discussion of Russia’s nuclear strategy over lunch. No immediate action is expected from NATO’s side. Ministers are likely to ask officials to look into the implications of Russia’s nuclear strategy for the alliance, and only then could there

be any consideration of whether any changes were needed to NATO's nuclear posture. At a time of heightened tension with the West, Russia has not been shy about reasserting its status as a nuclear power.

President Vladimir Putin pointedly noted last August that Russia was a leading nuclear power when he advised potential enemies: "It's best not to mess with us." A report by the US Congressional Research Service 2014 said Russia "seems to have

increased its reliance on nuclear weapons in its national security concept". Russia has embarked on a multi-billion-dollar military modernisation programme and Russia's top general, Valery Gerasimov, said that support for Russia's strategic nuclear forces combined with improvements in conventional forces would ensure that the US and NATO did not gain military superiority.

He said the Russian military would receive more than 50 new intercontinental nuclear missiles this year. In December, Putin signed a new military doctrine, naming NATO expansion as a key risk. Before the new doctrine was agreed, there had been some calls from the military to restore to the doctrine a line about the right to a first nuclear strike.

Doctrine: This was not included in the new doctrine, however, which says Russia reserves the right to use nuclear weapons in response to a nuclear strike or a conventional attack that endangered the state's existence. NATO's 2010 "strategic concept" says deterrence, "based on an appropriate mix of nuclear and conventional capabilities, remains a core element of our overall strategy." Washington and Moscow have traded

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accusations that the other has violated a Cold War-era arms control agreement.

The US accuses Moscow of violating the 1987 IRNF treaty by testing a ground-launched cruise missile. Russia argues that Washington's use of drones and other intermediate-range arms amounts to a violation of the treaty. A senior NATO official said Russia's Zapad exercise in 2013 was "supposed to be a counter-terrorism exercise but it involved the (simulated) use of nuclear

weapons". The Arms Control Association estimates Russia has about 1,512 strategic, or long-range, nuclear warheads, a further 1,000 non-deployed strategic warheads and about 2,000 tactical nuclear warheads.

Tactical nuclear weapons can include short-range missiles and artillery shells, mines and bombs. The US had 4,804 nuclear warheads as of September 2013, including tactical, strategic, and non-deployed weapons, according to ACA. Among other NATO allies, France has fewer than 300 operational nuclear warheads and Britain has fewer than 160 deployed strategic warheads.

Source: <http://uk.reuters.com>, 04 February 2015.

BALLISTIC MISSILE DEFENCE

CHINA

China Voices Concern about US Missile Defense in South Korea

China expressed concern about the possible deployment of an advanced US missile defense system in South Korea during talks between their defense chiefs, Seoul military officials said. Washington is considering whether to install the politically sensitive THAAD system in the South, a close US ally which hosts 29,000 American troops.

China expressed concern about the possible deployment of an advanced US missile defense system in South Korea during talks between their defense chiefs, Seoul military officials said. Washington is considering whether to install the politically sensitive THAAD system in

the South, a close US ally which hosts 29,000 American troops.

US officials have tried to portray any THAAD system based in South Korea as non-threatening. It is designed to shoot down ballistic missiles at a higher altitude with a "hit-to-kill" approach. At talks in Seoul with his South Korean counterpart Han Min-Koo, Chinese Defence Minister Chang Wanquan expressed "concern" at the US move, Han's office said. In response, it said, Han clarified South Korea's position that there have been no formal discussions about the THAAD deployment. The office declined to disclose details.

South Korea has been reluctant to take part in a proposed US-led regional missile defense system because China and Russia view it as a threat to their security. It was the first time that a ranking Chinese official had publicly raised the THAAD issue with South Korea, according to Yonhap news agency. The ministers agreed to establish a hotline between them as soon as possible, Yonhap said, adding related talks would probably begin in the third week of February.

In 2014 South Korea and China signed a memorandum of understanding to set up the hotline, but it has yet to be finalized. The two have been operating telephone hotlines between their navies and air forces since 2008 to help prevent accidental clashes. China, despite being North Korea's sole major ally, has gradually strengthened military cooperation and exchanges with South Korea. The US, in its strategic "pivot" to Asia, has boosted its military presence in the region, a move that has alarmed China.

Source: <http://www.defensenews.com>, 04 February 2015.

RUSSIA

Top 3 Russian Foils of US Missile Defence System

In late January 2015, the chief of the General Staff of the Russian Armed Forces, Army General Valery Gerasimov, told the media that Russia would take countermeasures against the deployment of the US global missile defence system. Gerasimov underlined that the countermeasures would be aimed at equipping the Russian army and navy with promising complexes and weapon systems that could neutralise the potential of US missile defence system, and will have an increased capacity to defeat it. He did not name any particular systems, but the RIR has come up with a ranking list of the best weapons against US missile defence system.

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Rubezh: The new intercontinental missile RS-26 Rubezh is the latest development of the Russian defence industry. The missile is also known under the working

name "Avangard". Due to the secrecy of the project, we know very little about it: this prospective missile is built on the basis of RS-24 Yars, which has been supplied to the Strategic Missile Forces of Russia. The missile is solid-fuelled and is equipped with a separable warhead. The quantity and the weight of the warheads carried by this missile are still unknown, but considering that it is the modernised version of Yars missile belonging to Topol-M family, it should weigh at least 60 tonnes. It will only be released in the mobile version, and over time is likely to replace the aging Topol systems.

Russian military officials say that the missile check launch will be carried out in March this year. Earlier, the tests took place under a veil of secrecy. However, in 2013 the information about the tests of MS-26 at Kapustin Yar testing site still leaked out to the media. Back then, the General Staff reported that it would be the fourth launch of

Rubezh. According to Colonel-General Zarudnitsky, the new missile has the new combat equipment and has superior capacities and improved manoeuvring characteristics in comparison with existing systems.

Sarmat: The conflict with Ukraine (that has cut the supplies of spare parts for Voevoda maintenance) and missile defence plans of the US have left no choice to the Russian military leadership. In 2018-2020, Russia will receive new heavy missile Sarmat, which is being developed by a whole consortium of companies led by Makeyev State Rocket Center. The purpose of its creation is quite easy to figure out. Topol, which is currently in service, has a throw-weight of 1.2 tonnes and throw-distance of 9.000 km, while Voevoda is ready to throw 7.3 tonnes at the enemy at a distance of up to 16,000 km.

If the data leaked to the media is true, Sarmat will be half the size of Voevoda. Its starting weight will only be about 100 tonnes against Voevoda's 211 tonnes; it will be capable of launching 4 to 5 tonnes, which now will be capable to accommodate many more tonnes than in the early 1980s when Voevoda was created. In addition, long throw-distance provides for missile leeway before and after the launch.

Bulava: Missile R-30 Bulava, so long awaited by Russian submariners, is finally joining the ranks. This weapon of Borei-class submarines was originally developed for defeating complex defence systems: it carries 10 warheads, which following a sudden gun salvo fired from underwater can be launched anywhere in the world from a distance of more than 11, 000 km. In fact, Borei can shell, for instance, the US without even leaving their location sites in the North or the Pacific Fleet.

Each submarine is equipped with 16 ballistic missiles R-30 Bulava-30. The submarines are silent, feature excellent hydrodynamics and in case of conflict have a good chance of making an

unexpected strike-back. According to some reports, Bulava's concept of operation is different from the Topol-M on the basis of which it was created. Topol-M's warheads are brought to the target, and then scattered over it, while Bulava works differently. The so-called vine principle works here, when the individual blocks can be separated from the missile during its flight.

Source: http://in.rbth.com/economics/2015/02/09/top_3_russian_foils_of_us_missile_defence_system_41263.html, 09 February 2015.

USA

Missile Defense Ships Face Arms Race, High Op Tempo

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There may be rough seas ahead for the Navy's ballistic missile defense force. Demands are high for the Navy's BMD-capable ships and, soon, land sites, and for good reason. More than 1,200 ballistic missiles have been added to the arsenals of potential adversaries in the past five years, according to the Missile Defense Agency.

North Korea, Syria and Iran are making strides in development and production, with Iran ready as soon as this year to test an intercontinental ballistic missile capable of reaching the US, according to reports by the NASIC. As this new arms race threatens American allies, 33 ships – five cruisers and 28 destroyers – are standing on point to deter any such attack. Ships armed with ballistic missile defense radars and interceptors are among the fleet's most in-demand vessels, whether in the Asia-Pacific or European waters.

And those crews have paid a price. The former head of Fleet Forces Command, Adm. Bill Gortney, said the ballistic missile defense armada is "the most stressed [and has] the highest operational tempo of all our forces." The

new FFC boss is working to cut deployments of stateside BMD-ships to seven-and-a-half months. Despite the increasing threat, the Pentagon plans to lay up four of the fleet's newest ships, and the remaining gray hulls are faced with increasing maintenance issues.

There are 16 BMD-capable ships on the West Coast, which includes five ships forward-deployed to Yokosuka, Japan. Another 17 BMD-capable ships are on the East Coast, which includes two destroyers forward deployed to Rota, Spain. Two more destroyers, the Carney and the Porter, will relocate to Rota by October, where ships will be set to go on four-month BMD patrols. But these BMD-ships are ships hardly immune from the upkeep problems that have hampered the rest of the fleet.

BMD ships are part of the 36-month Optimized-Fleet Response Plan, which is geared to cut deployments to seven months. It starts with a maintenance phase scheduled to last roughly 24 weeks. Maintenance periods on BMD ships are running anywhere from 20 to 51 weeks, according to Chris Johnson, spokesman for Naval Sea Systems Command. Ten of the 33 BMD ships are in availability periods in private shipyards, and half have been extended for reasons other than BMD upgrades. The extensions ranged from seven to 82 days, with some stretching longer.

Consider the cruiser Monterey, which entered BAE Systems Norfolk Ship Repair in 2014. The cruiser was supposed to come out of the yard in November and join the Eisenhower carrier strike group in the spring. But the issues ran deep, and the dry-dock period was extended through January. BAE Systems, which was awarded \$57 million for maintenance and upgrades, found five cracks in

the superstructure. The Navy now says the ship will be ready in March. Sailors working alongside shipyard contractors said they would be surprised if it leaves before summer.

Spokespeople for BAE Systems Norfolk Ship Repair did not respond to calls seeking comment by Jan 30. The deployment cycle is founded on predictable overhauls, after which the ship enters work-ups and then deployments. Overhauls missed or extended risk unraveling the predictability that is at the focus of the new deployment scheme.

Right now, BMD deployments are running about 7.5 months, which is better than carrier strike groups. The Theodore

Roosevelt CSG, for example, will deploy for 8.5 months in the spring. "These ships are getting older," said one chief, who asked to remain anonymous because he was not authorized to speak on the issue. "It is taking longer to fix them. It only takes one or two big issues to throw a wrench in the whole system, and that will affect every BMD ship down the line.

"This mission doesn't get a lot of headlines, but it is probably one of the most important ones out there," he added. The Navy plans to increase the

BMD fleet to 43 ships by 2019. But some of those ships will be sidelined as the Navy moves to put 11 cruisers into layup pier side, to include four BMD-capable cruisers: Shiloh, Lake Erie, Vella Gulf and Port Royal. Those would not return to service until 2024, 2026, 2027, and 2027, respectively. Late 2014, the Navy got the go ahead from lawmakers to lay up two cruisers.

Only 18 BMD ships are needed to consistently meet current strategies and commitments, according to Bryan Clark, a senior fellow at the Center for Strategic and Budgetary Assessments

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who previously served as special assistant to the chief of naval operations. The Navy has just over 20 at any given time, so an increase of even six (instead of 10) would provide a considerable cushion. But demand is quickly increasing as foreign militaries spend billions to build larger ballistic and cruise missile inventories, and analysts are not confident an increase of six BMD ships would keep pace.

The magnitude of the threat led the MDA to boost procurement by one-third, to \$2 billion, by 2019, but not all of this money will be funneled to the Navy. The BMD System also supports ground-based interceptors for homeland defense, forward-based Army-Navy Transportable Radar Surveillance & Control-Series 2 radars, and Terminal High-Altitude Area Defense, or THAAD, batteries.

Aegis Ashore: As it turns out, it may be land-based systems that keep the BMD Navy from running aground. Aegis Ashore facilities will help meet the increasing demand in Europe, said Lt. Cmdr. Cate Cook, Fleet Forces Command spokeswoman. The first is Naval Support Facility Deveselu, Romania. The 430-acre site will be operational at the end of 2015 and manned by about 200 US service members, government civilians and support contractors. It will be armed with SM-3 IB interceptors. The second site will be in Poland. It is scheduled to be operational in 2018, and will be armed with SM-3 IIA interceptors.

Still, the numbers are not in favor of a small BMD fleet. Each Aegis Ashore system includes a magazine of just 24 interceptors. Those could be overwhelmed if adversaries develop more advanced missile systems or if they fire large salvos, experts say. One solution is siting more Aegis Ashore systems, according to Clark, the CSBA defense expert. An Aegis Ashore system costs \$750 million, as compared to \$1.6 billion for a Flight IIA destroyer or \$1.9 billion for a Flight III. Fixed BMD sites will not only help meet this emerging threat, but will allow more ships to

return to offensive missions that have become neglected, Clark argued in his Nov. 24 analysis, "Commanding the Seas: A Plan to Reinvigorate US Navy Surface Warfare."

The Missile Defense Agency is looking to improve early intercept capabilities and bring more allies into the mix to help ease the burden. Officials are also investing in technologies like lasers that could one day prove integral to missile shields.

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

NUCLEAR ENERGY

CHINA

China's Largest Nuclear Power Base Generates Record Electricity

The Dayawan nuclear power base, China's largest, generated a record 45.4 billion kwh of electricity 2014, the operator said on 4 February. The figure accounted for 8.6% of the 528 billion kwh generated over the past two decades, said Jiang Xinghua, president of Dayawan Nuclear Power Management Company.

The base, which has six generation units from two nuclear power plants by the

South China Sea in Guangdong, has supplies one tenth of the province's power. The base could cut coal consumption by 14.7 million tones and reduce the emissions of carbon dioxide by 36.2 million tones and of sulfur dioxide by 350,000 tonnes, Jiang said. The environmental benefits equate to the planting of 100,000 hectares of woods in the Pearl River delta, the country's manufacturing center, he said.

Source: <http://www.globaltimes.cn/content/906064.shtml>, 05 February 2015.

INDIA

India Agreed to Share Nuclear Data for Breakthrough in Talks

India has accepted that it will share data on nuclear material and equipment in order to secure

As it turns out, it may be land-based systems that keep the BMD Navy from running aground. Aegis Ashore facilities will help meet the increasing demand in Europe, said Lt. Cmdr. Cate Cook, Fleet Forces Command spokeswoman.

the US agreement to waive its “tracking requirements” on that material. According to sources, India’s concession on the issue was the reason for the “breakthrough” in agreement on the administrative arrangements for the Indo-US civilian nuclear deal during President Barack Obama’s visit. The data collected would be shared during annual consultations between a US-Indian group to be specially set up to implement the administrative arrangements that will guide the nuclear deal.

Indian officials maintained that the data sharing agreement was the same as had been extended to other countries. At a press conference shortly after the Obama-Modi summit in Delhi, a senior official of the MEA on DISA Amandeep Singh Gill told reporters: “We have an administrative arrangement with Canada and that has been the template for finalising our administrative arrangement with the US.” The text of the Canadian agreement, that was finalised in April 2013, hasn’t yet been made public, but is understood to only allow for IAEA safeguards while sharing data based on aggregates from the UN agency.

However, in an interview to *Headlines Today*, US Ambassador Richard Verma said, “Under our law there are requirements to track materials. For the first time we got a commitment from the Indian government to come up with data, and to come up with consultations regularly that would meet our requirements.” If, as he says, this is a new and unique departure from India’s previous stand of only providing data to inspectors of the UN agency IAEA, it could raise several questions for the NDA government.

The source also denied that President Obama had issued any “executive waiver” to bypass the requirement to monitor the use of nuclear material in India. The American requirement, under the Hyde Act of 2006 stipulates that the US President must certify to US Congress that India (for whom the law was specially drafted) is in compliance with US “tracking and flagging” requirements on fissile material and nuclear equipment at reactors supplied by the US, even if it is from third parties.

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Indian officials of the “nuclear contact group” who had met three times in Delhi, Vienna and London to hammer out an agreement before President Obama’s visit are now working on producing a “memorandum” for their American counterparts, that will put the Indian government’s explanation on the liability law as well as other parts of the negotiation on paper. Once the US clears the memorandum, the administrative arrangements

between the two governments will be signed. The government has not yet released details of the administrative arrangements agreed to with the US, nor of the “insurance pool” and memorandum on liability that secured the arrangements. According to sources, India has committed in negotiations that U.S. suppliers will not be liable for civil or ‘tort’ damages under Section 46 of the Liability Act, and their limited liability will be covered by the Indian insurance pool of Rs. 1,500 crore (\$242 million).

“No Right to Recourse”: “In effect, we have no right to recourse after these talks. Ultimately the liability is on the Indian side and lies with the Indian taxpayer now,” a former Foreign Secretary told *The Hindu*. “It seems as if the government is not being honest and clear about what we have agreed to.” However, with Parliament scheduled to reopen later this month for the budget session, more clarity on the negotiations will also be demanded there.

Source: The Hindu, 05 February 2015.

Andhra Pradesh Nets Nuclear Project

Despite sustained lobbying by Karnataka and Maharashtra, the Andhra Pradesh government has bagged the prestigious nuclear fuel complex project. After the nuclear fuel project at Hyderabad, the Central government’s Atomic Energy department had decided to set up another nuclear project in the country. AP, Karnataka and Maharashtra were all vying for the project.

The AP government had put forth the advantages for the project to be set up in the state and had offered water, power, land and other facilities to the Centre. The state government had pitched for

Orvakal mandal in Kurnool district. After detailed discussions with the state government, the Atomic Energy department, in principal, has decided to set up the nuclear fuel complex at Orvakal.

The cost of the project will be around Rs 4,000-5,000 crore. AP chief secretary I.Y.R. Krishna Rao had detailed discussions with Central government officials about the project recently. Mr Krishna Rao had expressed hope that the Centre would take a final decision in favour of Andhra Pradesh.

Demand for More Power

Share: Mean-while, the Andhra Pradesh government has demanded more power share in the proposed nuclear power plant to be set up in Nellore or Prakasam district. Recently, a Russian collaboration company had held talks with Mr Krishna Rao to set up a 6,000 MW nuclear power plant in the state. The state government has a 50 per cent share in the Kovvada nuclear power plant. However, in the proposed plant, the state government has demanded 75 to 80 per cent share.

Source: Deccan Chronicle, 13 February 2015.

USA

NASA is Developing New Rockets to Send Astronauts to New Corners of the Solar System

NASA scientists are developing new nuclear powered rockets that they hope could be used to travel the huge distances needed to take astronauts to Mars and explore the solar system. They believe the rockets, powered using nuclear fusion rather than traditional chemicals, could dramatically cut the time it takes to travel through the solar system. Engineers at the space agency have now been drawing up plans to use nuclear thermal propulsion in a mission to

Mars in 2033.

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Nuclear thermal rockets weigh around half as much as chemical rockets for the same amount of thrust, they say. Their plans were outlined in a series of reports and presentations by NASA officials and researchers and a presentation given by a senior manager According to their design, uranium-235 nuclear reactions are used to heat liquid hydrogen inside a reactor, turning it into ionized hydrogen gas, or plasma.

This plasma is then channeled through a rocket nozzle to generate thrust. Dr Stanely Borowski, an engineer at Nasa's John Glenn Research Centre, outlined how this could then be used to propel a space with its crew through space in a[n] official Nasa paper. He said the spacecraft, called Copernicus, would consist of separate cargo and crewed transfer vehicles, each powered by a nuclear thermal propulsion stage.

Source: Richard Gray, <http://www.dailymail.co.uk>, 03 February 2015.

URANIUM PRODUCTION

KAZAKHSTAN

Kazakhstan Ups Uranium Production

The volume of uranium production in Kazakhstan amounted to 22, 829 metric tons in 2014. Kazatomprom, the Kazakh national atomic company announced that the country has maintained its leading position as the largest producer of uranium in the world. In 2013, Kazakhstan produced 22, 500 metric tons of uranium. The report said that uranium mining in Kazakhstan on the results of 2014 corresponds to the

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planned targets. The share of Kazatomprom NAC JSC (including shares in subsidiaries and affiliates) on the results of 2014 accounts for 13, 156 metric tons of uranium.

The National Atomic Company in 2014 continued exploration work in order to increase the resource base of uranium in Kazakhstan, according to the report. "During the year, more than 986 exploration wells were drilled," said the statement. As for the subsidiaries of Kazatomprom NC, the Center of uranium enrichment JSC implemented shipment of finished products in the amount of 4.9865 million separative work units, which is 0.2 percent higher than the production plan of the enterprise. MAEK-

Kazatomprom LLP generated 5.08 billion kWh of electricity, 3,296 million Gcal of heat energy, 1.235 billion cubic meters of water, including 11,400 cubic meters of drinking water for consumers of Aktau city and Mangistau region in 2014.

Volume of production of tantalum products was 154, 458 metric tons, niobium – 72, 228 metric tons, beryllium – 1.776.180 metric tons. SARECO joint venture produced 240, 4 metric tons of bulk concentrate of rare earth metals in 2014. The finished products were shipped to customers in Russia. Astana Solar LLP produced 51,069 panels in 2014, which corresponds to 12,706 MW of energy.

Kazatomprom JSC is the national operator of Kazakhstan for the export of uranium and uranium compounds, rare metals, nuclear fuel for nuclear power plants, special equipment, technologies and materials with dual purposes. Its main activities are geological exploration, the extraction of uranium, the manufacturing of products involved in the nuclear fuel cycle and construction materials as well as power industry, science, social security and personnel training.

Source: <http://www.azernews.az/region/76957.html>, 02 February 2015.

China General Nuclear Power Holding Corp., the country's biggest producer of nuclear energy, intends to start mining at its Husab uranium project in Namibia in May and process the first uranium oxide next February.

NAMIBIA

Uranium Mining at Namibia's Husab to Start in May, CGNPC Says

China General Nuclear Power Holding Corp., the country's biggest producer of nuclear energy, intends to start mining at its Husab uranium project in Namibia in May and process the first uranium oxide next February. "We have been clearing the overburden of sand and we will start mining ore from May onwards," Percy McCallum, spokesman for CGNPC's Namibian unit, Swakop Uranium, said in an e-mailed response to questions on 6 February. "We expect to have stockpiled 1 million tons of ore by December."

The \$2 billion Husab mine, China's largest investment in Namibia, will have the potential to produce 15 million pounds of uranium oxide when fully operational in two years. Namibia, currently the world's fifth-largest producer of uranium, will overtake Niger and Australia by 2017 because of Husab's production, Zheng Keping, Swakop Uranium's chief executive officer, said in May.

Source: <http://www.bloomberg.com>, 06 February 2015.

NUCLEAR COOPERATION

CHINA-ARGENTINA

China Signs Agreement to Develop Two Nuclear Power Plants in Argentina

The Chinese government has signed an agreement to develop two nuclear power plants for Argentina. The agreement has been signed during Argentine President Cristina Fernandez de Kirchner's meeting with Chinese President Xi Jinping in Beijing, China, reports Xinhua news agency. In addition to the nuclear deal, a total of 14 agreements have been signed by the two nations for cooperation in energy, financing, space technology, media, and information technology.

Press TV cited Jinping as saying: "Both sides are committed to strengthening our cooperation in various fields, especially our cooperation on basic

infrastructure development...and in promoting the sound and stable development of bilateral trade." As part of the development deal, China will also transfer nuclear technology to Argentina in order to strengthen their strategic partnership.

Over the next five years, China is planning to invest approximately \$250bn in Latin America.

Source: <http://www.energy-business-review.com>, 06 February 2015.

RUSSIA-EGYPT

Russia to Help Egypt Build 'A Whole New Nuclear Power Industry' – Putin

Russia will contribute to building "a whole new nuclear power industry" in Egypt, President Vladimir Putin has announced as the two countries have signed a number of agreements after a meeting in Cairo. The leaders of Russia and Egypt have signed "a memorandum of understanding to build the first nuclear plant in [the northern city of] El-Dabaa," Egyptian President Abdel Fatah al Sisi has told reporters at a news conference at Cairo's Al Qubba presidential palace.

Russia would contribute not only to the construction of a nuclear power plant, but also staff and scientific research, President Putin said. ... If successful, the project could cover the Egypt's necessity for electric energy, Sisi said.

"Russia has a significant experience that it could share with Cairo, and for that Egypt would be very thankful," he said. "Also, [a nuclear plant] will cover the Egypt's necessity for electricity." Under the new agreement, Russia's nuclear agency Rosatom will build two reactors based on "Russian technology," Rosatom chief Sergey Kirienko said.

Moscow and Cairo have agreed a contract for a total of four units of 1200 MW each. The new generation plant, Kirienko said, will comply with "post-Fukushima" safety standards. ...The first negotiations on the project's implementation are

scheduled as early as 16 February, when "a large group of technical experts" will arrive in Moscow. "We will negotiate technical and commercial issues," Kirienko said.

Besides nuclear cooperation, the Egyptian leader and Russia have discussed a broad range of international issues, including joint economic and military-technical collaboration. The two countries have agreed on establishing a free trade zone with the Russian-led Eurasian Economic Union (EEU) and a Russia industrial zone in the Suez Canal area.

Source: <http://rt.com/news/231055-putin-sisi-egypt-talks/>, 10 February 2015.

NUCLEAR PROLIFERATION

IRAN

Obama Questions Iran's Desire to Achieve Nuclear Deal

Barack Obama said there was no reason to extend nuclear talks with Iran once again, stressing the question now is whether Tehran truly wants an agreement. "I don't see a further extension being useful if they have not agreed to the basic formulation and the bottom line that the world requires to have confidence that they're not pursuing a nuclear weapon," the US president said at a joint press conference with visiting German chancellor Angela Merkel.

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Obama said the issues standing in the way of a comprehensive agreement were no longer technical. "The issues now are – does Iran have the political will and the desire to get a deal done?" he said. His comments followed a White House meeting with Merkel, whose country along with the US is a member of the P5+1 group negotiating with Tehran. Two deadlines for reaching a permanent agreement on Iran's nuclear program have passed, and skepticism about Tehran's intentions have been growing. Under an interim agreement, Iran has diluted its stock of fissile materials from 20% enriched uranium to 5% in exchange for limited

sanctions relief.

But negotiators now must reach a political consensus by 31 March and then a final deal setting out the agreement in technical detail by 30 June. Meanwhile, pressure is growing in the US Congress for spelling out ahead of time the sanctions Iran would face if there is no deal, which the US administration vehemently opposes. Republicans have further angered the administration by inviting Israel's PM, Binyamin Netanyahu, to address a joint meeting of Congress early March to make his case against a deal. Obama acknowledged "a very real difference" with Netanyahu, and reiterated his opposition to the sanctions moves by Congress.

While he said the US and Israel have an "unbreakable bond", Obama warned that preserving meant make sure "it doesn't get clouded with what could be perceived as partisan politics". Obama said he and other allies, including Merkel and the British PM, David Cameron, agree "that it does not make sense to sour the negotiations a month or two before they're about to be completed". "And as I've said to Congress, I'll be the first to work with them to apply stronger measures against Iran. But what's the rush?" he said. He noted that if the negotiations fail to produce an agreement, the "options are narrow and they're not attractive".

...The US secretary of state, John Kerry, met on 8th February in Germany with his Iranian counterpart Mohammad Javad Zarif to step up efforts to reach an agreement. But Ayatollah Ali Khamenei, Iran's supreme leader, was quoted as saying he agreed with the Americans that it was better to have no deal than a bad deal. "It's better to have no agreement than one that goes against our national interests," he said.

Source: <http://www.theguardian.com>, 09 February 2015.

NUCLEAR NON-PROLIFERATION

SOUTH KOREA

Uranium Enrichment Clause to be Included in Amended Korea-US Atomic Energy Agreement

Negotiations to amend the Agreement for Cooperation between the Korean and US Governments concerning the Civil Use of Atomic Energy are about to be wrapped up in four years and five months. Secretary of State John Kerry and Foreign Affairs Minister Yoon Byeong-se had a meeting in Munich, Germany on Feb 7 (local time) to promise to finish the talks within weeks. However, the Korean government is unlikely to win comprehensive prior consent regarding the reprocessing of spent nuclear fuel, which is a key part of the agreement, due to Washington's non-proliferation policy. In contrast, Japan can conduct the reprocessing on its own determination, and is currently running facilities for the purpose.

The new agreement is expected to include stipulations regarding uranium enrichment. This means the matter is to be handled during the negotiations to be regulated by Washington. Still, it is said that the Korean government has succeeded in winning the rights to carry out R&D with regard to spent nuclear fuel storage and the like on the condition that concerns over proliferation are absent.

The new agreement is expected to include stipulations regarding uranium enrichment. This means the matter is to be handled during the negotiations to be regulated by Washington. Still, it is said that the Korean government has succeeded in winning the rights to carry out R&D with regard to spent nuclear fuel storage and the like on the condition that concerns over proliferation are absent. In this case, basic research activities as to the transport and storage of spent

nuclear fuel and those for steps prior to the pyro processing stage can be carried out independently.

In addition, the new agreement is expected to cover guarantees for the stable supply of nuclear fuel even in the event of emergency, establishment of bilateral cooperation channels for greater nuclear power plant exports, and improvement of transfer of sensitive atomic power station facilities. The current agreement expires in March 2015 and the talks for the new agreement are expected to wrap up coming March ahead of the ratification by the US Congress. The new agreement is slated to be valid for 30 years, according to US custom.

Source: <http://www.businesskorea.co.kr>, 09 February 2015.

NUCLEAR DISARMAMENT

USA

Marshalls “In To Win” Nuclear Disarmament Case

The Marshall Islands is to lodge an appeal in a case against the US over nuclear disarmament.

The islands were the scene of massive US nuclear tests in the 1950s and it is suing the US and eight other nuclear-armed countries for failing in their obligation to negotiate nuclear disarmament. A lawyer for the Marshall Islands, Laurie Ashton, says the team is disappointed in the dismissal of its case by the US District Court which found the breach of NPT and the subsequent harm claimed by the Marshall Islands was speculative.

She says the Marshall Islands also disagrees with Judge Jeffrey White’s findings that the court could not order the US to comply with the treaty and could not provide redress from the harm that’s claimed. *“We will go as far as legally, possibly we can go. We are in it to win it and we are in it to the end and we appreciate the bravery of the Marshall Islands and we’re not going anywhere.”* Ms Ashton says the US Court decision will have very little effect on the Marshall Islands’ cases against Pakistan, India and Britain being brought in the International Court of Justice in The Hague.

Source: <http://www.radionz.co.nz>, 10 February 2015.

NUCLEAR SAFETY

JAPAN

Two More Japan Nuclear Reactors Get Safety Clearance

Japan’s atomic regulator cleared a second set of reactors for restart, another step towards returning the country to nuclear power after the Fukushima disaster of 2011 led to the shutdown of all units. Two reactors at the Takahama nuclear

Two reactors at the Takahama nuclear station operated by Kansai Electric Power, Japan’s most nuclear-reliant utility before Fukushima, passed the basic standards for operation, Nuclear Regulation Authority (NRA) commissioners said at a meeting. They must still get approval from the NRA on design upgrades and go through operational checks, as well as get the greenlight from local authorities to restart.

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Kansai Electric is aiming to start the reactors by November, according to a plan submitted to the government to raise electricity prices, a spokesman said. The approval is good news for Kansai Electric, which in December sought permission to raise electricity rates by over 10 percent, and expects to post a fourth consecutive year of losses in the year through March 31.

...The shutdown has forced nuclear operators to turn to more expensive fossil fuels to run power stations, driving most of them into a sustained period of losses. Japan’s public remains

opposed to atomic power, but Prime Minister Shinzo Abe’s government has been pushing to restart nuclear reactors that meet strict rules set after the Fukushima disaster. The government is aiming to restart reactors operated by Kyushu Electric Power Co, the first to be approved under the new rules, by around June following a lengthy and politically-sensitive approval process, sources familiar with the plans have said.

Source: <http://in.reuters.com>, 12 February 2015.

USA

Nuclear Safety Push to be Softened after US Objections

The US looks set to succeed in watering down a proposal for tougher legal standards aimed at boosting global nuclear safety, according to senior diplomats. Diplomatic wrangling will come to a head at a 77-nation meeting in Vienna in March that threatens to expose divisions over required safety standards and the cost of meeting them, four years after the Fukushima disaster in Japan.

Switzerland has put forward a proposal to amend the CNS, arguing stricter standards could help avoid a repeat of Fukushima, where an earthquake and tsunami sparked triple nuclear meltdowns, forced more than 160,000 people to flee nearby towns and contaminated water, food and air. "If the convention is already perfect, why did Fukushima happen?" said one senior diplomat involved in the matter. But Russia and the US have opposed such a change, the diplomats say.

A reform of the CNS would increase industry costs, as existing nuclear plants, especially older ones, would have to be refitted. The United Nations atomic watchdog says there are 439 nuclear power reactors currently in operation globally, with 69 under construction. Mark Hibbs, proliferation expert at the Carnegie Endowment think-tank, said those in favor of the amendment argue their opponents are motivated by protecting the nuclear industry and electric utility companies. Critics of the plan say the US industry has already spent billions of dollars on improving nuclear safety since Fukushima, Hibbs added.

Compromise Draft: A compromise proposal obtained by Reuters earlier this month shows that CNS member countries are likely to issue a declaration or statement echoing the amendment proposal, which had broad European backing, rather than change the treaty. "New nuclear power plants should be designed and constructed with the objective of preventing accidents," and minimizing off-site contamination in case of accidents, a document dated December 2014/January 2015 said, echoing the wording of the Swiss proposal, but categorized as a "statement".

"Reasonably achievable safety improvements identified at existing plants during...safety assessments should be oriented to these objectives and be implemented in a timely manner." Such a declaration would mean less pressure on countries that fail to impose the tougher standards. Even an amended convention would only leave scope for punishment in the form of peer reviews. Three senior Western diplomats confirmed that a change to the convention itself is very unlikely to get the green light at a diplomatic conference on the CNS in Vienna starting on Feb. 9, after the US objected to such a step.

Another scenario could see the amendment simply voted down or shot down through

procedural issues without even a joint statement - a "pessimistic" outlook, according to one diplomat, as it would show diplomatic divisions over nuclear safety. "I think the US government is afraid of any principle that would even suggest that current reactors need to be retrofitted to meet modern standards," said Edwin Lyman of the Washington-based Union of Concerned Scientists. "We have many plants (that face) hazards far greater than those they were originally designed to withstand decades ago.... A declaration...would allow signatories to avoid even the obligation to discuss the matter in their reports."

A US official said that his country strongly supports the convention and wants it, and the diplomatic conference, to be successful, but did not comment on an amendment which may face political and legal opposition in the US.

Source: <http://news.asiaone.com>, 30 January 2015.

NUCLEAR WASTE MANAGEMENT

RUSSIA / NORWAY

Nuclear Waste Cooperation will Continue, but not for New Waste

While foreign countries, including Norway, over the last 20 years have cashed out for scrapping Russia's Cold War fleet of nuclear submarines, Moscow puts its money into building new advanced vessels for underwater warfare. Right now, around ten nuclear submarines are under construction and another five to six are planned. Over the 2014, four brand new advanced nuclear subs are already delivered to Russia's Northern fleet.

One of new, the multipurpose submarine "Severodvinsk" is based in Zapadnaya Litsa, a fjord only 60 kilometer from the border to Norway. With the three new ballistic missile submarines "Yury Dolgoruky", "Aleksandr Nevsky" and "Vladimir Monomakh" in operation the number of additional nuclear warheads sailing the Barents Sea have increased by some 200 the last few months. Norway and Russia have since 1994 cooperated on securing the radioactive waste and spent nuclear fuel generated from the massive fleet of old nuclear powered submarines based along the coast of the Kola Peninsula during the Cold War.

"It is in our own interest to contribute to the clean-up and safety, like in the Andreeva bay and at Kola nuclear power plant," says Børge Brende to Barents Observer, and hints that future grants might not be given to waste generated by the new fleet of submarines. Norway has over the last 20 years granted some NOK 1.5 billion into nuclear safety projects related to the military navy's activities, including decommissioning of four old submarines, development of casks for spent nuclear fuel, radioactive waste management, physical protection of radioactive- and fissile material. In addition, hundreds of millions are granted to civilian nuclear safety projects including Kola nuclear power plant and the nuclear icebreaker fleet in Murmansk.

The Foreign Minister visited Kirkenes for the annual conference focusing on business and cooperation in the border region. EU and Norway's sanctions regime on Russia was debated extensively at the conference. Early February, rumors hinted that Rosatom could be next on the

list if sanctions are expanded to more sectors. Rosatom is Russia's state nuclear corporation, and Norway's main partner in the bi-lateral action plan for nuclear safety. On 6 Feb, EU's Foreign Ministers met in Brussels and agreed to extend sanctions following the escalation of the war in Eastern Ukraine. Details of the new economic sanction are likely to be announced at a mid-March EU-Summit. Norway is not a member of the European Union, but has imposed the same sanctions on Russia since Moscow's annexation of Crimea in March 2014.

Asked by Barents Observer about what consequences it will have for the nuclear

safety cooperation if Rosatom ends up on the list of restrictive measures, Børge Brende says it all depends on the developments in Eastern Ukraine. ... Although Norway is not sitting around the table in Brussels, Brende has an open dialog on a possible new set of restrictive measures. ...

Source: <http://barentsobserver.com>, 06 February 2015.

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