

PRESS INFORMATION BUREAU RELEASES

on

NUCLEAR ENERGY

(2003-2012)*

Compiled by Kiran J Prakash

Centre for Nuclear & Arms Control



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*Till 15 August 2012



Nuclear and Arms Control Centre

NUCLEAR ENERGY- INTERNATIONAL CO-OPERATION

Nuclear and Arms Control Centre

**Press Information Bureau
Government of India
Department of Space**

09-August-2012 17:43 IST

Commissioning of Kudankulam Nuclear Power Plant

The commissioning of Unit-1 of Kudankulam project is scheduled to be completed very soon.

The removal of dummy fuel and inspection of the Reactor Pressure Vessel have been completed in Unit-1. The report of inspection has been submitted to the Atomic Energy Regulatory Board (AERB). No defects have been noticed during final inspections. After completing inspection, application for fuel loading has been submitted to regulatory authorities. This will be followed by fuel loading, approach to criticality and power generation after obtaining stage-wise clearance from the AERB.

An expert group of eminent scientists, academicians, doctors and engineers specializing in diverse fields constituted by the Government carried out a study of the safety and related aspects of the Kudankulam project and explained the same to the representatives of the people protesting against the commissioning of the project.

The expert group of the Central Government has comprehensively addressed the concerns expressed by the local people and others and found the Kudankulam Plant to be safe. An expert committee constituted by the Government of Tamil Nadu has also found this plant to be safe.

The above information was given by the Minister of State in the Ministry Personnel, PG & Pensions and in the Prime Minister's Office (Shri V. Narayanasamy) in a written reply in the Lok Sabha.

MC/sk

URL: <http://pib.nic.in/newsite/PrintRelease.aspx?relid=85905>

**Press Information Bureau
Government of India
Department of Space**

09-August-2012 17:39 IST

Cost of Kudankulam Nuclear Project and Commencement of Commercial Production

The initial estimated cost of Kudankulam Nuclear Power Plant, Units 1&2 (KKNPP 1&2) was Rs. 13,171 crores and completion dates for Unit 1&2 were December 2007 and December 2008, respectively.

Of the four nuclear projects, Kakrapar Atomic Power Plant, Unit 3&4 (KAPP Units 3&4 – 2x700 MW), Rajasthan Atomic Power Plant, Units 7&8 (RAPP Units 7&8 – 2x700 MW) are progressing on schedule. Kudankulam Nuclear Power Plant KKNPP Units 1&2 and Prototype Fast Breeder Reactor (PFBR), Kalpakkam have time and cost overrun. The details in this regard are as follows:

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	KKNPP Unit 1&2	PFBR, Kalpakkam
Original completion date	December 2007 (Unit 1) & December 2008 (Unit 2)	September 2010
Expected completion date	August 2012 (Unit 1) & March 2013 (Unit 2)	September 2014
Original completion cost	Rs. 13171 crore (Unit 1&2)	Rs. 3492 crore
Expected completion cost	Rs. 17270 crore (Unit 1&2)	Rs. 5677 crore

A credit of Rs. 6,416 crore has been advanced by the Russian Federation for the KKNPP Units 1&2.

The first and second units of Kudankulam project are scheduled to reach criticality (first start of fission chain reaction) in August 2012 and March 2013 and commence commercial operation by October 2012 and June 2013, respectively.

The inspection of the Reactor Pressure Vessel using a specially designed remote controlled machine has been completed.

The above information was given by the Minister of State in the Ministry Personnel, PG & Pensions and in the Prime Minister's Office (Shri V. Narayanasamy) in a written reply in the Rajya Sabha today.

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=85903>

**Press Information Bureau
Government of India
Department of Space**

09-August-2012 17:37 IST

Nuclear Power Target

The target as projected in Integrated Energy Policy of the country is to reach a nuclear power capacity of 63,000 MW by the year 2032. The current installed capacity of 4780 MW is planned to reach 10,080 MW by 2017 on progressive completion of 7 reactors under construction with an aggregate capacity of 5300 MW. The XII Five Year Plan envisages start of work on nuclear power reactors adding to total an additional capacity of 17400 MW. This additional planned capacity makes it total to 27480 MW by the year 2023-24. Further, more nuclear power reactors based both on indigenous technologies and with foreign technical cooperation are also planned in future to achieve the target.

The above information was given by the Minister of State in the Ministry Personnel, PG & Pensions and in the Prime Minister's Office (Shri V. Narayanasamy) in a written reply in the Lok Sabha.

MC/sk

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=85902>

Nuclear and Arms Control Centre

**Press Information Bureau
Government of India
Ministry of Science & Technology**

21-March-2012 16:35 IST

Nuclear Power Plant

Nuclear Power Corporation of India Ltd. (NPCIL), a public sector undertaking under the department of atomic energy, is having discussions with foreign companies for supply of equipments for setting up large capacity Reactors on technical cooperation basis. These companies are M/s Atomstroy export (ASE) of Russian Federation, M/s AREVA of France, M/s Westinghouse Electric Company (WEC) and M/s GE Hitachi Nuclear Energy of USA. This information was revealed by Minister of State in PMO Shri V Narayansamy in reply to a question in Lok Sabha today.

The Minister said that the cost of nuclear power, inter-alia, depends on the type of technology, life of plant, cost of fuel etc. The levelised cost of power from Light Water Reactors (LWRs) being set up in the country with foreign technical cooperation is expected to be comparable to that of similar plants in developed countries.

DK/bs

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=81365>

**Press Information Bureau
Government of India
Ministry of Heavy Industries & Public Enterprises**

21-December-2011 12:49 IST

Tapping of Nuclear Reactor Turbine Market by BHEL

Bharat Heavy Electricals Limited (BHEL) proposes international partnership to tap the nuclear reactor turbine market in the country.

A Joint Venture Company (JVC) for execution of Conventional Island (Turbine side) for 700 MWe nuclear power plants is contemplated to be set up between Nuclear Power Corporation of India Limited (NPCIL), BHEL and Alstom of France.

BHEL is further making efforts to associate with other international nuclear reactor vendors for possible cooperation to manufacture the components of higher size reactors.

BHEL has entered into a Memorandum of Understanding (MOU) in February 2011 with NPCIL and Alstom for formation of JVC for execution of Conventional Island (Turbine side) of Nuclear Power Plant for 700 MWe and above.

In January 2011, an MOU has also been signed between BHEL and GE-Hitachi (USA) for possible cooperation to Manufacture components of higher size reactors (1000 MWe & above).

Based on the MOU signed between BHEL, NPCIL and Alstom for formation of an JVC, BHEL has received orders for manufacture & supply of Steam Turbine Generator package in consortium with Alstom for 2x700

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MWe nuclear power plant of NPCIL at Kakrapar Units # 3 & 4. For this, Steam Turbine components are being manufactured and supplied by BHEL and Alstom, and balance equipment including erection & commissioning is being undertaken by BHEL. BHEL shall be manufacturing Steam Turbine components based on manufacturing drawings given by Alstom.

This information was given by the Minister of Heavy Industries and Public Enterprises Shri Praful Patel in the Rajya Sabha.

MC/ls

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=79090>

**Press Information Bureau
Government of India
Department of Atomic Energy**

15-December-2011 18:22 IST

Nuclear Plant in Rajasthan

The site selection committee of Nuclear Power Corporation has identified a place for establishing a new nuclear energy power project near Mahi Bajaj Sagar Dam in Banswada in Rajasthan.

The Committee appointed by the Central Government has evaluated the site at Mahi-Banswara in Rajasthan in accordance to the criteria laid down in Atomic Energy Regulatory Board (AERB) siting code and found it to be suitable. The Government has accorded 'in principle' approval of the site for locating 4x700 MW nuclear power plants. The plan is to set up the project in two phases of 2x700 MW each. Currently, pre-project activities have been initiated at the site. These include land acquisition, obtaining statutory clearances, site investigations and preparation of detailed project report. The project financial sanction of the first phase is expected in the XII Five year plan.

The Minister of State in the Prime Minister's office Sh V Narayanasamy gave this information in a written reply to a question by Dr. Prabha Thakur and Shri Ashk Ali Tak in Rajya Sabha today.

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URL: <http://pib.nic.in/newsite/PrintRelease.aspx?relid=78787>

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**Press Information Bureau
Government of India
Department of Atomic Energy**

15-December-2011 18:18 IST

Liabilities of Suppliers as Per Nuclear Damage Rules, 2011

The liability of the supplier of nuclear equipment or material or services will be as per section 17 of the Civil Liability for Nuclear Damage Act, 2010 read with Rule 24 of the Civil Liability for Nuclear Damage Rules, 2011. A copy of the said rules is laid on the table of the Houses. The operator's right of recourse to the supplier will be as per the contract entered between operator and supplier. Rule 24 defines the minimum period of such a contract to the initial licensing period or the product liability period, whichever is longer.

The project proponent/operator has to obtain statutory clearances viz., environmental clearance, Coastal Regulation Zone clearance (in respect of coastal sites) from Ministry of Environment and Forests (MoEF), consent to establish from State Pollution Control Board before commencing construction of nuclear power plants. Consent has also to be obtained from Atomic Energy Regulatory Board (AERB) before construction. AERB gives consent at various stages of the NPP namely siting, construction, commissioning and operation.

The average time taken for the construction of nuclear power plants in case of the last three projects completed has been about five and half years.

The Minister of State in the Prime Minister's office Sh V Narayanasamy gave this information in a written reply to a question by Shri P. Rajeeve in Rajya Sabha today.

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URL: <http://pib.nic.in/newsite/erelease.aspx?relid=78782>

**Press Information Bureau
Government of India
Department of Atomic Energy**

23-November-2011 16:56 IST

Nuclear Power Programme

The generation of nuclear power in the XI Plan upto October 2011 is 96,019 MUs and it is expected to be 1,09,000 MUs. The target for generation of nuclear power was revised at the Mid Term Appraisal (MTA) stage.

The generation target for XI Plan was arrived at on the assumption of improved availability of domestic uranium and availability of imported uranium for the reactors under IAEA safeguards as per the separation plan. However, the indigenous uranium supply remained constrained throughout the period. Fruition of international cooperation was delayed and imported uranium could be available only from the later half of 2009-10. This resulted in lower generation from units in operation.

The Minister of State in the Prime Minister's office Sh V Narayanasamy gave this information in a written reply to a question by Sh N Chaluvarya Swamy in Lok Sabha today.

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=77426>

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**Press Information Bureau
Government of India
Department of Atomic Energy**

23-November-2011 16:55 IST

Setting up of Nuclear Power Plats

The construction work of Kudankulam Unit 1 and Unit 2 is nearly complete. Unit 1 is expected to be commissioned during the current XI Five Year Plan, while Unit 2 is expected to be commissioned in the first year of the next XII Five Year Plan period. New projects of 2800MW capacity, comprising Kakrapar Atomic Power Project (KAPP), Units 3 and 4 (2 X 700 MW) and Rajasthan Atomic Power Project (RAPP), Units 7 and 8 (2 X 700MW) have been launched in the XI plan. Start of work on new nuclear power project and pre-project activities are planned in the XII Plan.

The Minister of State in the Prime Minister's office Sh V Narayanasamy gave this information in a written reply to a question by S/S Ramesh Viswanath Katti, Dushyant Singh, Pradeep Majhi, R. Thamaraisel Van, Kishnabhai V Patel and Dr Bhola Singh in Lok Sabha today.

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URL: <http://pib.nic.in/newsite/erelease.aspx?relid=77425>

**Press Information Bureau
Government of India
Department of Atomic Energy**

09-November-2011 18:07 IST

Joint Venture Agreement for Setting up Nuclear Power Plants Across The Country

Nuclear Power Corporation of India Ltd. (NPCIL) and National Aluminium Company Limited (NALCO) has entered into a Joint Venture Agreement for setting up nuclear power plants across the country.

The agreement was signed by Dr. S. K. Jain, Chairman & Managing Director, NPCIL and Shri B. L. Bagra, Chairman cum Managing Director, NALCO, at Mumbai today.

NALCO is a Central Public Sector Undertaking under the Administrative control of Ministry of Mines, Government of India which has experience of more than 25 years in Mining, Alumina Refining, Power Generation and Aluminum Smelting. NALCO has a vision to become an integrated energy and metal company.

NPCIL is a wholly-owned enterprise of the Government of India under the Department of Atomic Energy for setting up nuclear power plants in India. Presently, NPCIL operates 20 nuclear reactors with a total installed capacity of 4780 MW and six reactors with 4800 MW capacity are under construction.

KP

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=77075>



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**Press Information Bureau
Government of India
Ministry of Human Resource Development**

24-August-2011 16:40 IST

New Master Programme in Nuclear Engineering

The Indian Institute of Technology (IIT), Bombay has launched a new Master's Programme with specialization in Nuclear Engineering from the academic year of 2011-12. The Programme initially envisages admission of eight students every year, majority of whom are expected to be under the sponsorship of the Department of Atomic Energy (DAE). The students would be selected jointly with the sponsors and, after graduation, would join the respective sponsors' organizations. The remaining students are likely to be employed with many of the companies involved with the nuclear power, such as, National Thermal Power Corporation (NTPC), Larsen & Toubro (L&T), Reliance Energy, Walchand Technology Centre, etc. Some of the students are also expected to pursue Doctoral Program, both in India and abroad.

This information was given by the Minister of State for Human Resource Development Smt. D. Purandeswari, in a written reply to a question, in the Lok Sabha today.

MV/SKS/gk

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=74985>

**Press Information Bureau
Government of India
Prime Minister's Office**

21-August-2011 20:42 IST

PM's address during his visit to the Saha Institute of Nuclear Physics, Kolkata

Following is the text of Prime Minister Dr. Manmohan Singh's address during his visit to the Saha Institute of Nuclear Physics, Kolkata.

I am delighted to have this opportunity to be amidst you here on the occasion of the Diamond Jubilee celebrations of the Saha Institute of Nuclear Physics. On this special and historic occasion, I heartily felicitate each and every one of you who have associated with the development of this magnificent institution and I congratulate you on your many splendid achievements.

The establishment of this Institute would not have been possible but for the far-sighted vision of Professor Meghnad Saha. Professor Saha belongs to that pantheon of intellectual giants who have guided and inspired generations of young Indians. Professor Saha's seminal work in astrophysics and mathematics is recognised globally. But, as with every successful leader and visionary, his institution-building efforts stood out as much as his scientific genius.

Professor Saha was among the original members of the Council of Scientific and Industrial Research. His role in the promotion of scientific research in the country and in establishing centres of excellence such as this one was enormous. He also contributed to development activities, particularly in the area of flood control. The setting up of the Damodar Valley Corporation and establishment of the River Research Institute near Kolkata

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owe a great deal to his pioneering zeal and effort. His contribution to the planning process in the country in the 1950s with the full encouragement of Pandit Jawaharlal Nehru is all too well known.

I am delighted to see that over the decades this Institute has lived up to the ideals and vision of its great founder. It has several achievements to its credit, not least the first electron microscope and the first cyclotron in the country. The concept of pre-PhD courses started by this Institute was also the first of its kind in the country. The emphasis on a multi-disciplinary approach to higher learning, with focus on physical sciences as well as biological sciences, has been another valuable innovation. I am happy to learn that the Saha Institute has produced more than 1000 research publications during the last four years and awarded about 70 PhD degrees.

In a developing country like ours with scarce resources, there is often a debate on how much the country should be investing in basic and fundamental research. We were fortunate that the founding fathers of our republic were very clear in their minds that if India was to become a leading industrial and technological nation, there was no option but to promote fundamental scientific research. That approach has yielded us rich dividends. Institutes such as yours are today the backbone of our strong scientific and technological infrastructure. You deserve our fullest support in the preservation of your autonomy and in meeting your resource requirements. I as the Prime Minister assure you of both so that the objectives of the institution can be fulfilled.

In a fast changing world, the quality and scale of a country's scientific knowledge base determines the competitiveness of its economy and the pace of its development. We are committed to creating an environment that attracts young men and women towards science and research. We have devised policies and mechanisms that draw the best minds to the scientific vocation. It is our collective duty to identify young talent, train them well, and provide them an environment that is conducive to advanced research and discovery. Our aim should be to produce more Nobel laureates.

The doors for international cooperation in high technology areas have opened for India and I am confident will open further. Our scientists should use these unfolding opportunities to develop an international temper and outlook. There should be greater international collaboration between our research institutes and those from other countries. Research institutes cannot function in isolation. There should be closer linkages between academia and industry and seamless transfer of knowledge from the laboratory to the shop floor. The Government is encouraging this process at all levels but the private sector can also make a significant contribution. Higher investments in research and development should be accorded high priority across the economy. It is a sad commentary that the number of patents filed by Indians is still very low as compared to the developed world, and even some in the developing world. We must encourage original thought and innovation and ensure that innovators are amply rewarded. This will create a virtuous cycle of innovation and reward.

The Saha Institute forms an integral part of the mission of the Department of Atomic Energy. I would like to compliment the Department of Atomic Energy and all its organizations and entities for the success that we have achieved in the implementation of our indigenous three-stage nuclear energy programme.

The availability of safe and affordable energy is an important factor in enabling us to realise our aspirations for growth and development. I am convinced that nuclear energy will play an important role in our quest for a clean and environmentally friendly energy mix as a major locomotive to fuel our development processes. We are in the process of expanding our civil nuclear energy programme. Even as we do so, we have to ensure that the use of nuclear energy in India meets the highest safety standards. This is a matter on which there can be no compromise. I would call upon the Saha Institute and other similar institutions to contribute to enhancing the

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safety of our nuclear reactors.

In conclusion I would like to acknowledge the enormous contribution that our scientists have made in the development and progress of our country. They are second to none, and have proven their skills in various disciplines of scientific endeavour. I am confident that they will bring even greater glory to the nation in the years to come.

I congratulate all of you on the Diamond Jubilee of this great Institute, you have done exceedingly well in the first sixty years, but I venture to think that the best is yet to come and that the next sixty years will be even more eventful. May your path be blessed.

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=74863>

**Press Information Bureau
Government of India
Department of Atomic Energy**

10-August-2011 17:35 IST

Actinides in Spent Nuclear Fuel

The actinides contained in the spent nuclear fuel are potentially a valuable resource.

There are major and minor Actinides present in the nuclear fuel. The major actinides include Uranium and Plutonium and the minor actinides include Neptunium, Americium and Curium.

Major actinides are most valuable resources for our nuclear power programme and for strategic application whereas minor actinides have medical, industrial and strategic application.

Shri V. Narayanasamy, Minister of State for Personnel, Public Grievances & Pensions and in the Prime Minister's Office gave this information in a written reply to a question by Shri Ravneet Singh in Lok Sabha today.

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=74292>

**Press Information Bureau
Government of India
Ministry of Heavy Industries & Public Enterprises**

30-July-2009 18:16 IST

BHEL foray into Nuclear Components Business

Lok Sabha

Bharat Heavy Electricals Limited (BHEL) plans to enhance its capabilities for manufacture and supply of nuclear reactor components like Steam Generator for higher size reactors (1000 MWe and above), proposed to be installed in the country. BHEL is also planning to manufacture Nuclear Turbines of 700 MWe and above ratings.

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BHEL has already manufactured and supplied some Nuclear reactor components like Steam Generators, Reactor Headers and Nuclear Turbine Generator Sets to Nuclear Power Corporation of India Ltd. (NPCIL) for their 220 MWe and 540 MWe reactors. In March this year, BHEL was awarded a contract for manufacture of Steam Generators for 700 MWe reactors.

BHEL has also signed a MoU with Nuclear Power Corporation of India (NPCIL) to form a Joint Venture (JV) company to carry out Engineering Procurement and Construction (EPC) activities on the secondary side (turbine side) of nuclear power plants of 700 MWe and above rating within India and abroad. Further, BHEL is holding discussions with international technology providers for 700 MWe and above nuclear turbines. The extent of gaining access to the new technologies would depend upon the negotiations in this regard.

BHEL is actively making efforts to associate with nuclear reactor vendors like GE-Hitachi (USA), Areva (France), Westinghouse (USA) and Atomstroyexport (Russia) for possible cooperation to manufacture the components of higher size reactors. A Memorandum of Understanding (MOU) has been signed between BHEL and GE-Hitachi (USA) for cooperation in this area.

This information was given by Shri Vilasrao Deshmukh, Union Minister of Heavy Industries and Public Enterprises in the Lok Sabha today.

SS/PM

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=51270>

**Press Information Bureau
Government of India
Ministry of Earth Science**

27-July-2011 17:39 IST

Science Research must have End Goal as Service to Mankind: Vilasrao Deshmukh

Nuclear Technologies to Play an Important Role in Electricity Production Growth with a Low-Carbon Path : R Chidambaram

Shri Vilasrao Deshmukh, Union Minister for Science and Technology and Earth Sciences, said, “We expect to see an exponential growth in the area of desalination plants in the coming years. Addressing the Earth Sciences Day Celebration here today the Minister said, “The greatest challenge before both urban, and rural populations is that of drinking water. The Ministry of Earth Sciences has developed low temperature Desalination technology for converting sea water into drinking water. We have a plan to cover all coastal power plants in the country under this facility following success of a one and half lakh litre desalination plant set up in Chennai at a coastal power plant. In Lakshdweep islands 2 plants have been set up, each of which is producing one lakh litres of water per day and other 7 islands of Lakshadweep are also being covered with this technology. This technology has stabilised and the first plant at Kavaratti in Lakshadweep is running without closure for the last 6 years.”

Shri Deshmukh said that every pure science research must have its end goal as service to mankind. Shri Deshmukh explained that the world of science is challenging which should not lie in merely discoveries.

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Referring to the Food Security Mission, launched under the aegis of the Planning Commission, - he elaborated that India's total demand for food grains is projected to touch 280 million tonnes by the year 2020-21. For this improved monsoon rainfall predictions and associated enhancements to the agro-advisory services have been identified as priority activities. The Ministry of Earth Sciences' role is very crucial here. The MoES has plans to establish the National Monsoon Mission to address these challenging issues relating to the monsoon rainfall in India. They not only provide fairly accurate monsoon forecasts but also issue weather related agro advisories to farmers so that the 'kisan' can plan his farming and increase the productivity of his soil."

Talking about another priority area of the Ministry he said Science Ministries will facilitate the building of joint projects with Indian research groups and global research community, both of Indian origin or otherwise, to address critical and priority issues so that advances of S & T can contribute to national development.

Delivering his keynote address on Energy Technologies, Energy Securities and Climate Chang, Dr R Chidambaram, Principal Scientific Adviser to Government of India and DAE-Homi Bhabha Professor, Bhabha Atomic Research Centre, said, " BARC has established a 6300 m³/day (6.3 MLD) Nuclear Desalination Demonstration Plant using hybrid Multi-Stage Flash-Reverse Osmosis (MSF-RO) technology integrated to existing PHWR at MAPS (Kalpakkam). It is the largest nuclear desalination plant in the world based on hybrid technology."

Dr R. Chidambaram said, " The Human Development Index (HDI) is directly dependent on two main parameters: Per Capita Electricity Consumption and Female Literacy. For India to become a 'developed' country, the per capita electricity consumption has to increase manifold. Nuclear has to play an important role in this increase as India looks for a low-carbon path for its electricity production growth. There should not be any fear related to nuclear energy. Lessons will be learnt from the recent Fukushima accident and more stringent security measures are being taken in the country and all over the world."

Explaining the Indian Advanced Heavy Water Reactor (AHWR-Pu) and other aspects of it he said, " Closing the nuclear fuel cycle is essential if nuclear is to be a sustainable mitigating technology in the context of the climate change threat. This is in coherence with India's three-stage nuclear programme. "

Referring to Eight Missions outlined in the National Action Plan on Climate Change, he clarified that Nuclear Energy is not in the group of eight missions because the Department of Atomic Energy is itself a Mission – oriented Agency. He disclosed that a new, 9th Mission on Clean Coal (Carbon) Technologies is being considered.

Referring to The Prime Minister's announcement of the present decade as the 'Decade of Innovation' and the year 2012-13 as the year of Science, Dr Chidambaram said, research and innovation are strengthened by collaboration, particularly between scientists who have mutual respect. Also any international collaboration is sustainable only if it is mutually beneficial. We need connectivity – both physical and electronic. Today's India seeks international scientific and technological collaboration on an 'equal partner' basis e.g. LHC, ITER.

Complimenting the Ministry of Earth Sciences Family on the occasion of celebrating 31st Foundation Day, Dr. Ashwani Kumar, Minister of State for Earth Sciences, Science & Technology & Planning said India is now venturing to make Tsunami Warning Service to generate street-level inundation maps with the details of depth, duration and extent of inundation all along the vast Indian coastline of about 7500kms. A world class Tsunami Warning System is successfully being operated in a globally competitive real time Tsunami Warning System fully customized to meet the tsunami requirements of the Indian Ocean region. Referring to global outreach Dr Ashwani Kumar said, " The Ministry has started working towards establishment of an India-

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Africa Centre for Medium Range Weather Forecasting. The proposed institution will harness satellite technology for the agriculture and fisheries sectors as well as contribute towards disaster preparedness and management of natural resources of the African region.”

The Ministry is working on priority basis to generate all necessary spatial, topographic and thematic data infrastructure. The designated dedicated team set has successfully completed a pilot phase proof of concept initiative for the Nagapattinam District of Tamil Nadu, where up to locality/street level people can be evacuated. This will now be extending cover the entire coastline of India. He gave details of indigenously built research stations –Dakshin Gangotri, in Antarctica, Maitri, and the Arctic Station HIMADRI at the Norwegian location of Svalbard. To meet high performance computing (HPC) requirements for the Earth System Science Modeling, MoES has developed a strategic plan that outlines a roadmap for its institutions to become leaders in the field of weather and climate forecasting in the next 10 years. HPC infrastructural upgradation is strategized to be accomplished in two stages. The short term plan is to upgrade the total HPC capacity to 1-3 petaflops level within next 5 years together with appropriate storage and archival. The long term plan is to increase this capacity to exaflop range in next 10 years.

National Awards for Ocean Science and Technology and Atmospheric science and Technology were given today to Dr Bulusu Lakshman Deekshatulu and Prof R N Keshava Murthy respectively. Certificate of Merit were also conferred.

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URL: <http://pib.nic.in/newsite/erelease.aspx?relid=73503>

**Press Information Bureau
Government of India
Department of Atomic Energy**

26-April-2011 09:54 IST

Facts about Jaitapur Nuclear Power Plant

Jaitapur Nuclear Power Plant derived its name From Jaitapur lighthouse which is mentioned in many international maps. Government of India has decided to promote nuclear power at a large scale in view of rapidly rising demand for electricity, limited and depleting fossil resources, environmentally benign and safe nature of nuclear power etc. Accordingly, Government of India accorded its sanction in October 2005 to set up the Nuclear Power Plant at Jaitapur besides three other locations.

Technical and Economic Reasons for Selection of Jaitapur Site

The Site Selection Committee recommended setting up a nuclear power plant at Jaitapur, based on the suitability of meeting criteria like which include availability of land vs. population density, available source of cooling water , seismicity, safe-grade elevation at site (flood analysis etc), environment aspects and proper access for transportation of heavy/over-dimensional equipment to plant site. Along with these conditions and based on some other considerations the Government approved Jaitapur site for the establishment of the NPP.

The site selection for is carried out by the Site Selection Committee, notified by the Government of India which selects site for setting up a nuclear power plant, revied various parameters as per the requirements laid down in the code of Atomic Energy Regulatory Board and the laid-down criteria.

Earthquake-prone Site

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The Jaitapur site is not considered earthquake-prone. As per seismic zoning map of Government of India, Jaitapur site falls within zone III. The longitude and latitude of the land covered for Jaitapur nuclear power project are given below:

Latitude of JNPP site: 16° 34' 38" N to 16° 36' 29" N

Longitude of JNPP site: 73° 19' 02" E to 73° 20' 48" E

As per the Atomic Energy Regulatory Board (AERB) codal requirement, there should not be any active fault within 5 km radius from the proposed site of an NPP. Further, based on the studies carried out by various government institutes/ organisations, there is no active fault found up to 30 km radius from JNPP site. Hence, the site is not considered earthquake-prone. This is to further confirm that based on the available data of seismicity prevailing in the geographical region, all the structures, buildings and equipments of JNPP would be designed to qualify the “ground motion acceleration”

Benefits of the Project

The benefits of project are-

- i) The project will augment electricity generation in the country, in a benign and environment-friendly way, which is the need of the hour.
- ii) Development of areas around project site.
- iii) Direct and indirect employment opportunities.
- iv) Contribution of National Power Corporation of India Limited (NPCIL) in social and community development of surrounding areas, especially nearby villages, in the field of education, health and infrastructure facilities.

Generation Capacity of JNPP

One unit of 1650 MWe plant operating at full capacity shall generate 36-39 million units per day. Presently, generation capacity of six units is 1650 MWe capacity each. Evolutionary Pressurised Reactors (EPR) from AREVA, France is under consideration of the Government of India.

Number of Reactor Units

There will be six reactor units of 1650 MWe each at JNPP. The distance between each adjacent reactor unit is planned to be 250-300 meters.

Completion of Project

5 to 6 months' time is required to declare commercial operation after completion of construction. The time required for completion of each unit is approximately six years from the start date. Approximately all the six units of 1650 MWe each will be constructed in a twin-unit mode in phased manner and implemented in a period of 15-18 years.

Life Span of Each Plant

The guaranteed life of the proposed plant is 60 years.

Type of Fuel

This plant will be “PWR-type”, based on enriched uranium fuel. Irrespective of the fuel type, all the safety guidelines based on International Atomic Energy Agency (IAEA)/Atomic Energy Regulatory Board (AERB) regulations are strictly adhered to by NPCIL to ensure that there is no adverse effect on environment, health and life of people through air, sea and land as a result of the operation of the NPP. The uranium will be supplied by AREVA,

Nuclear and Arms Control Centre

France, which will be also supplying the reactor units.

Source of Fresh Water

The fresh water requirement of the plant units and the proposed residential complex of JNPP will be met from a desalination plant facility installed by (NPCIL).

KP

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=71795>

**Press Information Bureau
Government of India
Ministry of Environment and Forests**

18-August-2010 14:24 IST

Objection on Nuclear Power Station

M/s Nuclear Power Corporation of India Ltd. had submitted a proposal for obtaining Terms of Reference (TORs) for undertaking detailed Environment Impact Assessment (EIA) study in respect of the proposed MP Atomic Power Project (2x700 MWe) at village Chutka, District Mandla, Madhya Pradesh. The proposal was considered by the Expert Appraisal Committee (EAC) for Nuclear Power Projects in its meeting held on 15th June, 2010. The EAC observed that the information and documents submitted by the project proponent lacked requisite details and accordingly requested for submission of the revised documents, with incorporation of necessary details for further consideration of the proposal.

This information was given by the Minister of State for Environment and Forests (Independent Charge) Shri Jairam Ramesh, in a written reply to a question by Shri Rakesh Singh in Lok Sabha today.

KP

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=64938>

**Press Information Bureau
Government of India
Department of Atomic Energy**

13-August-2010 11:58 IST

Private Investments in Nuclear Power Sector

Economic Advisory Council to the Prime Minister in its 'Economic Outlook for 2009/10' inter-alia highlighted the need to diversify our fuel sources and develop more natural gas and nuclear energy based power plants as opposed to the coal based capacities that currently exist and to bring legislative changes to allow the entry of private companies into the business of nuclear power generation within an appropriate regulatory framework.

The Economic Advisory Council to the prime Minister in its Review of the Economy 2009-10 dated February 2010 has stated, "there is an urgent need to make the necessary regulatory change quickly, so that investment including that from established private companies interested in this business, can begin to flow."

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The Atomic Energy Act, 1962 as amended in 1987 gives power to Central Government to produce, develop, use and dispose of atomic energy either by itself or through any authority or corporation established by it or a Government company. The Atomic Energy Act, 1962, permits private participation in setting up of nuclear power plants as a minor partner of a government company. The entry of private entities as minor partner in this activity will enable them to learn complexities of nuclear technologies, quality and safety culture and a long-term commitment which extends upto the entire life time of power plants. At this stage, government does not intend to change the related provision of the Atomic Energy Act, 1962 for private participation in setting up of nuclear power plants.

This information was given by Sh. Prithviraj Chavan, Minister of State for Science & Technology and Earth Sciences, PMO, Personnel, Public Grievances and Pensions and Parliamentary Affairs in written reply to a question in Rajya Sabha recently.

SBS/RS

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=64696>

**Press Information Bureau
Government of India
Department of Atomic Energy**

09-August-2010 16:33 IST

Production of Nuclear Power

The Integrated Energy Policy-2006 envisages possibilities of reaching a nuclear power capacity of 63,000 MW by the year 2032. The estimated investment is Rs.10 crore/MW at 2010 prices.

The 2009-10 average nuclear tariff of about Rs.2.30/KWh is quite comparable to thermal power. Nuclear Power is competitive with coal thermal power at locations away from coal mines. Most of hydel power comes from multipurpose dams (costs are shared amongst flood control, irrigation and power); is seasonal, location-specific and not compared for base load needs.

There are 19 nuclear power reactors (4560 MW) in operation. 7 reactors (1400 MW) use imported fuel and work at full power, 9 reactors (2630 MW) use domestic uranium. Nuclear power reactors are capital intensive and the efforts to optimize cost of generation are directed at optimization of design, longer life, reduction of gestation period, adopting business models & financing strategies to minimize costs, and to operate at high capacity factors.

This Information was given by Sh.Prithviraj Chavan, Minister of State for Science & Technology & Earth Sciences, PMO, Personnel, Public Grievances & Pensions & Parliamentary Affairs in reply to a written question in Lok Sabha recently.

SBS/RS

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=64413>

Nuclear and Arms Control Centre

**Press Information Bureau
Government of India
Ministry of Science & Technology**

05-May-2010 18:19 IST

Private Investment in Nuclear Power Sector

The Economic Advisory Council to the Prime Minister in its “Economic Outlook for 2009-10” of October 2009 and in the “Review of the Economy 2009-10” of February, 2010 has recommended private sector participation in nuclear power sector.

The Council has recommended amendment of the Atomic Energy Act, 1962 so as to permit the entry of reputable private companies in the nuclear power sector.

The Atomic Energy Act, 1962 gives power to Central Government to produce, develop, use and dispose off atomic energy either by itself or through any authority or corporation established by it or a Government company in which not less than 51% of the paid up share capital is held by the Central Government. At present Indian private sector can participate in nuclear power generation projects as a minority partner. For the present participation of Indian private sector in nuclear power generation projects will continue to be as per the existing provisions of Atomic Energy Act, 1962.

Amendments to Atomic Energy Act has to be done in a careful manner after a detailed examination of all issues, including nuclear safety, physical security and international commitments.

This was stated by Shri Prithviraj Chavan, the Minister of State (I/C) for Science & Technology and Earth Sciences in the Lok Sabha today.

GG/BS

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=61488>

**Press Information Bureau
Government of India
Ministry of Science & Technology**

05-May-2010 18:18 IST

PLF of Nuclear Power Generation

The Plant Load Factor (PLF) of nuclear power plants in operation in the year 2009-10 was 61%.

There are 19 nuclear power reactors with a capacity of 4560 MW in operation in the country. Out of these, 5 reactors of 960 MW use imported uranium and are being operated at high PLFs. 14 nuclear power reactors are fuelled by domestic uranium which is not available in the required quantity. These reactors are being operated at lower power levels to match the fuel availability, resulting in lower average PLF.

The Government has taken a series of measures to augment the fuel supply from domestic sources and through imports for fueling reactors under safeguards, which have resulted in increase in average annual PLF

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from 50% in 2008-09 to 61% in 2009-10. The uranium prospecting, exploration, mining and commissioning of processing mills thereof is an ongoing endeavor and the resulting augmentation of domestic uranium supplies are expected to improve the PLF of nuclear power plants progressively.

This was stated by Shri Prithviraj Chavan, the Minister of State (I/C) for Science & Technology and Earth Sciences in the Lok Sabha today.

GG/BS

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=61492>

**Press Information Bureau
Government of India
Ministry of Agro & Rural Industries**

21-April-2010 18:15 IST

Nuclear Power Plants

Consequent to the in principle approval of sites in Andhra Pradesh, Gujarat, Haryana, Madhya Pradesh, Maharashtra, Tamil Nadu and West Bengal in October 2009. Governments of Rajasthan, Karnataka and Bihar have reiterated their requests for setting up new nuclear power plants in future. The sites under consideration are Mahi-Banswara (Rajasthan), Kaiga & Mannur (Karnataka) and Rajauli (Bihar).

The evaluation of sites by the Standing Site Selection Committee (SSSC) of the Government is an ongoing activity. The 'in principle' approval of the sites by the Government is the first step in the process of setting up nuclear power plants./ The details of the projects are finalized subsequently.

This was stated by Shri Prithviraj Chavan, the Minister of State (I/C) for Science & Technology and Earth Sciences in the Lok Sabha today.

GG/BS

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=60702>

**Press Information Bureau
Government of India
Ministry of Agro & Rural Industries**

21-April-2010 18:9 IST

Life of Nuclear Power Stations

Internationally, the economic life of nuclear power stations is 30-40 years. Based on systematic life assessment studies and life extension measures, the nuclear power plants can be safely operated for another 20-25 years. In India also our experience has been similar. Operation of all plants is subject to licensing by the Atomic Energy Regulatory Board (AERB) and review of operation from time to time.

During the last three years, there has been no incident of leakage or discharge of radioactivity beyond the limits specified by the AERB. Epidemiological surveys to assess the effects of radiation among the employees

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and their family members who reside near the nuclear power plants have been completed by the Tata Memorial Centre, a premier research institute in India.

The above surveys have indicated that the operations of nuclear power plants have no ill effects on health.

This was stated by Shri Prithviraj Chavan, the Minister of State (I/C) for Science & Technology and Earth Sciences in the Lok Sabha today.

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=60698>

**Press Information Bureau
Government of India
Department of Atomic Energy**

11-March-2010 17:22 IST

Use of Thorium for nuclear power production

RAJYA SABHA

Department of Atomic Energy (DAE) has set up a research reactor KAMINI at Kalpakkam using Uranium-233 fuel obtained from irradiated Thorium which is operating since 1996. DAE has developed the design for a 300 MWe Advanced Heavy Water Reactor (AHWR) to generate most of its power from Thorium based fuel, as a demonstrator for Thorium related technologies.

During XIth Five Year Plan, a range of activities pertaining to systems and technologies relevant for Thorium utilization has been taken up. The design and development of main nuclear systems of AHWR have been completed. Large scale engineering experiments for the simulation of important thermal hydraulic parameters of its natural circulation driven cooling system have led to a better understanding of various associated phenomena.

This was stated by Shri Prithviraj Chavan, the Union Minister of Science & Technology and Earth Sciences in the Rajya Sabha today.

URL: <http://www.pib.nic.in/newsite/erelease.aspx?relid=59469>

**Press Information Bureau
Government of India
Department of Atomic Energy**

04-March-2010 17:59 IST

Restriction on putting nuclear power reactors

RAJYA SABHA

Setting up of significant nuclear power capacity through power reactors of 1000 MW or higher capacity in cooperation with foreign countries, including the USA, requires abundant cooling water and sea route for transportation of heavy equipment. Coastal sites, therefore are better suited for such nuclear power parks with

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eventual capacity of 6000-8000MW. Two sites, one of Kovvada in Andhra Pradesh and another at Chhayamithi Virdi in Gujarat have been approved in principle for setting up reactors based on co-operation with the USA. Presently discussions on setting up of nuclear power plants are being held with US companies.

This was stated by Shri Prithviraj Chavan, the Minister of State (I/C) Science & Technology and Earth Sciences in the Rajya Sabha today.

GG/VK

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=58909>

**Press Information Bureau
Government of India
Ministry of Commerce & Industry**

28-January-2010 12:56 IST

Need to enhance usage of renewable and nuclear energy: Anand Sharma

Shri Anand Sharma, Union Minister of Commerce and Industry, has emphasized the need to enhance the usage of renewable and nuclear energy in the fuel mix. Speaking at the World Economic Forum at Davos last evening, in a session “Rethinking Energy Security”, he said that India had developed a National Action Plan on climate change, which laid a special thrust on solar technologies. He further stated that food security, climate change and energy security cannot be treated in isolation and are integrally linked. He also outlined India's civil nuclear energy initiative citing it as a major milestone for ensuring sustainable and clean development path for an emerging economy such as India.

During his address, Shri Sharma also highlighted that the world needs to work in a collaborative manner in developing and disseminating technologies which not only assure that the concerns of climate change are addressed but also respond to the aspiration of billions in the developing world. He mentioned that the energy security had a completely different connotation for the poor and deprived in the developing world that still are denied access to grid based electricity.

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=57370>

**Press Information Bureau
Government of India
Ministry of Petroleum & Natural Gas**

24-November-2009 17:28 IST

Joining of IOC with Nuclear Power Corporation

Rajya Sabha

The Minister of State for Petroleum & Natural Gas Shri Jitin Prasada informed the Rajya Sabha in a written reply today that IOC has signed an MoU on 4.11.2009 with Nuclear Power Corporation of India Limited (NPCIL) for its venture into Nuclear Power. He added that various opportunities available in the field of nuclear energy and the role to be played by both the parties with a view to define their participation will be firmed up.

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The Minister further informed the House that the Techno-commercial modalities, including source of nuclear fuel and installed capacity shall be firmed up in due course of time.

RCJ/Is

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=54507>

**Press Information Bureau
Government of India
Department of Atomic Energy**

10-December-2009 18:48 IST

Identification of Nuclear Power Sites

RAJYA SABHA

The sanction for projects of 2x700 Mwe each in the existing sites at Kakrapar in Gujarat and at Rawatbhata in Rajasthan has been accorded. Two additional units of 1000 Mwe each have been approved at the existing Kudankulam site in Tamil Nadu. A new site in Jaitapur in Maharashtra has been identified for setting up of nuclear power station. Sites have also been approved 'in principle' for setting up future nuclear power projects in Andhra Pradesh, Gujarat, Tamil Nadu and West Bengal.

While Nuclear Power Corporation of India Ltd. (NPCIL) has adequate resources, Joint Ventures of NPCIL with other PSUs are being considered for enhancement of resources, NPCIL has entered into a Joint Venture with a private industry for making large size steel forgings required for nuclear power plants.

This was stated by Shri Prithviraj Chavan, the Minister of State (I/C) Science & Technology and Earth Sciences in the Rajya Sabha today.

GG/BS/VK

URL: <http://www.pib.nic.in/newsite/erelease.aspx?relid=55633>

**Press Information Bureau
Government of India
Department of Atomic Energy**

26-November-2009 17:15 IST

Nuclear Power Stations in States

RAJYA SABHA

Nuclear power stations have been built are under construction in Gujarat, Karnataka, Maharashtra, Rajasthan, Tamil Nadu and Uttar Pradesh. Approval has been accorded for setting up additional reactors in Gujarat and Rajasthan, in October 2009. In addition, "in-principle" approval has been accorded for sites for future nuclear power reactors in Andhra Pradesh, Gujarat, Haryana, Madhya Pradesh, Maharashtra, Tamil Nadu and West Bengal.

Site at Bargi in Mandla district of Madhya Pradesh has been accorded in principle approval for setting up of 2x700 Mwe nuclear power station. The work on the project is planned to be taken up after completion of land

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acquisition and pre-project activities, estimated to take about two years.

This was stated by Shri Prithviraj Chavan, the Union Minister of Science & Technology and Earth Sciences in the Rajya Sabha today.

GG/BS/VK

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=54670>

**Press Information Bureau
Government of India
Department of Atomic Energy**

26-November-2009 17:14 IST

Nuclear Energy from Sea Sand

RAJYA SABHA

In Orissa, Atomic Minerals Directorate for Exploration and Research (AMD) had identified 1.82 million tonnes of Thorium bearing monazite resources. Thorium is a fertile element and can be converted to fissile element to produce Atomic Energy in the 3rd stage of Nuclear Power Programme of India.

This was stated by Shri Prithviraj Chavan, the Union Minister of Science & Technology and Earth Sciences in the Rajya Sabha today.

GG/BS/VK

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=54669>

**Press Information Bureau
Government of India
Prime Minister's Office**

29-September-2009 11:48 IST

PM's inaugural address at the international conference on peaceful uses of Nuclear Energy

The Prime Minister, Dr. Manmohan Singh has said that the return of India to the international nuclear global mainstream is of high significance not only for India but for global energy security as well. Dr. Singh inaugurated the international conference on peaceful uses of nuclear energy in New Delhi today.

Following is the text of the Prime Minister's opening remarks on the occasion:-

“It gives me great pleasure to be present at this inaugural ceremony of the International Conference on Peaceful Uses of Atomic Energy. I extend a very warm welcome to all the participants particularly our guests from abroad. I extend a special welcome to Dr. El Baradei, who has made outstanding contributions to

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furthering the cause of global peace and whom we admire as an old friend of our country.

This Conference commemorates the birth centenary of one of India's greatest nation builders and scientific pioneers, Dr. Homi Bhabha. Dr. Bhabha laid the foundation of our nuclear programme by enunciating the three stage nuclear power programme based on a closed nuclear fuel cycle. We are proud of our national achievements in mastering all aspects of the fuel cycle. The current international interest in closing the fuel cycle is a vindication of Dr. Bhabha's pioneering vision and genius.

Dr. Bhabha was a brilliant scientist and a true visionary. At the first International Conference on Nuclear Energy in Geneva in 1955, Dr. Bhabha in his presidential address had said:

'For the full industrialization of the under-developed countries, for the continuation of our civilization and its further development, atomic energy is not merely an aid, it is an absolute necessity. The acquisition by man of the knowledge of how to release and use atomic energy must be recognized as the third epoch of human history.'

This bold vision of what the peaceful uses of atomic energy meant for humanity at large proved to be prophetic. This Conference is taking place on the crest of a global nuclear renaissance, in which I believe India will be a significant factor.

As a result of the far-sighted plans of our scientists, India emerged as a leader in the developing world in harnessing the peaceful uses of nuclear energy. The first stage of our three stage nuclear programme, involving the setting up of Pressurised Heavy Water Reactors (PHWRs) and associated fuel cycle facilities, has now reached a level of maturity. The technology for the manufacture of various components and equipment for PHWRs in India is now well established and has evolved through active collaboration with Indian industry. The second stage envisages setting up of Fast Breeder Reactors (FBRs) backed by reprocessing plants and plutonium-based fuel fabrication plants. With the construction of the Prototype Fast Breeder Reactor at Kalpakkam we have now entered the second stage of the programme. A facility for reprocessing thorium fuel has also been set up. An Advanced Heavy Water Reactor has been designed and its construction will be launched in the near future. This will expedite the transition to thorium-based systems that will I believe mark the third stage of our programme. We are proud of the achievements of India's nuclear scientists and of our industry.

Dr. Bhabha had famously remarked that "no power is as expensive as no power" to justify his strong advocacy of nuclear power as an instrument of economic development. This is truer than ever before as the developing countries seek new energy sources to sustain high rates of economic growth. There is now a growing consensus that nuclear power is an important energy source that is also clean. In fact the majority of nuclear power plants under construction worldwide are now located in Asia.

A number of agreements and reciprocal commitments were concluded as part of the Civil Nuclear Initiative to allow the resumption of full civil nuclear cooperation between India and the international community and we look forward to their full and effective implementation in the coming months and years. The return of India to the international nuclear global mainstream is of high significance not only for India but for global energy security as well.

In our country, we see nuclear energy as a vital component of our global energy mix. The vast energy potential of the three stage programme allows us really to think big. Our nuclear industry is poised for a major expansion and there will be huge opportunities for the global nuclear industry to participate in the expansion of India's nuclear energy programme.

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If we can manage our programme well, our three stage strategy could yield potentially 470,000 MW of power by the year 2050. This will sharply reduce our dependence on fossil fuels and will be a major contribution to global efforts to combat climate change.

The peaceful uses of nuclear energy are not just about power. There are promising applications in the areas of agriculture, food production and preservation, medicine and water desalination. In India, we have successfully developed 37 mutant varieties of seeds for commercial cultivation using nuclear techniques. Use of radiation technology for food preservation is growing. We have built a nuclear desalination plant at Kalpakkam and are working on the use of isotope hydrology techniques for rejuvenation of springs, which is an important source of drinking water. I see a growing role for nuclear energy in these areas in the coming decades.

With this limitless potential, I believe that the international community should reflect more on how international cooperation can multiply the benefits of nuclear energy for all humankind.

The International Project on Innovative Nuclear Reactors and Fuel Cycles is an example of such international cooperation. India is a participant in the International Thermonuclear Experimental Reactor, or ITER Project. We are ready to contribute to global research and development into new proliferation-resistant fuel cycles. There are proposals for an international fuel bank and we would support efforts in this direction as a supplier nation.

Another critical area of cooperation is that of nuclear safety. The nuclear industry's safety record over the last few years has been encouraging. It has helped to restore public faith in nuclear power. But the technology and management of nuclear safety must be continuously improved.

This brings me to a vital issue that is fundamental to the safety and security of all humanity – the destructive uses of nuclear energy. Just as we seek to enhance peaceful uses of nuclear energy, we have a pressing and immediate moral obligation to draw down and eventually do away with its destructive use of nuclear energy.

I wish to reaffirm that this collective effort will have no greater proponent than India. India's first Prime Minister Jawaharlal Nehru had advocated the prohibition and abandonment of all weapons of mass destruction way back in the 1950s. It was a call that went largely unheeded at that time. We should not repeat the mistakes of the past.

In 1988, Prime Minister Rajiv Gandhi put forward at the General Assembly of United Nations a comprehensive Action Plan for the complete elimination of nuclear weapons. We remain committed to that objective.

In 2006, India put forward a set of proposals at the United Nations General Assembly that outlined specific steps that could lead to the elimination of nuclear weapons. It included the proposal for the negotiation of a Nuclear Weapons Convention that would prohibit the development, production, stockpiling and use of nuclear weapons and providing for their elimination within a specified time frame.

It is a matter of regret that the global non-proliferation regime has not succeeded in preventing nuclear proliferation. Its deficiencies in fact have had an adverse impact on our security. Global non-proliferation, to be successful, should be universal, comprehensive and non-discriminatory and linked to the goal of complete nuclear disarmament. We believe that there is growing international acceptance for this viewpoint.

In this context, we feel encouraged by some recent positive signs. President Barack Obama indicated in a

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significant speech at Prague in April this year the willingness of the United States to reduce the role of nuclear weapons in its national security strategy and work towards a vision of a world free of nuclear weapons. The United States and Russia are also negotiating further cuts in their nuclear arsenals. States with substantial nuclear arsenals should take meaningful steps on nuclear disarmament.

India is proud of its non-proliferation record and is committed to global efforts for preventing the proliferation of all weapons of mass destruction. We are committed to a voluntary, unilateral moratorium on nuclear testing. As a nuclear weapon state and a responsible member of the international community we will participate constructively in the negotiations of an FMCT in the Conference on Disarmament.

We have an updated, effective and comprehensive export controls system and we are committed to not transferring sensitive technologies and equipment to other countries that do not possess them. The IAEA has a crucial role in promoting the peaceful uses of nuclear energy, while reducing proliferation risks.

The specter of nuclear terrorism is a formidable challenge facing the entire global community. At the United Nations General Assembly India has been sponsoring a resolution calling for measures to address this threat.

We support strengthening international efforts in improving nuclear security and in this context, welcome President Obama's timely initiative to convene a Global Summit on Nuclear Security in 2010.

If we use the power of the atom wisely for the universal good, the possibilities are unbounded. But if we do not, the consequences would also be devastating for the peace and progress that all nations seek for their people. The choices are stark and the challenges are indeed daunting. But it is not beyond the imagination of the human mind to devise solutions and strategies that exploit the vast potential of atomic energy to advance human progress, while assuring global peace and security. This task will require the collective will, wisdom and determination of the world community but it is a task that can no longer be put off.

With these words, I once again welcome all. I wish your deliberations all success.”

* * * * * AD/HS/LV/VK/RK

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=52858>

**Press Information Bureau
Government of India
Vice President's Secretariat**

26-August-2009 17:8 IST

Vice President's address the Graduation Function of BARC Training School, Trombay

EXERCISE UTMOST CAUTION IN REGULATION OF NUCLEAR POWER SECTOR FOR ENSURING PUBLIC INTEREST AND SAFETY - VICE PRESIDENT

The Vice President of India Shri M. Hamid Ansari has said our experience in regulation of a hitherto closed sector thrown open to private corporate and foreign investment has been a mixed one. Addressing at

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the “**Graduation function of Bhabha Atomic Research Centre (BARC) Training School at Trombay (Maharashtra)**” today, he said that in various areas such as telecom, petroleum and gas, electricity and infrastructure development, public perception of regulatory oversight has been dented as a result of allegations of regulatory bias and conflict of interest in corporate conflicts. We must exercise utmost caution in the regulation of the nuclear power sector so that the public interest and safety is ensured.

The Vice President said that a time when the government and public sector have been losing human resources to the private sector and are unable to attract the best talent available, what is that sets apart the atomic energy and space establishments? Is it all a question of monetary incentive or do we respond better to intellectual challenges and a sense of mission and purpose while monetary compensation is maintained at an acceptable level? The experience of the Department of Atomic Energy seems to confirm the view that within large organizations there is an intricate synergy between personal fulfillment and individual accomplishment and research-education linkage. Internal human resource development and retention is greatly facilitated by this focus on linking day-to-day work with academia and research.

Following is the text of the Vice President’s address:

“I am glad to be here today at the Graduation Function of the BARC Training School. Yours is a unique training facility that straddles the world of research and academia. It is a successful model where the teaching staff constitutes working scientists and technologists and class room teaching is as much about theory as it is about real life experiences. It is due to the collective and cumulative effort of this School that we have emerged as one of the few countries to have mastered the fuel cycle and have successful nuclear power and strategic programmes.

The scientists and engineers trained in this school have been, over a period of five decades, critical in underpinning excellent research and development work of the Department of Atomic Energy, producing the feedstock for our nuclear power programme, the isotope production and application programme and various other projects that constitute the technological infrastructure of the nation’s nuclear effort.

It is relevant to recall that this praiseworthy facility is a product of the vision of our Founding Fathers and of their emphasis on the importance of fostering scientific temper as a key instrument of nation building. They assessed correctly the critical role that science and technology would play in nation building and pursuant to it, they established institutions like BARC. These attract talent; above all, they developed modalities of retaining them and offering them a career span.

Your success raises a question. At a time when the government and public sector have been losing human resources to the private sector and are unable to attract the best talent available, what is that sets apart the atomic energy and space establishments? Is it all a question of monetary incentive or do we respond better to intellectual challenges and a sense of mission and purpose while monetary compensation is maintained at an acceptable level?

The experience of the Department of Atomic Energy seems to confirm the view that within large organizations there is an intricate synergy between personal fulfillment and individual accomplishment and research-education linkage. Internal human resource development and retention is greatly facilitated by this focus on linking day to day work with academia and research.

Human resources occupy a critical role in the nuclear industry. The life cycle of the nuclear energy sector requires extended time horizon, technological complexity and need for excellence. It is said that on a ‘cradle to grave’ basis, nuclear activity would exceed 100 years if one were to include monitoring radioactive waste. Human resource development therefore must long precede the nuclear power programme and must continue after ‘sunset’ even if such a programme were to shutdown.

The nuclear human resource dilemmas of the developed countries are of a totally different dimension. They are

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facing problems in retaining skilled personnel for facilities that are at the end of the life cycle with no new capacity deployment in the near future. They also have to attract young talent in an ageing population if they wish to revive nuclear power as a green energy option in a world facing climate change scenarios. These problems are accentuated by the volatility in the global energy markets and reduction in government funding for nuclear research.

In October 2007 the OECD/Nuclear Energy Agency member countries came forth with a statement expressing their concern about the difficulties nuclear institutions in many OECD/NEA member countries are experiencing in recruiting qualified specialists. It noted that nuclear education and training have been suffering decline and if no action is taken, the nuclear sector risks facing a shortage of qualified manpower to ensure the appropriate regulation and operation of existing nuclear facilities as well as the construction of new ones.

The recommendations of the OECD/NEA Steering Committee for Nuclear Energy bear repetition here:

- Governments should assess regularly their requirements for, and availability of, qualified human resources to match identified needs.
- Governments, academia, industry and research organisations should collaborate nationally and internationally to enhance nuclear education and availability of nuclear expertise, including financial support to universities and scholarships to students.
- Governments, whether or not they choose to utilise nuclear power, should also encourage large, high-profile, international R&D programmes which attract students and young professionals to become the nuclear experts required for the future.

The policy of our government on human resources in the nuclear field has been on such a course and the BARC Training School deserves our appreciation for successfully fulfilling its mission of training nuclear scientists and technologists for over 50 years. Our satisfaction over this should be tempered with the knowledge that the policy and regulatory landscape is ever changing. We have seen this happen in other sectors such as power, infrastructure and telecom.

This audience is aware of the manner in which the international regulatory environment concerning nuclear commerce has changed since last year opening up new avenues for accelerated deployment of nuclear power in the years to come. This would also bring about a re-adjustment in the internal regulatory environment.

This is spelt out in the Economic Survey for 2008-09. “The Atomic Energy Act”, it states, “needs to be amended to permit private corporate investment in nuclear power, subject to regulation by the Atomic Energy Regulatory Board (AERB) and the Atomic Energy Commission (AEC).” It also calls for framing the rules for private and foreign entry and for allowing up to 49 percent FDI in the sector.

In the not so distant future, therefore, private utility providers would run nuclear power plants. Such plants would need human resources. While we can import nuclear fuel and technology, human resources would have to be developed and equipped within the country. There are not many academic or professional institutions to train scientists and technologists for the nuclear industry in India. It is here that I foresee one of the most significant challenges for the BARC Training School.

The experience garnered over five decades must be adapted to training and making available nuclear scientists and technologists to the private sector so that the BARC Training School emerges as a world renowned human resource development institution in nuclear science and technology. Successful Knowledge Management in the nuclear sector at a national level necessitates smooth and orderly transfer of knowledge from research institutions to the industry and from the government and public sector to the private sector and vice versa.

Nuclear and Arms Control Centre

Dr. Homi Bhaba, the founder of our atomic energy programme, believed that the sustainability and self-reliance of our nuclear programme is dependent on continuous availability of skilled manpower. The same holds true for the sustainability of accelerated development of nuclear power through private corporate investment.

Our experience in regulation of a hitherto closed sector thrown open to private corporate and foreign investment has been a mixed one. In various areas such as telecom, petroleum and gas, electricity and infrastructure development, public perception of regulatory oversight has been dented as a result of allegations of regulatory bias and conflict of interest in corporate conflicts. We must exercise utmost caution in the regulation of the nuclear power sector so that the public interest and safety is ensured.

To the young graduates who have gathered here today, I would like to say that you are joining a very distinguished family. As you move on with your careers, you would at some stage face questions whether you have made the right choice in life by choosing to study and work in India and have a career in the government. The events of the last one-year that have witnessed a global financial and economic meltdown have dimmed the lustre of the temptations of the earlier era. Many Indians are also returning back and the public sector is no longer the employer of last resort at campus placements.

I am confident that your training and work would see all of you emerge as multi-disciplinary specialists spanning multiple technologies and sciences and represent India on the world stage where new opportunities are emerging in nuclear research.

I thank Dr. Kakodkar for inviting me to the Graduation function of the BARC Training School today”.

SK/BS

URL: <http://www.pib.nic.in/newsite/erelease.aspx?relid=52145>

**Press Information Bureau
Government of India
Department of Atomic Energy**

30-July-2009 17:27 IST

Additional Nuclear Plants

Rajya Sabha

Government has accorded inprinciple approval for sites for locating nuclear power plants at Kakrapar (2 x 700 MWe) in Gujarat and Rawatbhata (2 x 700 MWe) in Rajasthan. Similarly inprinciple approval has been accorded for sites at Kudankulam and Jaitapur for setting up Light Water Reactors through imports. More nuclear power plants at additional sites are also planned. However, details are not yet finalized.

Out of the total installed nuclear power capacity of 4120 MWe, 320 MWe is based on Light Water Reactors and balance 3800 MWe is based on Heavy Water Reactors.

The tariffs of nuclear power are competitive with that of coal fired thermal power stations at locations away from coal mines. In addition nuclear power is clean and environment friendly, as it has no Green House Gas (GHG) emissions.

Nuclear and Arms Control Centre

The current installed capacity of 4120 MWe will reach 7280 MWe progressively by the year 2011 by completion of projects under construction. More reactors, both of indigenous designs and based on international co-operation are planned to increase the nuclear power capacity.

This information was given by the Minister of State for Science and Technology and Earth Sciences (Independent charges), PMO, Personnel, Public Grievances & Pensions and Parliamentary Affairs, Shri Prithviraj Chavan in a written reply to a question by Shri Syed Azeez Pasha in the Rajya Sabha today.

PRA/SKK

URL: <http://www.pib.nic.in/newsite/erelease.aspx?relid=51264>

**Press Information Bureau
Government of India
Department of Atomic Energy**

02-July-2009 18:30 IST

Nuclear Power Scenario

RAJYA SABHA

The present nuclear power capacity of 4120 MWe will reach 7280 MWe by the year 2011 on progressive completion of projects under construction. Large augmentation of nuclear power capacity is proposed by setting up a mix of indigenous reactors and reactors based on international cooperation.

There are 17 nuclear power reactors in operation in the country. In addition, 6 nuclear power reactors – Rajasthan Atomic Power Project (RAPP)- 5&6 (2 x 220 MWe) at Rawatbhata Rajasthan, Kaiga-4 (220 MWe) at Kaiga, Karnataka, Kudankulam Nuclear Power Project (KKNPP) Units 1&2 (2 x 1000 MWe) at Kudankulam in Tamilnadu, and Prototype Fast Breeder Reactor (PFBR) – 500 MWe at Kalpakkam in Tamilnadu are currently under construction. In Rajasthan, 4 units viz. Rajasthan Atomic Power Station (RAPS) – 1 to 4 totalling a capacity of 740 MWe are in operation and another 2 units RAPP-5&6 of 440 MWe capacity are in final stage of construction.

This information was given by the Minister of State for Science and Technology and Earth Sciences (Independent charges), PMO, Personnel, Public Grievances & Pensions and Parliamentary Affairs, Shri Prithviraj Chavan in a written reply to a question by Dr. Gyan Prakash Pilania in the Rajya Sabha today.

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=49603>

**Press Information Bureau
Government of India
Ministry of Power**

14-February-2009 17:40 IST

NTPC and NPCIL sign MoU to set up joint Venture to Produce Nuclear Power

India's largest power producer National Thermal Power Corporation, NTPC and the Nuclear Power Corporation of India Ltd, NPCIL today signed an MoU to set up a Joint Venture to carry out nuclear power production activity.

Nuclear and Arms Control Centre

The MoU was signed in Mumbai by Dr. S. K. Jain, Chairman and Managing Director of NPCIL and Shri R. S. Sharma, Chairman and Managing Director, NTPC in the presence of Shri. Jairam Ramesh, Minister of State for Commerce and Power and Dr. Anil Kakodkar, Chairman, Atomic Energy Commission and Secretary, Department of Atomic Energy, Government of India.

As per the proposal, NPCIL will hold the majority 51% equity in the venture while NTPC will hold the remaining 49% equity. The JV will set up a 2000 MW nuclear power plant at a location to be finalized later.

This would be the first joint venture in nuclear power generation in the country. NPCIL is currently the sole agency generating nuclear power in the country with a capacity of about 4,120 MW.

After successful conclusion of international agreements with US, France and Russia for cooperation and development of India 's civil nuclear program, the DAE and NPCIL carried out discussions over NTPC's proposal. It was decided to give a go ahead to the JV considering the successful track record of NTPC in implementing and operating large power projects.

Agreements with France and Russia too

Earlier this month, NPCIL, had signed another MoU with French Energy major Areva for supply of two European Pressurized Reactors of 1,650 Mw capacity each, for the nuclear power plant being set up by NPCIL at Jaiapur in Maharashtra . The company has also inked a pact to import 2,000 tons of uranium from Russia .

PRA/MD/KN

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=47520>

**Press Information Bureau
Government of India
Ministry of Power**

14-February-2009 17:39 IST

Nuclear Power Generation to Touch 6,000 MW by next year : Jairam Ramesh

The Minister of State for Commerce and Power, Shri Jairam Ramesh has said that the total nuclear power generation in the country is set to reach 6,000 Mw within the next one year. Addressing a press conference after the MoU signing ceremony between National Thermal Power Corporation, NTPC and Nuclear Power Corporation of India Ltd, NPCIL, in Mumbai today, Shri Ramesh said that the current nuclear power generation is only to the tune of 1,800 Mw, against an installed capacity of 4,120 Mw. Shortage of nuclear fuel has plagued the nuclear power sector.

The Minister said that signing of the Indo-US Civil nuclear deal has paved way for the growth of nuclear sector in India. Following the deal, NPCIL has signed an agreement with Russia for supply of 2000 tons of uranium for its nuclear power plants. It has also signed another MoU with French Energy major Areva for supply of two European Pressurized Reactors of 1,650 Mw capacity each, for the nuclear power plant being set up by NPCIL at Jaiapur in Maharashtra.

Nuclear and Arms Control Centre

Shri Jairam Ramesh stated that India plans to generate 20,000 MW of nuclear power by 2020 and the process of identifying the project is on. He, however, ruled out any possibility of private sector players setting up nuclear power plants in the first phase.

Commenting about the proposed JV between NTPC and NPCIL, Mr Jairam Ramesh said that a new full form has been coined for PPP – i.e. 'Public – Public Partnership', where two or more public sector companies join hands to promote joint ventures. He observed that NTPC is an efficiency driven energy management company while NPCIL is innovation led technology company, and both complement each other well.

Mr Jairam Ramesh said that Public Enterprises in India have been driving forces in technological innovations and applications, but they are now faced with a daunting challenge of attracting young talent and retaining them. Commitment to provide clean energy in the fast changing world, affected by global warming, remains yet another challenge the energy companies are facing today, he said.

PRA/MD/KN

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=47519>

**Press Information Bureau
Government of India
Ministry of Human Resource Development**

22-December-2008 16:7 IST

Courses on Nuclear Technology

Rajya Sabha

Universities/IITs have academic freedom to design and develop the courses as are recommended by their appropriate academic and administrative bodies. They do not require prior permission of the Government for introduction of new courses.

This information was given by Shri Arjun Singh, Minister of Human Resource Development in the Rajya Sabha today in a written reply to a question by Shri Sanjay Raut.

VLK/ska

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=45999>

**Press Information Bureau
Government of India
Cabinet Committee on Economic Affairs (CCEA)**

22-May-2008 15:24 IST

Land acquisition for sites for setting up future nuclear power projects

The Cabinet Committee on Economic Affairs today gave its approval for authorising the Board of Nuclear Power Corporation of India Ltd. to initiate the process of Land Acquisition for future Nuclear Power Projects, as a pre-project activity, in advance of project financial sanction, after a site for locating nuclear power plants. It has also been approved by CCPA and CCS.

Nuclear and Arms Control Centre

The authorisation would considerably shorten the duration of project implementation as a result of advance actions in acquisition of land through the state machinery which involves lengthy procedures.

RCJ/HS/LV

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=39069>

**Press Information Bureau
Government of India
Ministry of Heavy Industries & Public Enterprises**

04-April-2008 20:22 IST

BHEL and NPCIL sign MoU to float JV Company in Nuclear Power Generation

Bharat Heavy Electricals Limited (BHEL), the largest engineering and manufacturing enterprise in India in the energy sector and Nuclear Power Corporation of India Limited (NPCIL) have signed a Memorandum of Understanding (MoU) to form a Joint Venture Company for carrying out engineering, procurement and construction activities for Nuclear Power Plants (Conventional Island) here today. Shri Sontosh Mohan Dev, Minister for Heavy Industries and Public Enterprises, Shri Prithviraj Chavan, Minister of State, PMO, Dr. Anil Kakodkar, Chairman, Atomic Energy Commission, Dr. S.N. Dash, Secretary, Ministry of Heavy Industries and CMDs of both the companies were present on this occasion.

The two companies will work jointly to complement their respective core strengths in the areas of nuclear power generation to meet the growing energy needs of the country. The JVC will explore and evaluate the various technology options available for Steam Turbine Generator sets of 700 MWe rating and above and also help in development of BHEL as an indigenous source capable of designing and manufacturing Steam Turbine Generator sets of these ratings to meet the needs of various nuclear projects proposed to be set up in the country in future.

Shri Sontosh Mohan Dev, Minister for Heavy Industries and Public Enterprises, said in his speech, “with our economy growing at 8-9% per annum, growing urbanization and rising prosperity, the demand of electricity is outpacing existing sources of supply. Options available for commercial electricity generation are hydro, thermal & nuclear. In the energy planning of the country, a judicious mix of hydro, thermal & nuclear is an important aspect. Diversified energy resource base is essential to meet electricity requirements and to ensure long-term energy security. With the limited resources of coal and oil available in the country and with growing global concerns of green house gases generated by fossil fuel fired stations, nuclear power will be required to play a greater role in medium and long term perspective”.

The Minister further stated that the target for nuclear installed capacity in the country is to reach a level of 48,000 MW to 63,000 MW by the year 2030 from a present level of only 4120 MW. This massive nuclear development programme of the country shall provide good business opportunities to this JV Company and in view of renaissance of nuclear power all over the world, can become a hub for supply of equipment and services for nuclear power projects.

MG:RTS:CP:bhel(4.4.2008)

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=37122>

Nuclear and Arms Control Centre

**Press Information Bureau
Government of India
Cabinet**

07-February-2008 14:52 IST

Enhanced delegation of powers to Nuclear Power Corporation of India Limited

The Union Cabinet today gave its approval for enhancement of governing powers of the Board of Directors of Nuclear power Corporation of India Limited (NPCIL) to incur capital expenditure, investment towards establishing financial joint ventures and wholly owned subsidiaries in India or abroad, and for delegation of powers to Secretary, Deptt. of Atomic Energy (DAE) to approve the tours abroad of Chairman and Managing Director (CMD), NPCIL.

The enhanced delegation would facilitate NPCIL to incur capital expenditure upto Rs. 500 crore without government approval, within the overall ceiling of 15% of the net worth of the company in one project with overall ceiling on all projects put together restricted to 30% of the net work of the company with a view to reduce gestation period and also to invest its surplus funds in establishing financial joint ventures & subsidiaries.

AD/LV

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=35201>

**Press Information Bureau
Government of India
Ministry of Science & Technology**

21-November-2007 13:48 IST

Setting up of Nuclear Power Plants

LOK SABHA

"In- principle" approval has been accorded by the Government of India for the coastal sites at Kudankulam in Tamil Nadu and Jaitapur in Maharashtra, for setting up of 2 X 1000 MWe nuclear power reactors each. Further, the Site Selection Committee (SSC) constituted by the Government of India has evaluated the potential of coastal sites in Andhra Pradesh, Gujarat, Orissa and West Bengal for setting up of future nuclear power reactors. However, no decision has been taken.

The Government has been exploring international cooperation in the civilian nuclear energy sector with all potential partners.

This information was given by the Minister of State in the Prime Minister's Office, Shri Prithviraj Chavan in the Lok Sabha today.

URL: <http://www.pib.nic.in/newsite/erelease.aspx?relid=32873>

Nuclear and Arms Control Centre

**Press Information Bureau
Government of India
Ministry of Labour & Employment**

24-August-2007 11:44 IST

Services in Industrial Establishments manufacturing Nuclear Fuel, Heavy Water Etc. to continue as public utility

The services in Industrial Establishments manufacturing or producing Nuclear Fuel and components, Heavy Water and Allied Chemicals and Atomic Energy will continue as a public utility under the Industrial Dispute Act, 1947 for another six months with effect from 26th August 2007. In a notification issued here, the Labour Ministry said that this has been done in public interest. The Central Government had earlier declared the services in the above said industry as a public utility for six months from 26th February 2007.

The employees in this industry, as a result, would among other things be required to give notice to their employer six weeks in advance of proceeding on strike so that conciliatory proceedings could be started. During the conciliatory proceedings and seven days after their completion, the employees cannot go on strike.

MLD::L-111 (PU-nuclear fuel) 24.8.07

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=30418>

**Press Information Bureau
Government of India
Presidents Secretariat**

22-September-2006 16:27 IST

President's interaction with the scientists of Kudankulam Nuclear Power Project, Kudankulam, Tirunelveli

Following is the text of the President, Dr. A.P.J. Kalam's address and interaction with Scientists of Kudankulam Nuclear Power Project, Kudankulam, Tirunelveli, Tamil Nadu:

ENERGY INDEPENDENCE

"Small aim is a crime"

I am indeed delighted to be in Kudankulam Nuclear Power Project, a project of Nuclear Power Corporation of India. Department of Atomic Energy has influenced Indian society in multiple fields. I understand that presently the total nuclear power generation capacity is 3900 MW using 16 nuclear reactor. I am happy to know that the nuclear power reactors are working with an average annual availability factor of 89%. This was made possible by adopting innovative fuel optimization and outage management techniques in operating stations. This is a notable contribution of the Nuclear Power Corporation towards high quality operation and maintenance of power systems in the country. I extend my greetings to all the scientists, technologists and staff. I am sure, you will excel in operational performance in Kudankulam Power Plants. When I was thinking what thoughts I can share with you since you are in the business of energy, I would like to give you a profile what should be the energy mix for India between now to 2020 and 2030. Hence, I have selected the topic

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"energy independence".

Energy Independence

In the field of energy, many innovations are taking shape. The world energy forum has predicted that fossil based oil, coal and gas reserves will last for less than ten decades. The energy is an important parameter for development. Continuously increasing cost of oil sourced from fossil material prompted many groups in the world to seriously consider the possible energy options. Based on our study, I have discussed about Energy Independence as part of my Independence Day Address to the nation, on 15 August 2005. There, I mentioned that Energy Independence has to be our nation's highest priority. Our target is to achieve Energy Security by 2020 leading to Energy Independence by 2030 and beyond. Of course there have been many discussions nationally as well as internationally on this subject. I would like to suggest certain actions to be taken on the energy missions for contributing towards energy independence in India particularly it is relevant to atomic energy scientists and the team of Nuclear Power Corporation.

Structure of Energy Sources

Based on the progress visualized for the nation during the next two decades, the power generating capacity has to increase to 400,000 MW by 2030 from the existing 130,000 MW. This has been arrived at taking into account the use of efficient transmission and distribution system and minimization of other losses. Energy independence has got to be achieved through three different sources namely hydel capacity, nuclear power and non-conventional energy sources primarily through solar energy, apart from thermal power. The hydel capacity generated through normal water sources and inter-linking of rivers is expected to contribute an additional 50,000 MW. Large scale solar energy farms of hundreds of megawatts capacity in certain number could contribute around 55,000 MW. The nuclear power plants should have a target of 50,000 MW of power. The balance 115,000 MW has to be generated through the conventional thermal plants through coal, gas and other renewable sources of energy such as wind power, biomass, power through municipal waste and solar thermal power. The most significant aspect, however would be that the power generated through renewable energy technologies has to be increased to 25% against the present 5%. Let me discuss about the profile of renewable energy systems.

The energy mix for energy independence envisages use of four routes: (a) Hydel + Thermal till coal availability (b) Solar power using high efficiency CNT based SPV cells (c) Thorium based nuclear reactors (d) Bio-fuel for transportation sector.

As all of you can see the Department of Atomic Energy is required to provide 50,000 MWs of electric power before 2030 contributing to make India energy independent. Indigenously, we have built certain capacity for generating electricity through pressurized heavy water route. Let us look at some details which gives us the confidence to take up more challenging tasks and meet the national nuclear energy targets.

India's first 540 MWe Pressurized Heavy Water Reactor

India's first 540 MWe Pressurized Heavy Water Reactor (PHWR), built based on indigenous technology at Tarapur, Maharashtra became critical on 6th March 2005. It is the largest indigenously designed and built power reactor in the country. The commissioning of this nuclear reactor, has indeed established our technological and managerial leadership.

The project at Tarapur comprises of a twin-unit station of PHWR type, each of 540 MWe installed

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capacity and are being built adjacent to the existing two units of smaller size. The first concrete (Grade M-60) was poured on 8th March, 2000 and criticality has thus been achieved in less than 5 years.

The design of the reactor incorporates all the basic features of the existing PHWRs. The safety features in the existing 220 MWe units, such as fast acting diverse independent shutdown systems, high pressure emergency core cooling systems, double containment, supplementary control room along with the safety objectives like redundancy diversity, avoidance of common cause failure have been incorporated in these 540 MWe units. However, extensive theoretical and experimental development followed by manufacturing was necessary for implementing these features. Apart from this, there have been additional design innovations, which were driven with the objective of maintaining and improving the indigenisation of nuclear power plant components. Certain equipments have been redesigned so that their manufacturing is within the capability of Indian industry.

Overall plant execution was done by contracting out packages of activities rather than single activities. This approach simplifies coordination, and therefore increases speed of execution of various works. This technological and project management experience will be useful for our future high-tech programme.

Completing of this project in a record time of less than 5 years is a testimony to the level of maturity that has been achieved by the Indian industry and the NPCIL. When I visited project site of Tarapur plant in 2001, I was very happy to see the engineers and staff of NPCIL working round the clock with the pride that they are going to build the first Indigenous 540 MWe power station. They have done it and India is proud of them. Similarly, now you are in the process of commissioning the first 2 X 1000 MW nuclear power plant using pressurized heavy water at Kudankulam. I am sure, through your technological capability, dedication and hard work, the plant will become critical in time during 2007 and very soon provide electricity to the grid. As known to the members of NPCIL, India has only limited uranium resources whereas we have plenty of thorium material available in the country. Hence, the focus of our nuclear scientist in the coming years has to be in the development of thorium based nuclear power plants.

Efficient thorium based nuclear fuel

Going critical of fast breeder reactor which is in an advanced stage of construction, development of Advanced Heavy Water Reactor (AHWR) and Accelerator Driven System (ADS) technologies have to be pursued in an integrated way. There are many scientific and technological challenges.

Fast Breeder Reactors: Fast breeder reactors can make a significant contribution to India's energy requirements, but the rate of increase in fast breeder reactor installed capacity has to follow a certain growth path as plutonium-239, the fuel for the fast reactors gets generated in nuclear reactors. Thus, the rate of new fast reactor capacity addition has to be determined by the rate at which plutonium can be bred. The breeding depends on the fast reactor design and the chemical form of plutonium fuel. Metallic fuel gives much higher breeding ratio whereas plutonium in oxide form gives a lower breeding ratio. So our basic research has to be on the development of metallic fuel on priority. It is only after we have established enough fast reactor capacity, we can shift to thorium based systems and continue to get power from thorium reactors for a long time.

Thorium Technologies: Country has already set up a facility for reprocessing thorium and has designed an Advanced Heavy Water Reactor (AHWR), which aims to derive two-third of its power from thorium and one third from plutonium generated from Fast Breeder Reactor (FBR). Implementation of the AHWR project and development of associated fuel cycle facilities will provide industrial scale experience in the handling of thorium. An important basic research area would be to develop reactor systems based on thorium wherein

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power derived from thorium can be increased and external input of fissile material can be minimized. It will definitely lead to early utilization of thorium in power production.

Accelerator Driven Systems: The other possibility for thorium utilization is through Accelerator Driven Systems (ADS). ADS have two main components: an accelerator and a reactor. A reactor system using only thorium as fuel cannot become critical as thorium is not a fissile material. To make it critical, an external supply of neutrons is needed. A 'spallation' source can provide an external source of neutrons to achieve criticality in an otherwise sub-critical system. The development of an appropriate proton accelerator is the first step towards the development of ADS. The research results will lead to building an accelerator and subsequently the use of accelerator for detachment of neutrons from heavy elements. Accelerator technology has many other applications. For example, accelerators are useful in health care for treatment of cancer and in basic research as tools to study structure of atom. Accelerators are also useful in the industry for chemical processing, where irradiation by accelerators can be used to improve the mechanical and electrical properties of cable insulation. How we can meet these research and development challenges?

I would like to recall two experiences. India's nuclear programme has always been under technological denials for decades from many countries. Every one of the nuclear scientists and science leaders realized that the self-reliance is the most promising route. Nuclear scientists have always shown the country how nuclear technology can be used for increasing the agricultural produce, medical application and nuclear power generation. Let me also share one of my experiences when I was chief of Aeronautical Development Agency (ADA). It was 1998; India achieved a very important national milestone. This resulted in many nations imposing technology denials and economic sanctions. Particularly, the Light Combat Aircraft programme came to a halt because of collaborating countries breaking the agreements on the development contracts undertaken. I took an emergency meeting of the ADA Board and we formed a National Team for LCA control system with 20 members drawn from 7 organizations in the country with a two years project schedule. In 18 months, we realized a world class digital fly by wire control system for the LCA. Now, four LCA aircraft are flying and 5th one is getting ready for flight test. Cumulative flying hours logged by the 4 aircraft is over 500 hours. The batch production of LCA TEJAS is to commence. The message I would like to give to our nuclear scientists is:

"Nationally we have the best minds,
Enlist the national team,
The government and the people are with you,
Progress with your vast knowledge and experience,
you will succeed."

Conclusion

Since I am in the midst of young scientists of Kudankulam , I would like to administer an oath on Courage, if you all agree.

COURAGE

Courage to think different,
Courage to invent,
Courage to discover the impossible,
Courage to combat the problems,
And Succeed,
Are the unique qualities of the scientist.
As a scientist of Nuclear Power Plant,
I will work and work with courage to achieve
Success in scientific discoveries and
Scientific achievements

My best wishes to all the scientists and technologists of Kudankulam Nuclear Power Project for success in

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their mission of providing all the technological and scientific support for making India energy independent by 2030.

May God bless you.

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=20878>

**Press Information Bureau
Government of India
Ministry of Labour & Employment**

25-August-2006 17:35 IST

Services in industrial establishments manufacturing nuclear fuel, heavy water etc. to continue as public utility

The services in Industrial Establishments manufacturing or producing Nuclear Fuel and components, Heavy Water and Allied Chemicals and Atomic Energy will continue as a public utility under the Industrial Dispute Act, 1947 for another six months with effect from 26th August 2006. In a notification issued here, the Labour Ministry said that this has been done in public interest. The Central Government had earlier declared the services in the above said industry as a public utility for six months from 26th August 2005 and subsequently extended the period for another six months from 26th February 2006.

The employees in this industry, as a result, would among other things be required to give notice to their employer six weeks in advance of proceeding on strike so that conciliatory proceedings could be started. During the conciliatory proceedings and seven days after their completion, the employees cannot go on strike.

MLD:LK:L-73 (PU-nuclear fuel) 25.8.06

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=20311>

**Press Information Bureau
Government of India
Ministry of Science & Technology**

10-August-2006 16:13 IST

Nuclear power stations

Rajya Sabha

The Atomic Energy Act, 1962 presently allows setting up of nuclear power stations only by Government companies. Two Government Companies, Nuclear Power Corporation of India Ltd (NPCIL) and Bharatiya Nabhikiya Vidyut Nigam Limited (BHAVINI) are presently engaged in setting up and operating nuclear power reactors. With respect to the amendment of the Atomic Energy Act, 1962, no final decision has been taken.

This information was given by the Minister of State in the Prime Minister's Office Shri Prithviraj Chavan in a written reply to a question in the Rajya Sabha today.

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=19717>

Nuclear and Arms Control Centre

**Press Information Bureau
Government of India
Ministry of Labour & Employment**

23-February-2006 18:7 IST

Services in Industrial Establishments manufacturing Nuclear Fuel, Heavy Water etc. to continue as public utility

The services in Industrial Establishments manufacturing or producing Nuclear Fuel and components, Heavy Water and Allied Chemicals and Atomic Energy will continue as a public utility under the Industrial Dispute Act, 1947 for another six months with effect from 26th February 2006. In a notification issued here, the Labour Ministry said that this has been done in public interest. The Central Government had earlier declared the services in the above said industry as a public utility for six months from 26th August 2005.

The employees in this industry, as a result, would among other things be required to give notice to their employer six weeks in advance of proceeding on strike so that conciliatory proceedings could be started. During the conciliatory proceedings and seven days after their completion, the employees cannot go on strike.

MLD:LK:L-197 (PU-nuclear fuel) 23.2

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=30418>

**Press Information Bureau
Government of India
Prime Minister's Office**

15-November-2005 11:48 IST

PM's address at Indian Nuclear Society annual Conference

The following is the full text of the Prime Minister's address at Indian Nuclear Society annual conference at Mumbai today:

“It is always a pleasure to visit this magnificent campus of the Department of Atomic Energy in the great city of Mumbai. I am delighted to join the Indian Nuclear Society in recognizing excellence in scientific achievement. My good wishes are with you, in particular, today's award winners, for your achievements in the cause of science.

It is a particular pleasure to be here, not merely because the Bhabha Atomic Research Centre is one of India's premier institutions, but also because it enables me to pay tribute to the vision of titans such as Dr. Homi Jehangir Bhabha and Pt. Jawaharlal Nehru. This institution symbolizes, in bricks and mortar, their aspirations for our nation. For its part, BARC has lived up to our expectations as a Centre of world-class excellence. I also acknowledge our debt to BARC for training generations of scientists to direct vital national programmes. Given Dr Bhabha's abiding passion for physics, it is fitting that we meet today at the Bhabha Centre, in the International Year of Physics. And the fact that this also the centenary year of Einstein's now-legendary

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formula $E=mc^2$ makes this a most unique opportunity to be with you.

In the light of his other magnificent contributions to our nation, it is easy to overlook Dr Bhabha's achievements in his own subject. I am told his work in elementary particle physics is still cited among researchers. However, Dr Bhabha's name will forever be associated with his phenomenal contribution to institution-building in the formative years of our Republic. His ability to weave together diverse disciplines in the institutions he built, was, of course, legendary.

Besides his formidable managerial skills, Dr. Bhabha's vision of our national development strategy synchronized with that of Prime Minister Jawaharlal Nehru. In one of his last public addresses in 1966, Dr. Bhabha ascribed the failure to adopt and continuously assimilate modern technology as an important reason for ancient societies such as ours falling behind in the race for development. The affinity between Dr Bhabha and Pt. Nehru was based on a common vision that absorption of technology and investing in development of indigenous and appropriate scientific capabilities were a *sine qua non* for rapid economic development. Nehru underlined that it was "only by adopting the most vigorous measures, and by putting forward our utmost effort into the development of science that we can bridge the gap." He also affirmed that it was an inherent obligation of a great country like India to "participate fully in the march of science, which is probably mankind's greatest enterprise today".

Much of what I have said about Panditji and Dr. Bhabha is not new. However, it bears repetition to underline the level of difficulty, at that early dawn of freedom, to build a climate of opinion supportive of expending scarce resources on scientific and technological institutions. This was done without expecting immediate returns, realizing that benefits would accrue to the nation over generations. History has borne out the vision of Jawaharlal Nehru. If today we speak with pride of our technological capabilities, it is largely due to his vision of a new and modern India. Panditji's commitment to creating institutions of higher education and science inspired visionary scientists such as Dr. Bhabha and Dr. Sarabhai to share his dream of a vibrant, modern and secure India. It is their vision of selfless service, dedication to science and the indomitable spirit of self-reliance that your Centre has inherited.

In the five decades since the Science Policy Resolution of 1958, the Department of Atomic Energy has recorded signal successes. You have vindicated the faith reposed in you by our country and I applaud your accomplishments. But we cannot rest on our laurels in this competitive age. The nation has heightened expectations from you. We now look to you to help realize our developmental objectives. We need you to redouble your efforts to achieve the long-awaited quantum jump in power production. Our national objective involves a substantial increase in the contribution of the nuclear sector in our energy mix, based on the three-stage process through Fast Breeder Reactor technology, culminating in the use of our abundant Thorium resources. There are important technological milestones ahead but we have every confidence that our scientists will achieve each one. This is one area where science and technology hold the key to the nation's future energy security and economic well-being.

The need for success is all the more pressing as we strive to raise millions of our people from the clutches of poverty. Our goal of eliminating the-age old scourges of hunger, poverty, ignorance and chronic disease needs unprecedented effort by all institutions, and every element in society. Fifty years ago, our scientists created the first wave of development based on application of advanced research and modern technology. The nation now looks to you once again, to raise the tempo of development through creation and application of cutting-edge technologies. This requires a renewed focus on our mission and the passion to excel in all that we do. In this competitive world, we cannot slacken in our efforts to catch up with developed countries.

I fully realize that this goal will not be reached solely through your own isolated efforts. Government must

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augment research facilities to meet future challenges. I assure you of the Government's fullest support to encourage R&D. Our Government has been increasing investment in S&T. Ultimately, we aim to raise this investment to around 2% of GDP, double the current allocation. However, to do so, we need to ensure that our economy generates adequate resources. This is where our technology sector, and indeed each one of you, has a role to play. We must also devise innovative approaches to maximize benefits from each rupee that we spend.

Monitoring technological advances elsewhere, and widening the involvement of our young scientists in various projects, enables us to ensure that learning opportunities and access to new developments are not restricted to a minuscule segment of our population. Emerging technologies need to be tracked, assimilated and adapted to our own circumstances through concerted effort. Therefore, we need to greatly widen the absorptive base among our scientists to maximize dissemination of technology among our people. Dr Chidambaram has often spoken of 'Coherent Synergy'; a strategy of national scientific development taking place simultaneously along multiple vectors, promoting synergy, with all these vectors moving in the same direction to ensure coherence.

This brings me to the announcement I made during my last visit here. At that time, I announced that the Homi Bhabha National Institute had received recognition as a deemed University. It is my fervent hope that HBNI will seize this opportunity to become a major contributor to our pool of qualified scientific manpower. This is obviously one of the best investments our nation can make in the cause of development. This is all the more important given the obvious limits on our financial resources, to provide our institutions with the best facilities and faculty that they deserve.

With such constraints, it is important for us to pool our national resources and capabilities. We must strengthen interaction between laboratories, academic institutions and industrial establishments. Ensuring high quality, cost-effective communications infrastructure linking our scientific institutions and laboratories is an important objective. The development of an efficient "Grid Technology" linking our institutions—and our foreign partners—will revolutionize communications in the manner that STD telephony reconnected our country. I am therefore optimistic that in the near future our scientists, teachers and students will also be part of a networked community, interconnected with each other and the rest of world.

At the same time, better physical infrastructure is not the only answer to better cooperation between our institutions. Our systems and institutions must evolve a culture of flexibility, receptivity and adaptability to external ideas and personnel. I am happy to learn that DAE and UGC have already initiated steps to further expand upon the symbiotic relationship between the Department and our universities. Your recent initiative under the Inter University Consortium for DAE Facilities to expand Universities' access beyond the subject of physics to your research facilities is commendable.

Apart from expanding interaction across academic institutions domestically, we must also focus on international cooperation. Increasingly, large-scale scientific projects have made it imperative for nations to join hands, both to share costs and to benefit from the largest pool of expertise. Some of these projects are now the subject of public interest. These include the International Thermonuclear Experimental Reactor project, the Large Hadron Collider (being set up by CERN), the Generation IV International Forum to develop advanced nuclear reactors, and the Satellite Navigation programme, Galileo. India's effort to be an equal partner in these projects requires a nationally coordinated approach. I have personally flagged our interest in some of these projects with world leaders, and I am happy that we are eliciting a positive response. This is fitting recognition of the capabilities and achievements of our scientists.

Before I conclude, I would like to briefly touch upon another aspect of international cooperation in meeting

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the challenge of our future energy security. I refer to the issue of our agreement with the United States of America, during my visit to that country in July this year, to revive international cooperation for our civilian nuclear energy sector. We have an interest in the establishment of an enabling environment, conducive to international cooperation in the peaceful uses of nuclear energy. We must create the space for a quantum jump in nuclear energy production in the coming decades, in a manner that is consistent with our national policy of maintaining the integrity of our three-stage nuclear energy programme, without constraining strategic and R&D related aspects of our nuclear programme.

I thank you for giving me the pleasure of joining you. I congratulate the award winners once again. I wish each and every one of you success in your careers and satisfaction in your scientific endeavors. May your path be blessed!”

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=13298>

**Press Information Bureau
Government of India
Department of Atomic Energy**

29-September-2005 20:8 IST

Global nuclear renaissance is now a reality: Dr. Kakodkar

The Chairman, Atomic Energy Commission, Dr. Anil Kakodkar said that Global nuclear renaissance is now a reality. Addressing the International Atomic Energy Agency, 49th General Conference, Vienna yesterday, he said that the issues related to global climate change, sustainability of energy resources while meeting the ever increasing energy needs to support economic development and concerns regarding escalating trends in fuel prices, point to the inevitability of nuclear power.

Dr. Kakodkar said that a large fraction of future energy needs of India coming from nuclear power would be of immense benefit, in the context of environment and sustainability concerns, for India as well as for the rest of the world. Nuclear energy is thus an important and inevitable option for India.

Quoting from the address by Prime Minister during the Golden Jubilee Function of the Department of Atomic Energy (DAE) and the launch of construction of the Prototype Fast Breeder Reactor (PFBR) at Kalpakkam on 23rd October, 2004, he said: “India is a responsible nuclear power. We are fully conscious of the immense responsibilities that come with the possession of advanced technologies, both civilian and strategic.”

Dr. Kakodkar called upon other advanced nuclear powers, and all those who have a stake in the future of nuclear energy, to come together for a constructive dialogue to evolve more effective measures that would stem the tide of proliferation without unduly constraining the peaceful uses of nuclear energy. The Chairman Atomic Energy Commission said that constraining those who are responsible, amounts, in effect, to rewarding those who are irresponsible. The international community must face up to the implications of this choice. We in India are willing to shoulder our share of international obligations provided our legitimate interests are met. India has actively embraced globalisation. There is no reason why nuclear energy production should be an exception.”

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Referring to the statements of USA and France on this podium and the positive and cooperative approach of several key countries in this regard, he said that we look forward to a cooperative approach of several key countries in this regard.

The Chairman, Dr. Anil Kakodkar said that India is keen to see a rapid increase in nuclear power generation capacity in India well above the planned programme of achieving 20,000 MW by the year 2020.

IAEA is the world's center of cooperation in the nuclear field and was set up as the world's "Atoms for Peace" organization within the United Nations family. The Agency has well established mechanisms to realise the full potential of atoms for sustainable development. The challenge before us is to channelise this enormous potential to world peace and prosperity while preventing its destructive use by irresponsible state and non-state actors, he said.

<http://pib.nic.in/newsite/erelease.aspx?relid=12349>

**Press Information Bureau
Government of India
Cabinet Committee Decisions**

22-September-2005 20:31 IST

Sites for future Nuclear Power Stations

The Union Cabinet today gave its in principle clearance of sites for setting up Nuclear Power Stations in future and pre-project activities at the following sites, including land acquisition in the case of Jaitapur site in Maharashtra :-

1. Kakrapar, Gujarat
((2x700 MWe PHWRs) *
2. Kudankulam, Tamil Nadu
(2 x 1000 MWe LWRs) **
3. Jaitapur, Maharashtra
(2 x 1000 MWe LWRs)
4. Rawatbhata, Rajashtan
(2 x 700 MWe PHWRs)

With the setting up of the aforesaid Nuclear power Plants, the total nuclear power capacity in the northern, western and southern regions would go up considerably.

At present, fourteen nuclear power reactors are in operation and nine reactors are under construction at seven sites across the country. These sites are : Tarapur in Maharashtra, Rawatbhata in

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Rajasthan, Kalpakkam in Tamil Nadu, Narora in Uttar pradesh, Kakrapar in Gujarat, Kaiga in Karnatka and Kudankulam in Tamil Nadu.

* PHWRs = Pressurised Heavy Water Reactors

** LWRs = Light Water Reactors

YSR/HK/LV

URL: <http://www.pib.nic.in/newsite/erelease.aspx?relid=12172>

**Press Information Bureau
Government of India
Ministry of Science & Technology**

13-September-2005 18:6 IST

India's largest Nuclear Power Plant declared commercial

Unit-4 of Tarapur Atomic Power Plant (TAPP-4) went into commercial operation on September 12, 2005. This unit had achieved criticality on March 6, 2005 and has been connected to the grid on June 4, 2005. TAPP-4, at 540 MWe, is India's largest nuclear reactor. It incorporates the most advanced concepts and state of the art technology and equipment. It has been designed and constructed by the Nuclear Power Corporation of India Ltd. (NPCIL) a public sector undertaking under the Department of Atomic Energy (DAE). With the addition of TAPP-4, NPCIL now operates 15 reactors in the country having an aggregate capacity of 3310 MWe. It is also constructing another 7 reactors aggregating 3420 MWe.

NPCIL plants have been among top performing plants internationally and their safety record has been excellent.

Unit-1 of Kakrapar Atomic Power Station (KAPS-1) has been operating continuously since 16th September 2004, and has already achieved 362 days of continuous operation. This is an Indian record.

Unit-1 of Tarapur Atomic Power Station (TAPS-1) has been in operation for the last 270 days beating its earlier record.

The overall performance of the plants has been excellent. All NPCIL plants combined have been achieving availability factor of above 84% since 1999-2000. The availability factor in 2004-05 was 88%. This is well above the national average and compares well internationally.

Nuclear and Industrial safety has been the number one priority of NPCIL. This is evident from the fact that in 238 reactor years of accumulated operation there has been no radiological accident. The Industrial Safety record has been equally good. Recently the Ministry of Labour and Employment, Government of India has announced the National Safety Awards for 2004. The first prize has been awarded to Narora Atomic Power Station (NAPS) and Kakrapar Atomic Power Station (KAPS) has been declared the runner-up.

The projects under construction have been making good progress, and are well ahead of schedule.

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TAPP-3 is in an advanced stage of commissioning and is expected to go critical in early 2006.

For Kaiga-3&4 and Rajasthan-5&6, civil work is nearing completion and major equipment and system installation work is in progress.

NPCIL has built world-class expertise in life management of nuclear power plants. Unit-1 of Madras Atomic Power Station (MAPS-1) is undergoing major refurbishment. Coolant channel and Steam Generator replacement work has been successfully completed. Feeder replacement work, which has been taken up for the first time in India, is in progress.

NPCIL has just completed two important studies covering Level 1 Probabilistic Safety Assessment (PSA) for Tarapur-3&4 and Level 2 PSA for Kakrapar-1&2. These studies which have been carried out for the first time in India, have reconfirmed the safety of Indian nuclear plants.

NPCIL was founded in 1987 and will be completing 18 years on 16th September 2005. It has in the period acquired expertise in all areas of work relating to nuclear power namely siting, design, construction, operation, maintenance and life extension.

URL: <http://www.pib.nic.in/newsite/erelease.aspx?relid=11963>

**Press Information Bureau
Government of India
Ministry of External Affairs**

11-August-2005 17:50 IST

The Minister of State for External Affairs, Shri Rao Inderjit Singh informed the Rajya Sabha today that India has formulated a comprehensive indigenous three-stage nuclear power

The Minister of State for External Affairs, Shri Rao Inderjit Singh informed the Rajya Sabha today that India has formulated a comprehensive indigenous three-stage nuclear power programme to expand its nuclear power generating capacity to 20,000 MW by the year 2020. International cooperation can supplement our indigenous efforts. However, at present the Nuclear Suppliers' Group (NSG) guidelines prevent trade in nuclear technology and materials with India. According to these guidelines such items can be supplied to a non-nuclear-weapon State only when that State has brought into force an agreement with the IAEA requiring the application of safeguards on all its current and future peaceful activities.

The Minister further said that the Joint Statement issued during the recent visit of Prime Minister to the US, states inter-alia "the United States will work with friends and allies to adjust international regimes to enable full civil nuclear energy cooperation and trade with India, including but not limited to expeditious consideration of fuel supplies for safeguarded nuclear reactors at Tarapur. In the meantime, the United States will encourage its partners to also consider this request expeditiously".

The Minister was replying to a question by Sh. B.K. Hariprasad.

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=11171>

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**Press Information Bureau
Government of India
Ministry of Statistics & Programme Implementation**

28-January-2005 14:34 IST

Five Nuclear Power Stations improve PLF in Nov- 2004

The six operating Nuclear Power Stations achieved a Plant Load Factor of 78.3 per cent during November 2004, against the All India target of 67 per cent. Excepting the Madras Atomic Power Station, the other five-recorded higher Plant Load Factors, with the Rajasthan Atomic Power Station registering an increase of over 22 per cent. However, the Khagrpar Atomic Power Station achieved the highest PLF of 86.1 per cent during the month under report. This is stated in a Report just released by the Ministry of Statistics and Programme Implementation, reviewing the performance of the Infrastructure Sector during APL-NOV 2004

The Nuclear Power Generation during the 8 month period totalled 10833 million units, against the target of 10018 million, registering an increase of over 8 per cent. The annual target for 2004-05 is set at 15440 million units. During November 2004 alone, the Nuclear Power Generation exceeded the target by nearly 17 per cent. The Rajasthan Atomic Power Station alone crossed the target by nearly 40 per cent during the month.

The over all power generation including thermal, nuclear and hydro during the period April-November 2004 amounted to 387.666 billion units, just slightly more than the target. But in November, the over all power generation dipped by 0.6 per cent than the target. Thermal Generation during the month was lower compared to Nuclear and Hydro.

URL:<http://pib.nic.in/newsite/erelease.aspx?relid=6779>

**Press Information Bureau
Government of India
Ministry of Human Resource Development**

12-January-2005 15:49 IST

Year End Review: Department of Atomic Energy

DAE completes 50 years of its formation

Construction of the first 500 MW Nuclear plan based on fast breeder technology begins

YEAR END REVIEW

On August 3, 2004, DAE completed 50 years of its formation. This period has seen the trend setting efforts of the Department in developing various technologies relating to nuclear and other frontline areas, and applying them for development and prosperity of the country.

DAE has developed comprehensive capabilities in the entire gamut of fuel cycle operations. India is now among the select group of countries which have the ability to recover plutonium from irradiated nuclear fuel

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and use it to produce power in thermal as well as in fast reactors. It is uniquely placed to utilize technologies required for launching the third stage of our nuclear power programme based on the utilization of thorium.

The Department has entered commercial domain of the second stage of its three Stage Nuclear Power Programme that aims to generate power from fast breeder reactors. This historic event took place at Kalpakkam on October 23. The event was marked by the start of construction of the first 500 MWe nuclear plant based on the fast breeder technology. Crossing this milestone, India has entered a new and more advanced stage of nuclear energy production, a technology mastered only by a very small group of countries.

All the DAE's commercial industrial activities performed profitably with fullest possible capacity utilisation. Collectively they paid a dividend of around Rs.550 crore out of which Rs.520 crore came from Nuclear Power Corporation alone. Kakrapar Unit-II was recognised as one of world's best power reactor by CANDU Owners' Group.

Unit-2 of Madras Atomic Power Station (MAPS-2), restarted in July 2003 after completion of en masse coolant channel replacement and system upgradation, was restored to its rated value 220 MWe.

Construction of the new nuclear power reactors progressed ahead of schedules.

Mixed carbide fuel of the Fast Breeder Test Reactor (FBTR) continued to perform well. Successful completion of reprocessing of this fuel marked yet another important milestone.

The Heavy Water Board exported 6 MT of heavy water to South Korea and 30 MT of heavy water to China.

Exploratory and evaluation drilling resulted in augmentation of additional resources of uranium at Wahkyn in Meghalaya; Rohil-Ghateshwar in Rajasthan; Gogi in Karnataka and Koppunuru in Andhra Pradesh.

In addition to uranium ore production at Jaduguda, Narwapahar, Bhatin and Turamdih mines (all in Jharkhand), the Uranium Corporation of India Ltd., took up the work to develop mines at Banduhurang (Jharkhand), Bagjata (Jharkhand), Lambapur (Andhra Pradesh) and Domiasiat (Meghalaya).

Programme on Accelerator Driven Systems picked up as a coordinated national programme. This development is important as a means of supporting growth with thorium systems as well as for minimisation of long lived wastes through transmutation.

Remarkable progress was achieved in applications of Radioisotopes and Radiation Technology in nuclear agriculture, food preservation and industry.

The first totally private radiation processing plant named "VIKIRAN" was inaugurated in Kolkata on August 21, 2004. A number of private entrepreneurs have signed MOU with BRIT for setting up similar facilities and they are at different stages of progress.

A number of Blood Irradiator Units were sold to cancer hospitals in the country. Some radioactive cobalt-60 pencils have been exported to Canada.

A state-of-the-art telecobalt system for use in hospitals has been developed through collaborative efforts of BARC, Tata Memorial Hospital, and an industry.

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Research, high quality service, training, societal outreach and international collaborations in cancer related activities under the aegis of DAE expanded. The telemedicine linkages with Regional Cancer Centres and several remote areas will soon take cancer related services closer to the doorstep of a patient in remote and rural areas.

Three industrial Nd:YAG lasers made at the Centre for Advanced Technology (CAT), Indore, Madhya Pradesh were supplied to other DAE units. A 90 watt diode pumped solid state laser was also developed at this centre for material processing applications.

The construction of the 2.5 GeV synchrotron radiation source Indus-2 made significant progress.

At the Variable Energy Cyclotron Centre (VECC), the electron cyclotron resonance (ECR) facility widened the range of heavy ions available for experiments. The work on setting up a Superconducting Cyclotron at VECC made good progress with the closing of the cryostat. Developments in Radioactive Ion Beam Facility also progressed well.

SST-1, one of the world's first Superconducting Steady State Tokamaks, with elongated diverter plasmas with 1000 second operation capability, is getting ready at the Institute for Plasma Research, Ahmedabad.

During the year, discovery of a new pulsar was made using the Giant Metre Radio Telescope (GMRT).

As an Observer at CERN DAE's participation in terms of supply of equipment and systems for large hadron collider (LHC) as well as its detectors CMS and ALICE, continued to grow. Indian scientists were actively involved in STAR experiments at the Brookhaven National Laboratory, USA.

India continued taking active part in policy management and programmes of the International Atomic Energy Agency (IAEA).

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URL: <http://pib.nic.in/newsite/erelease.aspx?relid=6475>

Nuclear and Arms Control Centre

Press Information Bureau
Government of India
Ministry of Power

08-September-2004 18:48 IST

India's Nuclear Power Option necessary to ensure energy availability, says Sayeed

Power Minister, Shri P.M. Sayeed has said that India has kept all energy options, including nuclear power, open to ensure availability of electricity.

In his keynote address at the ongoing World Energy Congress in Sydney, Shri Sayeed said India has kept the nuclear power option open because more than half of the country's rural population does not have access to electrical power, and in the case of those who do, reliability and quality are matters of worry.

He said the country has an ambitious programme to increase nuclear power generation from the current 2800 MW to 10,000 MW by 2012 and about 20,000 MW by 2020.

Speaking on "The Path to Sustainability : Accessibility, Availability, Acceptability" Shri Sayeed said that India has been making major changes in the power sector, and this includes the passing of the Energy Conservation Act 2001 and Electricity Act 2003. He pointed out that all hurdles on investment had been cleared and India is now a level playing field for any investor in the power sector. Emphasising on sustainability, the Power Minister said developing nations ought to focus on alternative forms of capacity creation. Pointing out the global imbalance in energy consumption, he said a little more than one billion people consume 60 per cent of the total energy while the remaining five billion people in developing nations consume only 40 per cent. Shri Sayeed said the needs of the present have to be attended to but not at the cost of the future.

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=3750>

NUCLEAR ENERGY- SAFETY

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**Press Information Bureau
Government of India
Department of Space**

09-August-2012 17:35 IST

No Re-Looking into Nuclear Power Policy Because of International Developments

India is not re-looking into the policy related to nuclear power based on international development.

Post Fukushima incident, there were announcements in Germany, Japan, Switzerland and Taiwan regarding gradual phase out of nuclear power. As per available information, these countries have not shut down all their nuclear power reactors. Japan has recently started two nuclear power reactors, Ohi-3&4. Germany continues to operate nine of their seventeen nuclear power reactors. It has shutdown remaining eight nuclear power reactors which have completed their economic life. Switzerland continues to operate all the five nuclear power reactors. Similarly, Taiwan continues to operate its six nuclear power reactors.

The above information was given by the Minister of State in the Ministry Personnel, PG & Pensions and in the Prime Minister's Office (Shri V. Narayanasamy) in a written reply in the Rajya Sabha today.

MC/sk

URL: <http://pib.nic.in/newsite/PrintRelease.aspx?relid=85900>

**Press Information Bureau
Government of India
Ministry of Science & Technology**

28-February-2012 19:58 IST

Clean Energy Options and Nuclear Safety

Following is the text of Speech of the Minister of State for Science & Technology, Shri Ashwani Kumar on the occasion of National Science Day:

“Allow me at the outset to congratulate the organizers of this conference on the occasion of the National Science Day for selecting the topic of “Clean Energy Options and Nuclear Safety”, which is of contemporary relevance considering India's development objectives and its international obligations for achieving the Millennium Development Goals (MDGs) set by the United Nations (UN). The Fukushima tragedy calls our urgent attention to safety issues connected, in particular with civil nuclear energy.

It is well established that there is a direct relationship between energy consumption and human development index. In India, our per capita consumption of electricity is almost one-fourth of the world average. Thus to achieve our long cherished goal of becoming a Developed nation we need to move forward for strengthening the energy infrastructure at a much higher pace while simultaneously addressing environmental issues.

The growing appetite for energy in recent times has been constrained by a rapidly diminishing conventional sources such as Oil and Coal. Globally, nearly 70% of electricity is generated from fossil fuels and so it is in India, too. As a result, electricity accounts for about 40% of global energy-related Green House Gas

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emissions. And these emissions are expected to grow to 58% by 2030. According to GHG Emission 2007 Report of Ministry of Environment & Forests, India ranks 5th in aggregate GHG emissions in the world, behind USA, China, EU and Russia. However, the emissions of USA and China are almost 4 times that of India. Scientists believe that a temperature rise above 2-2.5 degrees due to the increasing GHG emissions risks serious consequences. The Inter-governmental Panel on Climate Change (IPCC) has predicted that with rising temperatures, the frequency of heat waves, droughts, and heavy rainfall events will only increase. This, in turn, will adversely affect agriculture, forests, water resources, industry and also human health and settlements.

Presently, of the total installed electricity generation capacity of just over 1.9 lakh Mega Watts in India, about 56% is met by Coal, 10% by Gas & Oil, 21% Hydro, 11% by Renewable Sources and less than 3% by Nuclear energy. In order to emerge as a global super power and strive for a sustained growth of above 9 percent through 2031, we may need to attain growth of primary energy supply by 3 to 4 times and electricity supply by 5 to 7 times of present consumption. However, energy security concerns will also be significant as over 90% liquid fossil fuel and up to 45% of coal requirements would need to be imported.

One of the major challenges is to provide a large proportion of our country's population with access to energy sources which are clean, convenient & affordable. Renewable sources including Solar, Wind, Biomass, etc. and Nuclear Energy which are clean & green energy options, have vast potential in meeting national demand and addressing the growing concerns about depleting oil reserves and harmful effects of Green House Gas emissions. The challenge before us is to make the renewable energy and nuclear energy technologies sustainable, convenient, efficient, safe and affordable. Though these sources may not completely replace fossil fuel even in the 21st century, we are determined to achieve self-sufficiency to the extent possible.

We are blessed with a significant renewable energy resource base. Estimates indicate that a potential of over 200 Giga Watts (GW) electric power capacity exists from Wind Energy. Solar Energy, has the potential to generate around 50 Mega Watts per square km. of area. Small hydro and Biomass could further augment the capacity by 40 GW.

India today stands among the top 5 countries of the world in terms of renewable energy capacity. We have an installed base of over 23 GW, which is over 11% of total power generation capacity and contributes over 6 per cent to the electricity mix. National Action Plan on Climate Change mandates increasing share of renewable power in the electricity mix to 15% by the year 2020. While the impact of renewable energy from the perspectives of energy security & environmental sustainability is well appreciated, what is often overlooked is its capacity to usher in energy access for the most disadvantaged people. However, most renewable energy sources including wind and solar power are variable and may not always be available for dispatch when needed.

The integrated energy policy of the country recognizes that nuclear energy is capable of providing long-term energy security and is based upon judicious utilization of the nuclear resource profile of the country. We now have 20 nuclear power reactors in the country with an installed capacity of 4780 MW of electricity.

As the major source of electricity generation in the country at present is Coal, the role of nuclear power is to supplement the base load generation from coal fired power plants at locations away from coalmines and, in the long term, to utilize the abundant Thorium resources to generate electricity of over 650,000 Tonnes which is more than one-fourth of the total deposit of Thorium in the world. Comparatively we have barely 1% of the world Uranium deposits which is currently being put to effective use. It is also estimated that Thorium can generate (through uranium-233 producible from it) 8 times the amount of energy per unit mass compared to (natural) Uranium.

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The Fukushima accident has shaken given rise to safety concerns in respect of nuclear power plants when exposed to an external event of a very high magnitude. We are now facing a new challenge to restore this confidence even though there has been no casualty due to radiation exposure though the loss of life in Japan exceeded 20,000 due to earthquake and tsunami. Following the Fukushima tragedy, which falls in seismic zone 4 and 5, Government of India has mooted a comprehensive review of the safety standards of all our nuclear power installations which are as such located in Zone 2 except the one at Narora which is in zone 3. The results of the safety reviews that were mandated by the Government have been made public and several recommendations have already been implemented. A roadmap has been prepared for implementing rest of the recommendations. It has also been decided to invite missions of International Atomic Energy Agency (IAEA) namely Operational Safety Review Team (OSART) and Integrated Regulatory Review Service (IRRS) for peer review of safety of our nuclear power plants and of the regulatory system respectively. A Bill to confer statutory status to the regulatory authority has also been introduced in the Parliament.

In India, a systematic approach using well-defined principles is followed in the design of nuclear power plants. While making provisions for the required safety features, Nuclear Power Plants are constructed in accordance with the highest quality standards. Commissioning of the systems is carried out to test and demonstrate adequacy of each system and the plant as a whole by actual performance tests to meet the design intent before commencing the operation of the plant. Operation of the plant is carried out as per defined and approved procedures in the technical specifications that are thoroughly reviewed and approved by Atomic Energy Regulatory Board. The regulatory framework in India is indeed robust. All these measures are for ensuring safe operation of the plants, safety of occupational workers, members of public and protection of environment. With sound design, trained and experienced operating staff and safety conscious approach to operation, the possibility of any accident is remote. However, to meet any unlikely situation of an accident, well thought-out formal emergency preparedness plans are in place.

All nuclear power plant sites in our country are self-sufficient in the management of radioactive waste. Adequate facilities have been provided for handling, treatment, storage and disposal of nuclear wastes generated at these sites. Management of radioactive wastes is carried out in conformity with regulatory guidelines based on internationally accepted principles.

Undoubtedly, for transition to a highly efficient economy, utilizing renewable & nuclear energy is essential. Shifting to a sustainable energy system based on such options will require replacing a complex, entrenched energy system with innovative policy instruments. Various kinds of fiscal incentives, capital subsidies, generation based incentives, preferential tariffs, etc. are some of the measures. India has already put a cess of Rs.50 per tonne of coal consumption and from the proceeds has created a National Clean Energy Fund to support clean energy development.

Research and development in nuclear & renewable energy is another major area of action. Larger scale applications of new energy systems would depend on how rapidly the costs decline and efficiencies increase. It, in a way, leads to creation of national energy innovation system that involves prominent research and academic institutions as well as industry. “

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=80587>

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**Press Information Bureau
Government of India
Ministry of Home Affairs**

25-January-2012 20:05 IST

Development of Infrastructure for Rehabilitation of Families in and Around Kaiga Nuclear Plant.

“NDMA has asked the State Governments of all the six States with nuclear installations to prepare a plan for development of the 16 KMs EPZ around the Nuclear Plants”, said Shri Reddy, Vice Chairman, National Disaster Management Authority. NDMA in collaboration with all the State Governments or Atomic Energy fraternity had carried out Mock Exercises last year to look at the off-site Nuclear emergency plans as part of its initiatives of enhanced preparedness in the country in the wake of the Fukushima experience at the end. After the Mock Exercises, NDMA advised the State Governments to prepare a development plan covering all the villages and habitations falling under the Emergency Planning Zone. On the basis of this, Government of Karnataka has prepared a proposal for upgrading the infrastructure around the Kaiga Atomic Power Plant.

2. A delegation led by Shri Sitaram Yechury, MP and Member of CPI Politibureau met Shri Reddy and presented a representation with a demand for rehabilitation of the people of 5 villages falling within 5 KM radius around Kaiga Nuclear Plant. Shri Reddy explained that people living in the 1.6 KM sterile zone have been rehabilitated and in the exclusion zone covering 5 KM radius, there are restrictions on development but people are generally not rehabilitated.

3. Shri Reddy explained that various steps are being taken for enhanced preparedness on the directions of the Hon’ble Prime Minister.

4. The delegation was also assured that while there would be no compromise as far as safety of the Nuclear facilities issue is concerned, NDMA is committed to ensure better preparedness. Shri Reddy said “we shall look at sourcing funds from various ongoing programmes and schemes of Government of India and State Government before looking at means for meeting the gap in funding if any”. This could also be taken up with the Planning Commission in future.

5. Shri Reddy felt that people in that area certainly deserve better infrastructure facilities besides health care, education and livelihood opportunities. He also felt that such villages should get better power supply and people should ultimately have better life.

6. Shri Sitaram Yechury, MP appreciated the efforts of NDMA and hoped that it will result in better facilities being created. He also felt that if proper development is made the people will not ask for rehabilitation.

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=79895>

**Press Information Bureau
Government of India
Department of Atomic Energy**

15-December-2011 18:22 IST

Government’s Assessment of Kudankulam Nuclear Plant

Some senior retired bureaucrats and other government officials have raised issues related to nuclear power safety, independence of regulatory body, review of statutes like civil liability for nuclear damage act and asked for a hold on setting up new nuclear power projects and not specifically about Kudankulam.

Nuclear and Arms Control Centre

A rapid Environmental Impact Assessment (EIA) of the Kudankulam Nuclear Power Project (KKNPP-1&2) was carried out in 2001 and a more detailed EIA in 2003. Later, a comprehensive EIA of the site for six units was carried out as a part of KKNPP-3 to 6 environmental clearance processes.

The Minister of State in the Prime Minister's office Sh V Narayanasamy gave this information in a written reply to a question by Shri Piyush Goyal in Rajya Sabha today.

KP

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=78782>

**Press Information Bureau
Government of India
Ministry of Defence**

12-December-2011 14:20 IST

Preparedness to Face Nuclear Effects

Quick Reaction Medical Teams to respond to Nuclear Biological & Chemical (NBC) incidents are co-located with Quick Reaction Teams at strategic locations as per policy. Capability also exists at the Corps level for medical teams to respond to NBC attacks. Besides, all medical personnel in the lower formations are imparted NBC training to augment capability for appropriately responding to NBC strikes. Establishment of Causality Decontamination Centres in the identified hospitals are also included in authorized works of hospitals projects.

This information was given by Defence Minister Shri AK Antony in a written reply to DR. Mahendrasinh P. Chauhan in Lok Sabha today.

PK/NN

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=78426>

**Press Information Bureau
Government of India
Other Cabinet Committees**

02-December-2011 19:3 IST

Cabinet Committee on Security reviews Safety of Nuclear Power Plants

Enhanced safety measures being undertaken wherever required

The Cabinet Committee on Security reviewed the safety of nuclear power plants in India in its meeting held on December 1, 2011. In particular, the CCS was briefed on the steps that had been taken since the nuclear incident at Fukushima in Japan in March 2011 and on the steps that were proposed to be taken.

The CCS noted that the following actions have been undertaken:

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(i) Technical review has been undertaken of all safety systems of India's nuclear power plants, with a particular focus on their ability to withstand the impact of large natural disasters such as tsunamis and earthquakes. Recommendations to enhance safety, wherever required, are being implemented.

(ii) Mechanisms for responding to nuclear and radiological emergencies are being strengthened in coordination with the National Disaster Management Authority, including the setting up of additional Emergency Response Centres. The NDMA has also drawn up various action plans for emergency preparedness.

(iii) Action taken on previous safety reviews have been put in the public domain.

(iv) The Nuclear Safety Regulatory Authority Bill, 2011, which aims to create an independent and autonomous nuclear regulatory body, has been introduced in Parliament.

(v) The Government has decided to invite an Operational Safety Review Team of the International Atomic Energy Agency to assist in its own safety reviews and audit.

The CCS also reviewed the action taken by Government following the radiation incident in Mayapuri in Delhi in April 2010, including awareness raising, registry of all radioactive sources, radiation checks on incoming metal scrap, installation of radiation detection equipment at the borders, enhanced inspections, and strengthening regulatory capabilities.

The CCS reiterated that the safety of nuclear power plants is a matter of highest priority.

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=78125>

**Press Information Bureau
Government of India
Department of Atomic Energy**

30-November-2011 17:34 IST

Safety of Nuclear Power Plants

A Report titled "Safety Evaluation of Indian Nuclear Power Plant post Fukushima Accident" containing the safety review of Indian Nuclear Power Plants has been prepared by the task forces constituted by the Nuclear Power Corporation of India Limited. The Report has been made public and is on website of NPCIL and DAE.

A road map for implementation of the recommendations has been drawn up and the implementation process has commenced.

The Minister of State in the Prime Minister's office Sh V Narayanasamy gave this information in a written reply to a question by Shri Dushyan Singh in Lok Sabha today.

KP

URL: <http://pib.nic.in/newsite/PrintRelease.aspx?relid=77944>

Nuclear and Arms Control Centre

**Press Information Bureau
Government of India
Department of Atomic Energy**

30-November-2011 17:21 IST

Automatic Shutdown of Nuclear Power Plants

All the Indian Nuclear Power Plants have in-built design provisions for automatic shut down system. The system is failsafe which ensure shutdown of the Nuclear Power Reactors within two seconds. The task forces/committees set up in Nuclear Power Corporation of India Limited (NPCIL) and Atomic Energy Regulatory Board (AERB) reviewed the safety of all Nuclear Power Plants (NPPs) in operation and construction in the country in the context of the Fukushima incident.

The Minister of State in the Prime Minister's office Sh V Narayanasamy gave this information in a written reply to a question by Shri Bhudeo Choudhary in Lok Sabha today.

KP

URL: <http://www.pib.nic.in/newsite/erelease.aspx?relid=77938>

**Press Information Bureau
Government of India
Department of Atomic Energy**

24-November-2011 19:34 IST

Expert Committee on Kudankulam Nuclear Plants

The Government has set up an expert committee for the Kudankulam nuclear power plant project. It is an expert group of 15 specialists for interacting with officials of the state government of Tamilnadu and spokespersons of the people in the neighbourhood of Kudankulam project. The expert group comprises renowned academicians, scientists, doctors and engineers specialized in areas of environmental science , radiation safety , nuclear reactor design , safety and regulatory aspects of nuclear reactors, nuclear waste management, oncology, oceanography, fisheries , thermal ecology, seismology etc . The expert group will explain the factual position on various safety aspects of the project to dispel apprehensions of sections of the local people.

The committee has already had two meetings with the spokespersons of local people and State Government officials of 8th & 18th November, 2011 at Tirunelveli, Tamil Nadu.

The Minister of State in the Prime Minister's office Sh V Narayanasamy gave this information in a written reply to a question by Shri Moinul Hassan in Lok Sabha today.

URL: <http://www.pib.nic.in/newsite/erelease.aspx?relid=77551>

Nuclear and Arms Control Centre

**Press Information Bureau
Government of India
Department of Atomic Energy**

24-November-2011 19:33 IST

Damage to Kudankulam Nuclear Power Project

There is serious concern about the damage to the Kudankulam Nuclear Power Project. Recently there have been protests against the starting of Kudankulam nuclear power project by sections of the local people which have hampered normal work at the site. Kudankulam Nuclear Power Plants (KKNPP) Units 1&2 are at advanced stage of commissioning. Several reactor and auxiliary systems have been made functional. These systems, which also include sophisticated computer based systems, require certain minimum maintenance to keep them in a healthy state. Efforts are underway, in consultation with the district authorities, to ensure that personnel required for carrying out the minimum maintenance activities are able to go to plant and carry out the necessary activities smoothly.

The Minister of State in the Prime Minister's office Sh V Narayanasamy gave this information in a written reply to a question by Shri Baishnab Parida in Lok Sabha today.

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=77550>

**Press Information Bureau
Government of India
Department of Atomic Energy**

24-November-2011 19:14 IST

Strike Right Balance Between Risk and Benefit Situation for Nuclear Power: Dr Srinivasan

Dr M.R.Srinivasan, Ex Chairman, Atomic Energy Commission (AEC) and Member, Planning Commission said, "We do not strike right balance between Risk and Benefit situation. Civil society and media should join in creating awareness about Green technology such as nuclear power and help to remove fears from general masses." Speaking at the Green Power Conference here today, Dr Srinivasan said, "Until few years ago, the Intergovernmental Panel did not include the nuclear energy in green power, but now it is considered green power. By this time unexpected negative effect from society raised doubts about it. We have crisis in our nuclear programme. Two reactors of 1000 MW were to start at Kudankulam Nuclear Power Plant in Tamilnadu, but local opposition has delayed the commissioning of these reactors."

Dr Srinivasan referred to local concern which triggered after Fukushima accident in Japan, and said, "One should remember that not a single death in Japan during this accident happened because of nuclear radiation. Persons who suffered due to radiation is not alarming and negligible. Giving brief details of Daiichi and Daiini reactors accident, he informed that the massive earth quake of 9 recorded on Richter scale followed immediately by Tsunami were main reasons.

Describing the most effective safety system at Kudankulam Nuclear Power Plant, Dr M.R.Srinivasan told

Nuclear and Arms Control Centre

that we have put number of safety measures. He said, “ This is a 3rd Generation + model where Design Safety is incorporating defence-in-depth concept. It has five barrier systems in the way of ionising radiation preventing release of radioactivity in the environment. Fuel Matrix stage prevents fission product release under fuel cladding. The Fuel cladding prevents fission product release into primary (main circulation circuit) coolant. Main Circulation circuit prevents fission product release into containment. Inner & Outer Containment System prevents fission product release in the environment. These Five tiers of engineered features and administrative measures have been provided to protect these barriers.

Giving insight of the safety features at the Kudankulam Nuclear Power Plant, Dr Srinivasan further explained that four independent safety Trains, even though one alone is sufficient for the 100% safety of the reactor, have been installed. Explaining Active system safety at each stage he talked about six stages. They are Emergency reactor shutdown, Emergency boron injection, Containment spray, High pressure safety injection, Primary system emergency and planed cool down and fuel pool cooling and Primary circuit shut down cooling .

Referring to containment system he said Double Containment Buildings have been constructed. He talked about Primary Containment designed for LOCA peak pressure of 0.4 MPa ,Passive Hydrogen re-combiners for combustible gas control inside the primary containment , Containment spray system for pressure control and Secondary Containment designed for external effects, such as missile attack, aircraft crash & shock waves.

KKNPP has a different character which Russian Designers have not done before. Its Steam generators are connected to a large number of air coolers, as seen in motor car radiator, they are located at considerable height at the outer building and the water flow without having external power. The Passive Hydrogen Recombiners, 154 in number, passively recombines the hydrogen thus maintains the volumetric hydrogen concentration in the mixture below the safe limits thereby avoid the formation of the explosive mixtures inside the containment.

Reassuring about safety features, Dr Srinivasan said, Passive 1st & 2nd Stage Hydro Accumulators are real coolant controllers. The 1st Stage Hydro-accumulators ensures borated water supply to the reactor core in the event of loss of coolant where as the 2nd Stage Hydro-accumulators ensures long term flooding of reactor core with borated water at lower pressures.

“Some of the containers were breached because of molten at Fukushima, but in our system another safety feature is provided in new design, is Core Catcher. It Confines molten core within the containment boundaries in the hypothetical event of melting of the reactor core,” he added. The Passive Annulus Space, Depressurizing & filtering System is intended for controlled removal of steam-gas mix from the annulus in case of loss of all the power. System maintains vacuum and cleaning fluid in annular space. Inter-space kept at negative pressure to reduce releases significantly, he further explained.

Nuclear and Arms Control Centre

Safety against external events is also considered with the highest priorities. Provisions have been made for withstanding external effects involving earthquake, tsunami/storm, tidal waves, cyclones, shock waves, and fire and aircraft impact on main buildings.

Refuting the fear of tsunami and such mishaps, he said this is baseless. Kudankulam site is located far off (about 1500 km) from the tsunamigenic fault (where tsunamis originate). Thus, if there is a tsunami, it would take time and lose its energy by the time it strikes Kudankulam site. Also, till it travels to this shore, we will get at least 4 hours to prepare ourselves. Whereas against this, the tsunamigenic fault was only about 130 km away at Fukushima. We have provided enormous amount of safety features in giving different levels and the transmission lines are at the highest point. We have safety measures beyond extreme situations also. Variation in tidal waves also has been taken into account.

Giving details of seismicity of Indian Nuclear power Plants, he said they are in II to IV seismic zones and there is no active fault within 5 km of their area. We have maximum earthquakes in North-east part of the country. Kudankulam is in zone II earthquake intensity.

Giving examples of US, Canada, and other countries, he said they continue with their nuclear power programme. Regarding closure of Nuclear Power Plants in Germany, Dr Srinivasan explained that they are buying energy from their neighbouring countries which has origin in nuclear power. Our strategy is to go to a system where utilization of Thorium can be made. We are in process of building Fast Reactors which will work within next 5 years.

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=77548>

**Press Information Bureau
Government of India
Department of Atomic Energy**

23-November-2011 18:43 IST

Stress Test of Existing Units of Nuclear Power Plants

The Government has carried out safety reviews (Stress Tests) of the reactors in operation and of those under construction in the country including the Kudankulam reactors. At Jaitapur, the review is currently underway by the French regulatory Authority, which will be followed by a further review to be undertaken by Atomic Energy Regulatory Board (AERB) in India. The reactors to be set up at Haripur will be similar to the Kudankulam reactors. The safety reviews have indicated that Indian nuclear power reactors in operation and under construction have adequate margins and provisions in design to withstand extreme natural events.

The Minister of State in the Prime Minister's office Sh V Narayanasamy gave this information in a written reply to a question by Shri Manish Tewari in Lok Sabha today.

URL: <http://pib.nic.in/newsite/PrintRelease.aspx?relid=77458>

Nuclear and Arms Control Centre

**Press Information Bureau
Government of India
Department of Atomic Energy**

23-November-2011 18:42 IST

Protests Over Nuclear Power Plants

Some sections of local people and organizations are protesting against start up of nearly completed nuclear power plants at Kudankulam and setting up of new Nuclear Power Plants at Jaitapur. The protests are largely due to apprehensions about safety to nuclear power plants, effect to livelihood of the people living around and issues related to land acquisition.

For the Jaitapur Nuclear Power Plant (JNPP), environmental and coastal Regulatory Zone clearances have been obtained. Detailed Environmental Impact Assessment (EIA) studies have been carried out in the case of both the plants, Kudankulam and Jaitapur.

The Minister of State in the Prime Minister's office Sh V Narayanasamy gave this information in a written reply to a question by Dr Nilesh N Rane, Dr M Thambidurai, Shrimati Botcha Jhanshi Lakshmi and S/S D B Chandere Gowda, A K S Vijayan, Manicka Tagore, A Venkata Rami Reddy, A Ganeshamurthi, Anto Anthopny, P Kumar, P Lingam, Partap Singh Bajwa, Gurudas Dasgupta, Asauddin Owaisi, S R Jeyadurai, Datta Meghe, Sugumar K, and R Thamaraiselvan in Lok Sabha today.

URL: <http://pib.nic.in/newsite/PrintRelease.aspx?relid=77457>

**Press Information Bureau
Government of India
Department of Atomic Energy**

23-November-2011 17:25 IST

Study of Nuclear Installations Capacity

The Central Government has directed Nuclear Power Corporation India Limited (NPCIL) to conduct a safety review of all nuclear power stations in operation and of those under construction in the context of the Fukushima incident, including their ability to withstand extreme external events like earth quakes and tsunamis. Accordingly, NPCIL, constituted six task forces, four for the reactors of different technologies in operation and for two reactors of different technologies under construction.

The Minister of State in the Prime Minister's office Sh V Narayanasamy gave this information in a written reply to a question by S/S Sadashivrao Dadoba Mandlik, Anand Prakash Paranjape, Eknath M Gaikwad, Bhudeo Chaudhary, Pratap singh Bajwa, Sanjay Bhoi and Shrimati Meena Singh in Lok Sabha today.

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=77441>

Nuclear and Arms Control Centre

**Press Information Bureau
Government of India
Department of Atomic Energy**

20-October-2011 14:15 IST

Department of Atomic Energy Constitutes an Expert Group for Kudankulam Nuclear Power Project

The Department of Atomic Energy has constituted an **Expert Group** of 15 specialists with an objective of interacting with the officials of state government of Tamil Nadu and spokespersons of the people in the neighbourhood of Kudankulam Nuclear Power Project (KKNPP) in Tamil Nadu. This Expert Group will explain the factual position on various aspects of the project and will also dispel apprehensions of some sections of the local people. The Expert Group comprises of renowned academicians, scientists, doctors and engineers specializing in areas like environmental science, radiation safety, nuclear reactor design, nuclear reactor safety, nuclear regulatory aspects, nuclear waste management, oncology, oceanography, fisheries, thermal ecology, seismology etc.

The government of Tamil Nadu will be requested to provide an appropriate platform where the Expert Group can meet the senior state government officials, spokespersons of the neighbourhood identified by the government of Tamil Nadu and can deliberate on issues raised in the recent times such as seismicity, tsunami, radiation in the environment, impact on fishing, thermal ecology, waste management, etc.

S No.	Name and affiliation	Area of Specialization
1.	Dr. A. E. Muthunayagam Vice-Chancellor, Nurul Islam University, Nagarcoil, Tamil Nadu	Mechanical Engg Environmental Science/ Oceanography
2.	Dr. M. R. Iyer Retd. Director, Division of Radiation Safety, IAEA, Vienna	Radiation Safety
3.	Prof. M. N. Madhyastha Retd. Professor, Mangalore University	Thermal ecology
4.	Prof. N. Sukumaran Director, School of Life Sciences VELS University, Chennai	Fisheries
5.	Dr. A. K. Pal Professor, Central Institute of Fisheries Education, Versova, Mumbai	Fisheries
6.	Dr. V. Shantha Chairperson, Adyar Cancer Institute	Oncologist
7.	Dr. C. S. Pramesh, Assoc. Professor & Surgeon Tata Memorial Hospital, Parel, Mumbai	Oncologist/Surgeon
8.	Prof. Harsh K. Gupta Panikkar Professor, NGRI, Hyderabad	Seismology
9.	Prof. Kannan Iyer IIT, Bombay	Mechanical Engineering Safety Research
10.	Prof. D. V. R. Murthy, IIT, Madras	Mechanical Engineering Safety Research

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11.	Shri S. K. Mehta Retd. Director, Reactor Group, BARC	Nuclear Reactor Design
12.	Shri S. K. Sharma Former Chairman, AERB	Nuclear Regulatory aspects
13.	Shri K. Balu Retd. Director, Nuclear Waste Management Group, BARC	Nuclear Waste Management
14.	Dr. S. M. Lee Raja Ramanna Fellow, Safety Research Institute, Kalpakkam	Reactor Safety
15.	Shri W. Stephen Aruldoss Kanthiah Retd. Director (Operations), Heavy Water Board	Chemical Plant Safety

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=76770>

**Press Information Bureau
Government of India
Prime Minister's Office**

07-October-2011 15:55 IST

PM Manmohan Singh assures an all-party delegation from Tamil Nadu that all nuclear safety concerns would be attended to

In response to a request by the Chief Minister of Tamil Nadu Dr. J. Jayalalitha, the Prime Minister today received an all party delegation led by Shri O. Pannerselvam, Finance Minister of Tamil Nadu which presented a Memorandum to Dr. Manmohan Singh on the Kudankulam Nuclear Power Project. The delegation also included public representatives from Kudankulam.

The Prime Minister conveyed to the delegation that:

- (i) The Central Government attaches the highest importance to ensuring that the use of nuclear energy in the country meets the highest safety standards;
- (ii) The Government fully shares the concerns of the people of the area and will take all steps to allay their fears;
- (iii) The Government will not compromise on safety in the pursuit of our nuclear energy programme, be it in terms of technology, regulation, skilled manpower or emergency preparedness;
- (iv) Nothing will be done that would threaten the safety or livelihood of any section of society, particularly those living in the vicinity of a project.

It was agreed that since the issues raised were technical in nature and required in-depth discussion, the Central Government would constitute a small group of experts to interact with the representatives of the people of the region to satisfy all their legitimate concerns. This exercise would suitably involve the State Government of Tamil Nadu. It was clarified on behalf of the Central Government that the nuclear plant in question is still to be operationalized, and no nuclear processes have begun.

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=76488>

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**Press Information Bureau
Government of India
Prime Minister's Office**

21-September-2011 16:17 IST

Narayanasamy Assures that All Safety Norms will be Observed in Kudankulam Nuclear Power Plant

The Union Minister of State for PMO and Personal, Public Grievances & Pensions Shri V. Narayanasamy today appealed to the protestors of the Kudankulam Nuclear Power Plant to call off their fast. In his meeting with the protestors yesterday, the Minister assured them that the Government of India would take all measures to ensure the safety and security of the people living near the plant. He also explained to them the need for nuclear power in Tamil Nadu which is starved of electricity.

This morning, Shri Narayanasamy met the Chief Minister of Tamil Nadu and also assured her on behalf of the Government of India that there would be no compromise on the safety aspects of the project. The Minister also spoke with the Hon'ble Prime Minister this morning and apprised him of the situation.

URL: <http://www.pib.nic.in/newsite/erelease.aspx?relid=76131>

**Press Information Bureau
Government of India
Ministry of Environment and Forests**

29-August-2011 16:59 IST

Clearance to Nuclear Plants

Ministry of Environment and Forests has granted environmental clearance to various nuclear power projects which inter-alia include the Nuclear Power Park (6X1650 MWe) at village Madban, Taluka Rajapur, District Ratnagiri, Maharashtra by M/s. Nuclear Power Corporation of India Ltd (NPCIL) on 26.11.2010 under the provisions of Environment Impact Assessment (EIA) Notification, 2006. The appraisal was made by the Expert Appraisal Committee (EAC) on the basis of the EIA report covering the impacts on different components of environment including marine biodiversity and fisheries.

The environmental clearance to the said project was granted based on the environmental considerations and by providing the requisite environmental safeguards.

This information was given by the Minister of State for Environment and Forests (independent charge) Shrimati Jayanthi Natarajan in a written reply to a question by Shrimati Supriya Sule, Dr. Nilesh N. Rane, Shri Wakchaure Bhausahab Rajaram and Shri S.S. Ramasubbu in Lok Sabha today.

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=75241>

Nuclear and Arms Control Centre

**Press Information Bureau
Government of India
Department of Atomic Energy**

10-August-2011 17:45 IST

Safety of Nuclear Power Plants

The Union Government has examined the international response to the Fukushima Nuclear Disaster and the steps taken by various countries in the context of the accident.

Countries across the globe, with nuclear power reactors, have reviewed the safety of their reactors in context of the Fukushima through mechanisms like ‘stress tests’ etc. They have also come out with the recommendations to further enhance the safety in the nuclear power reactors. India has also undertaken the safety evaluation through the task forces constituted for each of the technology in operation and reactors under construction. These reviews have found that Indian nuclear power reactors have sufficient margins in design features to withstand the extreme natural events. These task forces have also made certain recommendations to enhance the safety further which are being implemented after due process of approvals. Barring Germany and Switzerland, no other country with nuclear power programmes have made any announcements on phasing out nuclear power plants.

Nuclear power reactor designs are robust and have inherent margins in the designs of the reactors appreciably beyond their design life.

Shri V. Narayanasamy, Minister of State for Personnel, Public Grievances & Pensions and in the Prime Minister’s Office gave this information in a written reply to a question by Shri M.B. Rajesh in Lok Sabha today.

KP

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=74303>

**Press Information Bureau
Government of India
Ministry of Home Affairs**

03-August-2011 17:03 IST

NDMA Recommendation to States on Nuclear Calamity

National Disaster Management Authority has inter-alia recommended in its guidelines on “Management of Nuclear and Radiological Emergencies” that specialised response teams will be raised, specially trained for a nuclear/radiological emergency/disaster and fully equipped at the State level.

The States of Maharashtra, Tamil Nadu and UP have agreed in principle to implement the measures advised by NDMA, whereas consultation between NDMA and other concerned State Governments are underway.

This was stated by Shri Mullappally Ramachandran, Minister of State in the Ministry of Home Affairs in written reply to a question in the Rajya Sabha today.

RS/GK

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=73784>

Nuclear and Arms Control Centre

Press Information Bureau
Government of India
Ministry of Environment and Forests

23-July-2011 16:51 IST

Deliberations on Environment Jurisprudence, Climate Change and Nuclear Power Plants

President Appeal to Work Collectively to Protect Environment and Humanity

International seminar on 'Global environment and Disaster Management: Law and Society' started deliberations on biodiversity and natural resource management. The seminar which began yesterday discussed the science and economics of biodiversity, access and benefit sharing: rights of plant breeders and traditional communities, protection of biodiversity and ensuring rights of indigenous people: legal framework, bio-safety and genetically modified organisms and natural resource management and the green economy.

The Seminar raises critical issues for reflection on environmental concerns and disaster management providing a platform for academicians, policy makers, the judiciary, lawyers, civil society, law makers, students and other stakeholders to deliberate on topical issues like climate change, natural resource management, disaster management, legal responses to natural and man-made hazards, human rights, the role of the judiciary in strengthening law and policy on environment and disaster management. The focus of the seminar is to collectively seek solutions that are not only environment friendly but support all inclusive growth that sustains not just the environment but human life and livelihoods.

Smt. Pratibha Devisingh Patil, the President of India, at the inaugural session yesterday observed that this would be an opportunity for discussions on the linkages between the disciplines of law, disaster management and the sciences, as well as to identify legal and technical issues of contemporary significance with relation to the environment. She said, "Managing the environment as well as mitigating and adapting to the many impacts of climate change, will be one of our most important challenges and knowledge must prepare us for taking suitable actions. Experience the world over has, time and again shown that destruction caused by disasters, can be minimized by a well functioning disaster management system and that lack of such systems can cause even greater disaster and that what is needed is efficient policies and institutional support right up to the stage of rehabilitation of affected persons and disaster warning and preparedness systems that are effective must be prepared. We should work collectively to protect environment and humanity. Similarly, relief and rehabilitation work should be quick and well co-ordinated and some man-made disasters can be averted by strict adherence to safety norms and regular maintenance schedules. It is imperative that agencies involved in this area, evolve fully functional partnerships, so that reaction to such events can be timely, efficient and effectual."

The role of law in the post-disaster phase was expressed to be very important and the President exhorted the legal system to ensure that there is transparency and accountability of all activities, including compensation amounts to be given to the affected, legal assistance and dispute redressal mechanisms.

Chief Justice of India, Justice Sh S H Kapadia said, "The traditional concept that development and ecology are opposed to each other is not acceptable today. Sustainable development is the answer to importance of human life. It will help to eradicate poverty and improve the quality of human life .But the most important essence is right to life. We are growing at the rate of 50,000 per day. The shrinking resources will not help

Nuclear and Arms Control Centre

any excellent schemes or projects and will destroy growth. The ultimate challenge for environment ethics is conservation of life on earth. The man-land ratio is adverse. The carrying capacity of the supporting economy has to be improved. The forest and environment is national asset and we have to transfer it to our next generation.” Justice Sh Kapadia suggested to the Ministry of Environment and Forests to simplify their notifications. . He appealed the Ministry to have a panel of experts and follow a common procedure. A change in the pattern of submitting project reports is required where opinion of project applicant for viability of project should not be accepted.

Mr. Goolam E. Vahanvati, Attorney General of India in his Introductory address reflected upon the destruction of forests and uncontrolled use of natural resources which led to disasters like tsunami and mentioned how water resources had been affected by phenomena like anoxia i.e. when water bodies loose oxygen. Global dimming and coral bleaching were also concerns in relation to biodegradation expressed by him.

Mr. Salman Khurshid, Hon’ble Minister of Law and Justice expressed that this seminar was a historic opportunity to provide for a safe and comfortable future for inter generational equity.

Smt. Jayanthi Natarajan, Minister of State for Environment and Forests stated that the earth and the planet are not something that we inherit from our ancestors but something we have borrowed from posterity. The speaker emphasized that the environmental issues require intervention not just by government or by Courts but by every single person and so we need a ‘people’s movement’ on environment to see that the environment is safe from disasters. The speaker further said that India is at the fore front of the drive for sustainability and was the first country to enshrine environment protection and conservation steps in our Constitution and that our country has shown a commitment to sustainable development and has introduced the National Action Plan for Climate change in 2008.

Mr. Justice Dipak Misra, Chief Justice, High Court of Delhi proposed the vote of thanks and said that the need of the hour calls for a clear perceptual shift to develop eco-friendly mindset, the spirit to repair damaged areas and to ingrain the idea that the progress of the human race is only possible, if we nurture nature with care and foster it with real concern.

Mr. Justice Swatanter Kumar, Judge, Supreme Court of India and Chairperson, Organizing Committee in his welcome address invited educationists, environmentalists, judges, lawyers and the delegates to focus and debate on the burning issue of global environment which had brought together the representatives from 15 countries around the globe to showcase a range of innovative suggestions on the resolution of environmental problems.

The participants were called upon to make optimum use of the invaluable exposure in building their tomorrow by protecting the global environment. He expressed hope that this seminar would provide participants a forum to map out a territory which would be equally constructive for the most experienced policy makers and the novice student alike.

“Disaster Risk Reduction”, was no longer optional but a strategic and technical tool for helping national and local governments to fulfil their responsibilities towards citizens and gave a clarion call to effectively mobilize the international community. He also said that environment ought to be treated as “public trust”, protected by judicial pronouncements.

Mr. Justice S. H. Kapadia, Chief Justice of India, Mr. Justice Swatanter Kumar, Judge, Supreme Court of India and Chairperson, Organizing Committee, Mr. Salman Khurshid, Union Minister for Law and

Nuclear and Arms Control Centre

Justice, Smt. Jayanthi Natarajan, Minister for Environment and Forests (I/C), Lt. Governor, Shri Tejinder Khanna, Mr. Justice Dipak Misra, Chief Justice, High Court of Delhi, Mr. Goolam E. Vahanvati, Attorney General for India, Judges of the Supreme Court, Chief Justices of High Courts, Judges of High Courts from India and abroad and Prof. D.S. Sengar, Director, Indian Law Institute graced the occasion.

The three days International Seminar on “Global Environment and Disaster Management: Law and Society” has been organised under the aegis of the Supreme Court of India, the High Court of Delhi, the Indian Law Institute, the Ministry of Environment & Forests and the Ministry of Law and Justice. Representatives of 15 countries are participating in it. The Prime Minister of India, Dr Manmohan Singh will deliver valedictory address tomorrow.

KP

URL: <http://pib.nic.in/newsite/printrelease.aspx?relid=73438>

**Press Information Bureau
Government of India
Ministry of Home Affairs**

09-June-2011 17:40 IST

NDMA Organizes Mock Drill to Assess Response Preparedness at Tarapur Nuclear Power Station

NDMA will be conducting a Mock Drill at the Tarapur Nuclear facility in order to assess the capability of the District administration to deal with an off-site emergency. The two-day programme beginning tomorrow will commence with a Workshop, which will also include a table-top exercise on the conduct of the mock drill. The Workshop will be inaugurated by Shri M. Shashidhar Reddy, Vice Chairman of NDMA. Shri B. Bhattacharjee and Shri J.K. Sinha, Member, NDMA will also speak on important aspects of response preparedness including the Incident Response System.

While the Maharashtra Chief Secretary will attend the Workshop, the other State Government officials including Distt Magistrate, the Supdt of Police, Thane will make presentations on their preparedness to counter such nuclear emergencies. This will be followed by a Mock Drill on 11 June involving all stakeholders – NDRF/Police, Civil Defence, Home Guard and other responders who will show their capability and readiness to counter Nuclear and Radiological Emergencies. The gaps identified in coordination and response preparedness will be addressed by all concerned subsequently.

Prime Minister and Chairman, National Disaster Management Authority Dr. Manmohan Singh chaired a special meeting of NDMA on June 01, 2011 to review India’s Disaster Preparedness in the wake of the recent Japanese disasters.

India has an enviable and impeccable record of safety & security and virtually fail-safe arrangement in its all Nuclear Establishments, but preparedness to deal with an unlikely emergency has to be highly focused upon.

RS/-

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=72611>

Nuclear and Arms Control Centre

Press Information Bureau
Government of India
Ministry of Science & Technology

26-April-2011 19:07 IST

Press Statement on Meeting to Review Status of Jaitapur Nuclear Power Project and Safety Concerns

The Prime Minister, Dr. Manmohan Singh held a meeting here today with the Chief Minister of Maharashtra, Minister of State for Environment & Forests, Minister of State in the Prime Minister's Office and Secretary, Department of Atomic Energy. Principal Secretary to Prime Minister, National Security Advisor, Chairman Nuclear Power Corporation of India (NPCIL) and other senior officials were present.

The meeting reviewed the current status of the Jaitapur Nuclear Power Project as well as safety concerns arising out of the nuclear accident at Fukushima in Japan and their impact on India's overall nuclear energy programme.

Chief Minister of Maharashtra and the Department of Atomic Energy apprised the Prime Minister about the doubts and concerns expressed by the local people in Jaitapur about the project and the measures being taken to address these concerns. Chief Minister pointed out that detailed presentations had been made to all political parties and in the State Assembly as well. Political dialogue will continue. A generous new compensation package has been worked out by the State Government and NPCIL and will be announced soon.

It was also recalled that environmental approval for the Jaitapur Power Park was accorded in November 2010 and Chairman, NPCIL reiterated that each of the 35 conditions stipulated as part of the environmental clearance will be adhered to in a fully transparent manner.

It was noted that the Jaitapur project would be implemented in a phased manner with two 1650 MWe reactors to begin with. A comprehensive environmental impact assessment of these reactors will be done when both are operational by 2019.

CM, Maharashtra and NPCIL assured the Prime Minister that all efforts will be made to engage local communities and address their fears and concerns in a credible manner. It was agreed that livelihoods of local fishermen and their families must continue to get the highest priority by the State Government and NPCIL.

Several aspects of the overall nuclear energy programme of the country in the light of the unfortunate developments in Japan were also discussed. Prime Minister underscored that safety of nuclear power plants is a matter of highest priority and that there is need for improving public communication and outreach on the part of the Department of Atomic Energy and NPCIL. He also emphasized that nuclear safety should be seen not as a static but as a continuously evolving process.

Based on these the following decisions were taken:

1. The Government will introduce a Bill in the next session of Parliament to create an independent and autonomous Nuclear Regulatory Authority of India that will subsume the existing Atomic Energy Regulatory Board (AERB).

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2. The initial results of the six safety review committees set up by the Government of India after the Fukushima accident will be made public. Action taken on previous safety reviews will be put in the public domain.
3. The best available expertise will be used to ensure the highest levels of safety. The Government will invite the Operational Safety Review Team (OSART) of IAEA to assist in its own safety reviews and audit.
4. Each reactor in Jaitapur will have its own individual stand alone safety and operation systems.
5. All reactors and technologies, whether indigenous or imported, will without exception meet the safety standards that are stipulated by the regulatory authorities, and there will be complete transparency in the functioning of the nuclear power programme.

It was reiterated that India's energy needs are vast and growing and nuclear energy is an important clean energy option. This will be pursued with full regard to the safety, livelihood and security of the people. Government's intention is to ensure nuclear power that is safe, secure and economical. Against this background the commitment to India's three stage indigenous nuclear energy programme was reaffirmed. While imported reactors have their place, indigenously-designed and developed reactors will continue to be at the very foundation of this programme.

RCJ/SH/LV

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=71814>

Nuclear and Arms Control Centre

**Press Information Bureau
Government of India
Department of Atomic Energy**

15-March-2011 17:40 IST

AERB Reviews Safety in Indian Nuclear Power Plants

Indian Reactors Designed to Withstand Effects of Earthquake and Tsunami

Atomic Energy Regulatory Board (AERB) of India is constantly monitoring the situation at Japan's Nuclear Sites in the aftermath of unprecedented earthquake and tsunami. Technical information are coming in as the situation is evolving and a clearer picture will emerge progressively. A detailed review of the entire situation will be taken up by AERB as full information becomes available.

In India, out of 20 reactors (19 are in operation), only two units namely Tarapur 1&2 are Boiling Water Reactors (BWRs) similar to ones at Fukushima, Japan. All the reactors in India are designed to withstand the effects of earthquake and tsunami of specific magnitudes, which are decided, based on conservative criteria.

As part of the periodic safety review process AERB had earlier carried out a detailed safety assessment of all the old plants in India including Tarapur Atomic Power Stations-1&2. Based on these assessments, several upgrades in safety measures such as provisions of additional diesel generators for providing emergency power supply were made.

Emergency preparedness plans are existing for all Nuclear Power Plants in the country with respect to plant, site and off site consequences. These emergency plans are periodically rehearsed to see that mitigation measures in the event of an unlikely situation are in place.

AERB will be carrying out a comprehensive reassessment of safety and emergency mitigation measures of all the Indian nuclear power plants in the light of the unprecedented event in Japan.

URL: <http://www.pib.nic.in/newsite/erelease.aspx?relid=71051>

**Press Information Bureau
Government of India
Ministry of Defence**

14-May-2010 15:28 IST

Army R&R hospital to Discharge two Nuclear Radiation Exposed Patients

The Army Hospital (Research and Referral) would soon discharge the two patients exposed to radiation from nuclear scrap. Commandant, R&R Hospital, Lt. General Naresh Kumar, said here today that the two patients have shown good recovery over the last few weeks and their condition is near normal.

Deepak Jain, 32, and Ajay Jain, 40, were admitted to the hospital last month with low blood counts due to bone marrow suppression following accidental radiation exposure to Cobalt-60 at a scrap shop in the Mayapuri area of the city.

"Their condition is clinically stable and free of any infection or bleeding," Lt. Gen. Kumar said, adding, "Ajay

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Jain's wound is healing well." Despite being released from the hospital in a day or two, the doctors would continue to closely monitor the condition of the two patients, he said. "Volunteer donors having 100 percent matching Human Lymphocyte Antigen (HLA) have been kept on standby for bone marrow transplant if their condition worsens," said Lt. Gen. Kumar.

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=61845>

**Press Information Bureau
Government of India
Department of Atomic Energy**

16-December-2009 18:25 IST

Disposal of Nuclear Energy Waste

LOK SABHA

Adequate arrangements have been made for the disposal of nuclear energy waste. Radioactive waste management facilities are located at seven DAE centers, namely Trombay, Tarapur, Kalpakkam, Rawatbhata, Narora, Kakrapar and Kaiga. These facilities have been designed, constructed and commissioned based on the research and development programme which was initiated four decades ago alongwith the inception of nuclear energy programmed in the country. The facilities incorporate waste management systems for treatment and disposal of radioactive waste generated in the form of gas, liquid and solid.

Radioactive gaseous waste is decontaminated at source by treatment processes like demisters, adsorption, filtration through high efficiency particulate air filters etc and after monitoring, discharged through tall stacks for further dispersion.

Radioactive liquid and solid waste is categorized as low, intermediate and high level radioactive waste based on the activity content. The waste is segregated and provided treatment to retain bulk of the radioactivity.

Low & intermediate level radioactive liquid wastes are subjected to treatments such as chemical, ion exchange, evaporation and membrane separation. The bulk of the radioactivity is removed and conditioned in a suitable matrix like cement. The solidified waste is packaged in suitable containers and are stored/disposed in near surface disposal facilities. These facilities are designed on multi-barrier principal and have elaborate monitoring and surveillance provisions. The treated effluents are monitored and discharged well within the authorized limits to the environment.

High level waste is vitrified into borosilicate glass matrix and encapsulated in steel canisters. These canisters are later stored for interim period in specially made air cooled facilities.

A duly constituted Standing Committee carries out the techno-commercial evaluation of all nuclear fuel supplies before orders are placed. The estimated tariff of nuclear power from reactors to be set up with international cooperation will be known after commercial agreements are concluded.

This was stated by Shri Prithviraj Chavan, the Minister of State (I/C) for Science & Technology and Earth Sciences in the Lok Sabha today.

GG/VK

URL: <http://www.pib.nic.in/newsite/erelease.aspx?relid=56094>

INTERNATIONAL COOPERATION

Nuclear and Arms Control Centre

Press Information Bureau
Government of India
Ministry of External Affairs

10-August-2011 16:33 IST

Suo Moto Statement in Lok Sabha By S. M. Krishna External Affairs Minister on "Nuclear Enrichment and Reprocessing Technology"

Following is the text of Suo Moto Statement in Parliament by Shri S. M. Krishna, External Affairs Minister, on "**Nuclear Enrichment and Reprocessing Technology**"

Madam Speaker,

Several Members have raised the issue of the adoption of new guidelines by the Nuclear Suppliers Group at its Plenary meeting in the Netherlands from June 23-24, 2011 relating to transfer of enrichment and reprocessing technologies.

2. Concerns have been expressed about its implications on our existing agreements with other countries on civil nuclear cooperation, whether the revised guidelines are targeted at India and where do they leave us with regard to the scope of our civil nuclear cooperation with the rest of the world.

3. In this context, I wish to make the following clarifications:-

i) We are absolutely clear that as far as India is concerned, the basis of our international civil nuclear cooperation remains as contained in the special exemption from the NSG guidelines given to India on September 6, 2008. The "Statement on Civil Nuclear Cooperation with India" issued on September 6, 2008 after an Extraordinary Plenary Meeting of the NSG spells out the scope of our cooperation. That statement contains reciprocal commitments and actions by both sides relating to international civil nuclear cooperation.

ii) The September 2008 exemption accords a special status to India. It was granted knowing full well that India is not a signatory to the Nuclear Non-Proliferation Treaty. Honourable Members would recall that on August 17, 2006, PM had indicated that one of our main objectives of the Civil Nuclear Initiative was the removal of restrictions on all aspects of cooperation and technology transfers pertaining to civil nuclear energy, covering all aspects of the complete nuclear fuel cycle. We see this as the surest guarantee of India's acceptance as a full and equal partner of the international nuclear community. As PM had informed this august House on July 29, 2009, we were successful in securing a "clean" exemption from the NSG in September 2008 i.e. the NSG members had agreed to transfer all technologies which are consistent with their national law.

iii) As far as we are concerned, the September 2008 decision is the basis and overarching framework that governs cooperation in civil nuclear matters between India and the NSG. The issue is the full implementation of that understanding. This is what we expect and our major partners are committed to.

iv) We must take note of the fact that the NSG Public Statement of June 24, 2011 makes a specific reference to cooperation with India. It says that the NSG "continued to consider all aspects of the

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implementation of the 2008 Statement on Civil Nuclear Cooperation with India and discussed the NSG relationship with India”.

v) The agreements reached for permitting international civil nuclear cooperation with India contain commitments on both sides. We expect all NSG members to honour their commitments as reflected in the 2008 NSG Statement and our bilateral cooperation agreements.

vi) The Guidelines of June 23-24, 2011 are a decision by the NSG. India is not a member of the NSG as yet and therefore not a party to this decision.

4. Following the NSG Plenary of June 2011, several of our partners have clarified their positions:

i) The US Department of State in a Press Statement has stated that the “Obama Administration fully supports the ‘clean’ Nuclear Suppliers Group exception for India and speedy implementation of the US-India Civil Nuclear Cooperation Agreement. Nothing about the new Enrichment and Reprocessing (ENR) transfer restrictions agreed to by the NSG members should be construed as detracting from the unique impact and importance of the US-India Agreement or our commitment to full civil nuclear cooperation”. The Press Statement further states that the “NSG’s NPT references, including those in the ENR guidelines, in no way detract from the exception granted to India by NSG members in 2008”.

ii) A Communiqué issued by the Ambassador of France in New Delhi on July 5, 2011 has stated that the NSG exemption “reflects the unique situation of India and constitutes a historical achievement. Therefore, in the French view, nothing in the existing and future guidelines shall be interpreted as detracting from that exemption or reducing the ambition of our bilateral cooperation”.

iii) The Russian Foreign Ministry spokesman on July 14, 2011 stated that the NSG decision “does not affect in any way the September 2008 decision of the Group to unfreeze peaceful nuclear cooperation with India”.

5. In so far as enrichment and reprocessing technology is concerned, I would like to reiterate to Honourable Members that India has full mastery of the entire nuclear fuel cycle, and this includes enrichment and reprocessing technology. We have a well-developed indigenous enrichment and reprocessing infrastructure. Government is committed to taking forward our domestic three-stage nuclear power programme. India is among the handful of countries that has developed fast breeder technology. Access to enrichment and reprocessing technology from abroad, as part of international civil nuclear cooperation, is only an additionality to accelerate our three-stage programme.

6. The transfer of enrichment and reprocessing items and technology has no bearing whatsoever on India’s upfront entitlement to reprocess foreign origin spent fuel and the use of such fuel in our own safeguarded facilities.

7. Not every NSG member has the ability to undertake transfer of enrichment and reprocessing items and technology to other countries. We expect that those that do and have committed to do so in bilateral agreements with India, will live up to their legal commitments.

8. I would also like reassure Honourable Members that we will not accept pre-conditions for transfer of enrichment and reprocessing items and technology. There is no question of India joining the Nuclear Non-Proliferation Treaty as a non-nuclear weapon State.

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9. India is engaged with the four multilateral export control regimes, namely the NSG, the Missile Technology Control Regime, the Australia Group and the Wassenaar Arrangement for full membership. We have noted with appreciation the expressions of support from a number of our partners towards this objective.

Madam Speaker,

10. I am confident that the international nuclear order will continue to evolve in India's favour. We are poised to emerge as one of the major nuclear countries in the world, with a large and diversified nuclear industry. India is committed to full international civil nuclear cooperation for the development needs of our country and is engaged in discussions with foreign companies to expand our nuclear energy programme. We expect that our international partners will fully honour their commitments in this regard.

Thank you.

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=74269>

**Press Information Bureau
Government of India
Ministry of Science & Technology**

13-August-2010 15:11 IST

Global Center for Nuclear Energy Partnership

India will establish a Global Centre for Nuclear Energy Partnership. The Centre will be owned and managed by the Government. It will be open to international participation through academic exchanges, training and research and development efforts. The Centre is aimed at strengthening India's cooperation with the international community in the areas of advanced nuclear energy systems, nuclear security, radiological safety and radiation technology applications in areas such as health, food and industry. This initiative was announced by Prime Minister at the Nuclear Security Summit held in Washington on 13th April 2010.

A phased approach will be followed for setting up of the Centre and no expenditure has so far been incurred on the Centre.

This information was given by Sh. Prithviraj Chavan, Minister of State for Science & Technology and Earth Sciences, PMO, Personnel, Public Grievances and Pensions and Parliamentary Affairs in written reply to a question in Lok Sabha recently.

SBS/RS

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=64718>

Nuclear and Arms Control Centre

**Press Information Bureau
Government of India
Ministry of Science & Technology**

02-August-2010 16:19 IST

Collaboration for Nuclear Plants/Uranium Import

For setting up nuclear power plants based on technical cooperation, enabling inter-governmental agreements have been signed with France, Russian Federation and the USA. Nuclear Power Corporation of India Limited (NPCIL), a Public Sector Undertaking of the Department of Atomic Energy, is in discussion with the nuclear companies of these countries to finalise respective detailed project proposals. Contracts have been signed with the following foreign firms for import of Uranium; M/s AREVA, France (300MT of Uranium Ore Concentrate), M/s. TVEL Corporation, Russia (58 MT of Enriched Uranium Dioxide Pellets, 2000 MT of Natural Uranium Oxide Pellets, spread over the years in quantities 200-400 MT annually) and M/s. NAC Kazatomprom, Kazakhstan (2100 MT of Natural Uranium Ore Concentrate spread over six years in quantities 300-400 MT annually).

This information was given by Sh. Prithviraj Chavan, Minister of State for Science & Technology and Earth Sciences, PMO, Personnel, Public Grievances and Pensions and Parliamentary Affairs in reply to a written question in Rajya Sabha recently.

SBS/RS

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=63935>

**Press Information Bureau
Government of India
Department of Atomic Energy**

06-May-2010 16:57 IST

Global Center for Nuclear Energy Partnership

At the Nuclear Security Summit in Washington, Prime Minister, on 13 April 2010, has announced setting up a 'Global Centre for Nuclear Energy Partnership', A state-of-the art facility based on international participation from International Atomic Energy Agency and other interested foreign partners, in India. Setting up of the Centre would be in a phased manner.

This was stated by Shri Prithviraj Chavan, Minister of State (I/C) for Science & Technology and Earth Sciences in the Rajya Sabha today.

GG/BS

URL: <http://www.pib.nic.in/newsite/erelease.aspx?relid=61574>

Nuclear and Arms Control Centre

**Press Information Bureau
Government of India
Department of Atomic Energy**

17-December-2009 18:47 IST

International Conference on Nuclear Energy

RAJYA SABHA

Major players from different parts of the world have participated in the three-day International Conference on Peaceful Uses of Atomic Energy held in Vigyan Bhavan, New Delhi during September 29 to October 1, 2009.

The First U.N. International Conference on Peaceful Uses of Atomic Energy was organized in Geneva in 1955 which was presided over by Dr. Homi J. Bhabha. The present conference was organized to commemorate the Birth Centenary Year of Dr. Homi J. Bhabha. In between the first Conference and the present one, three Conferences on this subject were held in 1957, 1959 and 1971.

The conference focused on various important areas including:

- >> Achieving rapid growth in nuclear power production;
- >> Reaching to the general public the benefits of radiation applications in agriculture, medical sciences, industry and water management; and
- >> Developing new concepts and technologies for enhancing the share of nuclear power globally without compromising on the environmental issues.

This was stated by Shri Prithviraj Chavan, the Minister of State (I/C) Science & Technology and Earth Sciences in the Rajya Sabha today.

GG/VK

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=56199>

**Press Information Bureau
Government of India
Ministry of External Affairs**

09-December-2009 15:37 IST

Civil Nuclear Cooperation

Lok Sabha

The Nuclear Supplier Group (NSG) adopted a decision by consensus on September 6, 2008 to enable full civil nuclear cooperation with India. Vide this decision the NSG paved the way for civil nuclear cooperation between NSG Member States and India, including in NSG Trigger List items and nuclear related dual-use equipment, materials, software and related technology to India for peaceful purposes and for use in IAEA safeguarded nuclear facilities.

Nuclear and Arms Control Centre

Following the NSG decision of September 6, 2008, Government has signed agreements on civil nuclear cooperation with France, US, Russia, Namibia, Mongolia and Argentina. Cooperation agreements with other countries including Kazakhstan, Russia, Canada and UK are in various stages of negotiations.

To meet its energy requirements, India is looking to expand international civil nuclear cooperation with a view to establishing capacity additional to its domestic indigenous programme, including access to the international nuclear fuel market. The NSG decision has enabled India's cooperation with other countries in peaceful uses of nuclear energy which will assist India in meeting its energy and development requirements.

This information was given by Shri S.M.Krishna, Union Minister of External Affairs in reply to a question by Shri Sameer Bhujbal in Lok Sabha Today.

TFK/KS

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=55596>

**Press Information Bureau
Government of India
Department of Atomic Energy**

02-December-2009 18:0 IST

Civilian Nuclear Agreements with Foreign Countries

LOK SABHA

After the signing of an Agreement for Cooperation between the Government of India and the Government of the United States of America concerning peaceful Uses of Nuclear Energy on October 10, 2008, India has entered in to following civil nuclear cooperation agreements:

- (i) An Agreement between the Government of the Republic of India and the Government of the Russian Federation on 'cooperation in the Construction of Additional Nuclear Power Plant Units at Kudankulam Site as well as in the construction of Russian Designed Nuclear Power Plants at New Sites in the Republic of India was signed on December 5, 2008.
- (ii) An Agreement between the Government of the Republic of India and the Government of the Republic of Namibia on Cooperation in Peaceful uses of Nuclear Energy was signed on August 31, 2009.
- (iii) The Government has a structured public awareness programmes to disseminate authentic information and acceptance to nuclear energy in various target groups. These include exhibitions and seminars in schools, exhibitions at various scientific/technical fora, technical visits of public/media personnel to stations/sites and workshops etc. The web sites of Department of Atomic energy (DAE), Nuclear Power Corporation of India Ltd. (NPCIL) and other units of DAE have information about nuclear power and these are regularly updated.

This was stated by Shri Prithviraj Chavan, the Minister of State (I/C) for Science & Technology and Earth Sciences in the Lok Sabha today.

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=55013>

Nuclear and Arms Control Centre

**Press Information Bureau
Government of India
Prime Minister's Office**

06-September-2008 17:26 IST

Statement by the Prime Minister on the Nuclear Suppliers Group

We welcome the decision earlier today of the Nuclear Suppliers Group to adjust its guidelines to enable full civil nuclear cooperation with India. This is a forward-looking and momentous decision. It marks the end of India's decades long isolation from the nuclear mainstream and of the technology denial regime. It is a recognition of India's impeccable non-proliferation credentials and its status as a state with advanced nuclear technology. It will give an impetus to India's pursuit of environmentally sustainable economic growth.

I thank the United States and other member countries of the Nuclear Suppliers Group for the role they have played in ensuring this outcome. The opening of full civil nuclear cooperation between India and the international community will be good for India and for the world. We look forward to establishing a mutually beneficial partnership with friendly countries in an area which is important for both global energy security as well as to meet the challenge of climate change.

RCJ/AD

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=42386>

**Press Information Bureau
Government of India
Cabinet**

05-July-2007 13:43 IST

Project Proposal on Indian participation in International Thermonuclear Experimental Reactor (ITER) approved

The Union Cabinet today gave its approval for the following:

- i) To the project titled Indian Participation in International Thermonuclear Experimental Reactor, at a base cost of Rs.2500 crore. The FE component calculated at base cost will be Rs.1129 crore.
- ii) To constitute an Empowered Board by the Governing Council of Institute for Plasma Research with sufficient powers required for effective implementation of the project within the framework of the agreement signed among the parties to the ITER and ITER International Organisation and also within the sanctioned amount for the project of Rs.2500 crore. This shall, inter alia, include:
 - a) Full financial powers, particularly powers in respect of single limited and restricted tendering process and administrative powers to the total extent of the budgetary sanction and resource allocation for the project.
 - b) Full autonomy in laying down the rules, procedures and guidelines for financial, administrative and any

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other matters related to the execution of the project.

c) Full autonomy in deciding the delegation of powers in financial and administrative matters in conformity with the various stipulations and guidelines of the Government and Central Vigilance Commission.

d) Power to create posts and lay down suitable recruitment norms depending upon size and nature of activities subject to over all sanctioned manpower requirement.

To ensure this the Empowered Board, in turn, shall frame administratively and financially sound policies and put into place procedurally transparent rules, regulations and practices.

India's joining ITER is recognition of India's scientific and technical capability in fusion energy.

Considering India's large energy needs in future, our gaining technological capability in fusion energy will be of considerable long term benefit.

India's participation in ITER will allow India to leapfrog in terms of our national technological capability in fusion energy. ****

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=28997>

**Press Information Bureau
Government of India
Ministry of External Affairs**

11-May-2006 17:29 IST

Initiatives in the nuclear energy sector

Lok Sabha

Government is engaged in a dialogue with a broad range of countries including the US, Russia and France on civilian nuclear energy cooperation with India. During the visit of Prime Minister to the US, the two sides issued a Joint Statement on July 18, 2005 in which the US inter alia stated that it will work with its partners to adjust the international regime to enable full international civil nuclear cooperation with India. Further discussions were held on the issue during the visit of President Bush to India in March 2006. During the visit of Prime Minister to Russian Federation in December 2005 both sides agreed to actively explore opportunities to further expand cooperation in the sphere of peaceful uses of atomic energy. India and France signed a Declaration on the Development of Nuclear Energy for Peaceful Purposes during the visit of President Jacques Chirac to India on February 20, 2006, which underlines the need to develop international cooperation in promoting the use of nuclear energy for peaceful purpose. These discussions are ongoing.

This information was given by the Minister of State in the Ministry of External Affairs, Shri Anand Sharma, in reply to a question by Shri Sanjay Raut.

In reply to another question by Smt. S.G. Indira, the Minister said that as part of the India-US understanding on civilian nuclear cooperation as stated in July 18, 2005, the US has undertaken to work with its partners in the Nuclear Suppliers Group (NSG) for adjusting its Guidelines to enable full civilian cooperation between India and the international community. The Government has also actively engaged with a broad range of NSG member states including France with a view to seek their support for enabling international civilian nuclear

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cooperation with India. France has expressed support for India's position.

AK/NSD/Hb

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=17606>

**Press Information Bureau
Government of India
Ministry of External Affairs**

09-March-2006 17:11 IST

Declaration of Civilian Nuclear Power

Rajya Sabha

The Minister of State in the Ministry of External Affairs, Shri Anand Sharma told the Rajya Sabha today that Government has placed considerable importance on nuclear energy in its energy mix, as it provides a cheap and clean source of energy. In this context, the Government is engaged in a dialogue with a broad range of countries including US, Russia and France and they have agreed on the need to have full international civilian nuclear cooperation with India. India and France signed a Declaration on the Development of Nuclear Energy for Peaceful Purposes during the recent visit of President Jacques Chirac on February 20, 2006 which underlines the need to develop international cooperation in promoting the use of nuclear energy for peaceful purposes. The Joint Statement issued on July 18, 2005 during the visit of Prime Minister to the US, stated inter-alia that the US will work to achieve full civil nuclear energy cooperation with India.

The Minister added that during the visit of President Bush to India on 2 March 2006 the two sides welcomed the successful completion of discussions on India's separation plan for civil and military nuclear facilities and noted that this historic accomplishment will permit India and US to move forward towards common objective of full civil nuclear energy cooperation between India and the US and between India and the international community as a whole. During the visit of Prime Minister to Russian Federation in December 2005 both sides agreed to actively explore opportunities to further expand cooperation in the sphere of peaceful uses of atomic energy. These discussions are ongoing.

The Minister was replying to a question by Shri A. Vijayaraghavan.

AK/JA

URL: http://pib.nic.in/release/rel_print_page.asp?relid=16397

INDIA-UNITED STATES
CO-OPERATION IN NUCLEAR ENERGY

Nuclear and Arms Control Centre

**Press Information Bureau
Government of India
Department of Space**

09-August-2012 17:34 IST

Installation of American Nuclear Reactor in India

A Memorandum of Understanding (MoU) and a confidentiality agreement between Westinghouse Electric Company (WEC), USA and Nuclear Power Corporation of India Limited (NPCIL) was initially signed in 2009. An amendment to extend the term of the earlier signed MoU till May, 2014 was signed on June 12, 2012. The amendment also includes a clause to sign an Early Works Agreement.

The review of safety provisions in design of AP – 1000 systems to withstand extreme natural events like earthquakes and Tsunamis, post Fukushima incident, has been carried out in the vendor country. Westinghouse Electric Company has made a presentation on the same to the Indian side. The Design Certification of the AP – 1000 reactor was issued by United States Nuclear Regulatory Commission (USNRC) in December 2011, after the Fukushima accident.

The above information was given by the Minister of State in the Ministry Personnel, PG & Pensions and in the Prime Minister's Office (Shri V. Narayanasamy) in a written reply in the Rajya Sabha today.

MC/sk

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=85899>

**Press Information Bureau
Government of India
Prime Minister's Office**

02-July-2008 21:38 IST

PMO clarifies issues raised by Shri Amar Singh on Nuclear Deal

The National Security Adviser, Mr. M.K. Narayanan, had a meeting with leaders of the Samajwadi Party, Shri Ram Gopal Yadav and Shri Amar Singh, earlier to-day, during which the latter had sought certain clarifications with regard to the Civil Nuclear Cooperation Agreement between India and the United States.

Among the main issues raised by Shri Amar Singh were:

(i) Whether by entering into this deal, the sovereignty of decision-making in regard to India's foreign policy would be compromised. It was clarified to Shri Amar Singh that the Civil Nuclear Cooperation Agreement did not and would not affect the autonomy of decision-making in regard to foreign affairs in any manner. India had always followed an independent foreign policy. Under no circumstances, would this position undergo a change, the least of all in the context of the Civil Nuclear Cooperation Agreement. India has always regarded its strategic autonomy in these matters as sacrosanct.

Related to this was the question raised by Shri Amar Singh whether the nuclear deal would impinge on our relations with Iran. It was clarified that our relations with Iran were time-honoured and civilisational in nature

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and no outside influence or pressure could force India to deviate from this path. India and Iran have recently taken several initiatives, including one relating to the Iran-Pakistan-India gas pipeline. The pipeline epitomizes the nature and importance of the relationship, something that was strongly re-inforced during the visit of President Ahmadinejad to Delhi in April. There have been other meetings between our Ministers and officials and their Iranian counterparts. The National Security Adviser has just returned after a very productive meeting with Iranian leadership, and also had a meeting with President Ahmedinejad, at which apart from economic issues like the IPI pipeline, certain other and related matters were discussed. India is not under any pressure, nor can it be pressurized to follow a course of action that is not dictated by our enlightened self-interest.

(ii) Another important issue that was raised by the SP leaders was whether the nuclear deal would undermine our nuclear sovereignty, specially with regard to our strategic nuclear programme. It was clarified, and the Prime Minister has reiterated this on many previous occasions, that the deal would not in any way impinge on our strategic programme. This is an agreement for Civil Nuclear Cooperation. The purpose of the Agreement is to enable full civil nuclear energy cooperation between Parties and concerns nuclear reactors and all aspects of the associated nuclear fuel cycle. It caters for the development of a strategic reservoir of nuclear fuel to guard against disruption of supplies over the lifetime of India's reactors, and for advanced R&D in Nuclear Sciences.

The 123 Agreement with the United States contains a specific mention that the Agreement would not affect un-safeguarded nuclear activities, i.e. activities involving our strategic programme which are not under safeguards. It also underscores that the Agreement would be implemented in a manner that does not hinder or otherwise interfere with any activities involving the use of nuclear material, information or technology and military nuclear facilities produced, acquired or developed by them independent of the Agreement for their own purposes.

(iii) A question was also raised about the Hyde Act passed by the US Congress and its impact on the 123 Agreement arrived at between India and the United States. A careful reading of the provisions of the 123 Agreement would make it clear that substantive rights and obligations under the Agreement are not affected by the national laws of the parties. It is the 123 Agreement and its provisions that indicate the obligations of both sides. The 123 Agreement clearly over-rides the Hyde Act and this position would be clear to anyone who goes through the provisions.

(iv) Other clarifications were sought on the right to re-process and the right to test and the provisions under which the United States would determine its cooperation with India. Great care was taken while finalizing the 123 Agreement to arrive at provisions which are satisfactory from India's point of view. The Agreement, hence, specifically grants consent to re-process or otherwise alter in form or content nuclear material transferred pursuant to the Agreement. India has agreed to establish a new national re-processing facility dedicated for re-processing nuclear material under IAEA Safeguards.

There is nothing in the Agreement which places an embargo on India's right to carry out a nuclear test if it thinks this is necessary in India's supreme national interest. To meet the contingency (raised by the Hyde Act) that the United States might terminate its cooperation with India if it carried out a nuclear test, a very elaborate consultation process has been included in the 123 Agreement. The consultations would go into the relevant circumstances; take into account the specific requirements leading to a test; whether there had been a change in the security environment which required this; and/or whether this was a response to similar actions by other States which could impact on India's national security. Furthermore, it is stated in the Agreement that the two parties recognized that exercising the right of return would have profound implications for their relations and that both parties should take into account the potential negative consequences of such

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termination of on-going contracts and projects.

(v) A reference was again made to the Agreement between India and the International Atomic Energy Agency for the application of Safeguards to Civilian Nuclear facilities. The salient features of the Draft Agreement (which are yet to be finalized), reflect the key understandings relating to fuel supply assurances, strategic fuel reserves and corrective measures. Provisions have been included that make it clear that India is offering its civilian nuclear facilities voluntarily for safeguards and keeping in view these assurances. Most importantly, the Agreement provides for the filing of a declaration, based on its sovereign decision, and only when India determines that all conditions conducive to the objectives of the Civil Nuclear Cooperation Agreement and concomitant arrangements have been fulfilled. This ensures that India would retain the right till the very end before putting any of its reactors under safeguards.

(vi) A major principle underlined in the Agreement with the IAEA is that the IAEA shall implement safeguards in a manner that do not hinder or otherwise interfere with any activity involving the use by India of nuclear material or technology developed by India independent of this Agreement for its own purposes.

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=40010>

**Press Information Bureau
Government of India
Ministry of External Affairs**

06-December-2007 14:20 IST

Nuclear Agreement to Solve Problem of Electricity Energy

RAJYA SABHA

External Affairs Minister, Shri Pranab Mukherjee informed the Rajya Sabha today in written reply to a question that the agreement between India and the US on the cooperation in civil uses of nuclear energy could result in substantial additional power generating capacity. The Integrated Energy Policy, 2006 sets a target for the year 2020 of 20,000 MW of nuclear power generation. This could double with international cooperation.

Regarding the position of financial gains that the country would have from the nuclear agreement, the Minister said that it is critical that India's current GDP growth rate of 8-10% per annum is maintained in order to achieve the objective of eradication of poverty. For this, it is necessary to explore and exploit all sources of energy. The additionality of nuclear energy will help to achieve India's energy targets and contribute to growth in vital sectors of India's economy including industry and agriculture.

BY/MK

URL: <http://www.pib.nic.in/newsite/erelease.aspx?relid=33813>

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**Press Information Bureau
Government of India
Ministry of External Affairs**

16-August-2007 12:41 IST

Statement by External Affairs Minister in Parliament relating to the Indo-US Bilateral Civil Nuclear Cooperation Agreement

The following is the text of the Statement by the Union External Affairs Minister, Shri Pranab Mukherjee in Parliament today relating to the Indo-US Bilateral Civil Nuclear Cooperation Agreement:

“Questions have been raised about India’s right to test when the bilateral civil nuclear cooperation agreement with the US enters into force. The factual position is as follows:

India has the sovereign right to test and would do so if it is necessary in national interest. The only restraint in our voluntary unilateral moratorium on nuclear testing, declared by the previous government and being continued by the successor government. There is nothing in the bilateral agreement that would tie the hands of a future government or legally constrain its options. A decision to undertake a future nuclear test would be India’s sovereign decision, resting solely with the Government of India.

Nowhere in the bilateral agreement on Cooperation for Peaceful Uses of Nuclear Energy with the United States of America is testing mentioned. The bilateral cooperation agreement contains elaborate provisions in Articles 5 and 14 to ensure the continuous operation of India’s reactors. These include fuel supply assurances, the right to take corrective measures, and a strategic fuel reserve for the lifetime of India’s reactors in case of cessation of cooperation.”

NSD/MK

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=30008>

**Press Information Bureau
Government of India
Prime Minister's Office**

14-August-2007 11:24 IST

PM discusses Civil Nuclear Agreement with CPI (M) General Secretary

The Prime Minister, Dr. Manmohan Singh and the External Affairs Minister, Shri Pranab Mukherjee met Shri Prakash Karat, General Secretary of the CPI (M), here today and discussed the issues connected with the bilateral Civil Nuclear Cooperation Agreement between India and the United States.

Some of the points regarding the agreement were discussed. The CPI (M) General Secretary stated that he would put it to the party’s politburo which will meet over the week end.

Shri. Karat and the Prime Minister reiterated that efforts would be made to sort out the issues.

NSK/MK

URL: <http://www.pib.nic.in/newsite/erelease.aspx?relid=29848>

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**Press Information Bureau
Government of India
Prime Minister's Office**

13-August-2007 15:37 IST

PM's statement in the Lok Sabha on Civil Nuclear Energy Cooperation with the United States

Excerpts of the Prime Minister's statement - this is a preliminary transcript that is yet to be corrected and matched with the official transcription from the Lok Sabha.

I rise to inform this august House that the Government of India has reached agreement with the Government of the United States of America on the text of the bilateral Agreement on Cooperation for Peaceful Uses of Nuclear Energy.

2. This Government has kept Parliament fully in the picture at various stages of our negotiations with the United States. We have never shied away from a full discussion in Parliament on this important issue. I have myself made statements on several previous occasions – on July 29, 2005 soon after my return from Washington; on February 27, 2006 during which I took Parliament into confidence regarding our ongoing discussions with the United States on the Separation Plan; and on March 7, 2006 following the visit of President Bush to India. I also made a detailed statement in the Rajya Sabha on August 17, 2006 conveying certain solemn commitments to which I shall return shortly.

Our Government has adhered scrupulously to Parliamentary traditions and practices. We have in fact gone far beyond any previous Government.

3. After the conclusion of the Agreement we have also briefed many of the parties represented in Parliament on the details of the Agreement.

4. The Agreement is about civil nuclear energy cooperation. It is an Agreement between two States possessing advanced nuclear technologies, both parties having the same benefits and advantages. The significance of the Agreement lies in the fact that when brought into effect, it will open the way for full civil nuclear energy cooperation between India and the United States. We have negotiated this Agreement as an equal partner, precisely because of the achievements of our scientists and technologists in overcoming the barriers placed around us in the past. This is an Agreement based on the principle of mutual benefit.

5. There has been considerable public debate and discussion on various aspects of the Agreement. On August 17, 2006, I had given a solemn commitment to Parliament and to the country regarding what we can agree and cannot agree with the United States to enable civil nuclear energy cooperation with India. I had stressed that it must be within specific parameters, which I had shared with Parliament. This was an unprecedented measure of transparency on our part even in the midst of complex negotiations.

6. I had given Parliament my assurance that the Government will make every effort so that the vision of the Joint Statements of July, 2005 and March, 2006 becomes a living reality. I believe that we have redeemed that pledge. In concluding this Agreement, we have ensured that the autonomy of our strategic programme is fully maintained, and that Dr. Homi Bhabha's long-term vision remains our guiding principle.

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7. With your permission, I wish to draw the attention of this august House to the main features of the Agreement in some detail. It would become evident that the commitments I had made to Parliament, including those on August 17, 2006, have been fully adhered to.

(i) Full Civil Nuclear Cooperation

Ø The concept of full civil nuclear cooperation has been clearly enshrined in this Agreement. The Agreement stipulates that such cooperation will include nuclear reactors and aspects of the associated nuclear fuel cycle, including technology transfer on industrial or commercial scale. It would also include development of a strategic reserve of nuclear fuel to guard against any disruption of supply over the lifetime of our reactors.

Ø A significant aspect of the Agreement is our right to reprocess US origin spent fuel. This has been secured upfront. We view our right to reprocess as a key element of a closed fuel cycle, which will enable us to make full use in our national facilities of the energy potential of the nuclear fuel used in our reactors. This important yardstick has been met by the permanent consent for India to reprocess.

Ø India will establish a new national reprocessing facility dedicated to reprocessing foreign nuclear material under IAEA safeguards. India and the US will mutually agree on arrangements and procedures under which such reprocessing will take place in the new facility. Consultations on arrangements and procedures will begin within six months of a request by either party and will be concluded within one year. There is no ambiguity with regard to the commitments of both countries.

Ø Any special fissionable material that may be separated may be utilized in national facilities under IAEA safeguards. Thus the interests of our three stage nuclear programme have been protected.

Ø The United States has a longstanding policy of not supplying to any country enrichment, reprocessing and heavy water production facilities. This Agreement provides for such transfers to India only through an amendment. Forward- looking language has been included for dual use transfers of enrichment, reprocessing and heavy water production facilities. We hope transfers will become possible as cooperation develops and expands in the future. It is important to note that no prohibition that is specifically directed against India has been included in the Agreement.

(ii) The Principle of Reciprocity:

Ø The principle of reciprocity, which was integral to the July 2005 Statement, has been fully safeguarded in this Agreement. There is no change in our position that we would accept only IAEA safeguards on our civilian nuclear facilities. This would also be in a phased manner and as identified for that purpose in the Separation Plan, and only when all international restrictions on nuclear trade with India have been lifted. India will not take any irreversible steps with the IAEA prior to this.

(iii) Certification:

Ø This Agreement emphasizes the desire of both countries to cooperate extensively in the use of nuclear energy for peaceful purposes as a means of achieving energy security on a stable, reliable and predictable basis. This Agreement further confirms that US cooperation with India is a permanent one.

There is no provision that states that US cooperation with India will be subject to an annual certification process.

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Ø Hon'ble Members may recall that the 18th July 2005 Joint Statement had acknowledged that India be regarded as a state with advanced nuclear technology enjoying the same advantages and benefits as other States with advanced nuclear technology, such as the US. This Agreement makes specific references to India and the United States as States possessing advanced nuclear technology, both parties having the same benefits and advantages, both committed to preventing WMD proliferation.

(iv) Safeguards:

Ø As agreed in the March Separation Plan, India has accepted only IAEA safeguards that will be reflected in an India-specific Safeguards Agreement with the IAEA.

We have not consented to any provision that mandates scrutiny of our nuclear weapons programme or any unsafeguarded nuclear facilities. There are explicit provisions in the Agreement that make it clear that this Agreement does not affect our unsafeguarded nuclear facilities and that it will not affect our right to use materials, equipment, information or technology acquired or developed independently. India and the United States have agreed that the implementation of the Agreement will not hinder or otherwise interfere with India's nuclear activities including our military nuclear facilities. Nothing in the Agreement would impinge on our strategic programme, our three-stage nuclear power programme or our ability to conduct advanced R&D.

(v) Fuel Supply Assurances:

Ø I would like to reiterate that the March 2006 Separation Plan provided for an India-specific Safeguards Agreement with the IAEA, with assurances of uninterrupted supply of fuel to reactors that would be placed under IAEA safeguards together with India's right to take corrective measures in the event fuel supplies are interrupted. An important assurance given is the commitment of support for India's right to build up strategic reserves of nuclear fuel to meet the lifetime requirements of India's reactors.

Ø This Agreement envisages, in consonance with the Separation Plan, US support for an Indian effort to develop a strategic reserve of nuclear fuel to guard against any disruption of supply for the lifetime of India's reactors. The Agreement reiterates in toto the corresponding portions of the Separation Plan.

It has endorsed the right of India to take corrective measures to ensure uninterrupted operation of its civilian nuclear reactors in the event of disruption of foreign fuel supply.

Hon'ble Members will agree that these provisions will ensure that there is no repeat of our unfortunate experience with Tarapur.

(vi) Integrity and reliability of our strategic programme, autonomy of decision making and future scientific research and development:

Ø In my statements of March 7 and August 17, 2006, I had assured Parliament that the Separation Plan would not adversely affect our strategic programme, the integrity of the three-stage nuclear programme and the autonomy of our Research and Development activity.

Ø This Agreement does not in any way impact on India's ability to produce and utilize fissile material for its current and future strategic needs.

Our right to use for our own purposes our independent and indigenously developed nuclear

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facilities has been fully preserved. The Agreement also provides for non-hindrance and non-interference in our activities involving use of nuclear material, non-nuclear material, equipment, components, information or technology and military nuclear facilities produced, acquired or developed independently for our own purposes.

(vii) Cessation of cooperation:

Ø An elaborate multi-layered consultation process has been included with regard to any future events that may be cited as a reason by either Party to seek cessation of cooperation or termination of the Agreement. Both Parties have agreed to take a number of factors into account in their consultations so that the scope for precipitate or unilateral action is reduced.

Cessation of cooperation can be sought by the US only if it is prepared to take the extreme step of termination of the Agreement. India's right to take "corrective measures" will be maintained even after the termination of the Agreement.

Ø In the case of termination of this Agreement and cessation of cooperation by either Party, each has the right to seek return of nuclear material and equipment supplied by it to the other. However, before the right of return is exercised, the Agreement commits the parties to consult and to take into account specific factors such as national security, ongoing contracts and projects, compensation at market value, physical protection and environmental issues. India and the United States have agreed to consider carefully the circumstances that may lead to termination, including a party's concerns about a change in the security environment or a response to similar actions by other states that could impact on national security.

The Agreement stipulates that the two parties recognise that exercising the right of return would have profound implications and consequences for their relations.

Ø From India's point of view our primary objective is to ensure the uninterrupted operation of our nuclear reactors, in the context of the detailed fuel supply assurances provided in the Separation Plan and these are now reflected in full in the Agreement. The Agreement specifically states in regard to fuel supply assurances and India's right to take "corrective measures" that there will be no derogation of India's rights in this regard, including the right to take "corrective measures" to ensure the uninterrupted operation of its reactors. This reflects the balance of obligations consistent with the understandings of the July Statement and the March Separation Plan.

8. Among the significant and innovative features of this Agreement are specific mention of the right to run foreign supplied reactors 'without interruption' and to take 'corrective measures' in the event of fuel supply disruption. This has been made possible by crafting the provisions in a manner that provide for explicit linkages and interlocking of rights and commitments contained in the Agreement.

9. The Agreement does not in any way affect India's right to undertake future nuclear tests, if it is necessary in India's national interest. Let me hence reiterate once again that a decision to undertake a future nuclear test would be our sovereign decision, one that rests solely with the Government. There is nothing in the Agreement that would tie the hands of a future Government or legally constrain its options to protect India's security and defence needs.

10. If I might sum-up, this Agreement does not in any way inhibit, restrict or curtail our strategic autonomy or capabilities. Our rights to pursue our three-stage nuclear power programme remain undiluted.

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In the unlikely event of cessation of cooperation there is no derogation of our rights with regard to corrective measures. Our reprocessing rights are upfront and are permanent in nature. Advanced R&D programmes and IPR Protection are fully safeguarded.

11. As I have said, this is an Agreement for cooperation between India and the US on peaceful uses of nuclear energy. Its genesis is the shared perception between India and the US that both our countries need to address their energy challenges, and address them in a manner that is sensitive to concerns about the environment. For India, it is critically important to maintain our current GDP growth rate of 8 to 10% per annum if our goal of eradicating poverty is to be achieved. The energy implications of this growth rate over the next couple of decades are enormous. Even if we were to exploit all our known resources of coal, oil, gas and hydropower, we would still be confronted with a yawning demand and supply gap.

12. India's three-stage nuclear power programme holds immense promise for the future. The unique thorium-based technology would become an economically viable alternative over a period of time following sequential implementation of the three stages. We must, in the meantime, explore and exploit every possible source of energy. Nuclear energy is a logical choice for India. Indigenous supplies of uranium are highly inadequate and hence we need to source uranium supply from elsewhere. In a globalised world, technology is always a premium item and we look forward to expanding our horizons in this regard as well. We intend to carry forward our cooperation with other countries in civil nuclear energy, in particular with major nuclear suppliers such as Russia and France.

13. We already have a comprehensive nuclear infrastructure. We have a corps of skilled and technically qualified manpower in this sector. It makes sense for us to leverage this valuable asset. As Hon'ble Members are aware, our target for the year 2020 is 20,000 MW of nuclear power generation. It is quite modest.

However, if international cooperation once again became available, we could hope to double this target.

14. On the basis of the Indo-US bilateral Agreement and the finalisation of an India-specific Safeguards Agreement with the IAEA, which is being taken up shortly, the Nuclear Suppliers Group is expected to adapt its guidelines to enable international commerce with India in civil nuclear energy and all dual use technologies associated with it. This would be the beginning of the end of the technology-denial regimes against India that have been in existence for over three decades.

15. Apart from its direct impact on our nuclear energy programme, this Agreement will have major spin-offs for the development of our industries, both public and private. High technology trade with the US and other technologically advanced countries will expand rapidly.

16. I wish to draw attention to another major gain for India from this initiative.

We will be creating opportunities for our scientists to participate in the international exchange of scientific ideas and technical know-how and to contribute to the global effort to deal with the world-wide challenges of energy security and climate change. This includes the International Thermonuclear Research Reactor or ITER project, in which India has already joined as a full and equal member along with a handful of technologically advanced countries.

17. In discussions on this subject, questions have been raised about Government's commitment to an independent foreign policy. I have clearly spelt out the Government's position in this regard in my statements to Parliament in March and August 2006. I had specially underlined that the pursuit of a foreign policy that is independent in its judgement is a legacy of our founding fathers and an abiding commitment of my

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Government. India is too large and too important a country to have the independence of its foreign policy taken away by any power.

Today, India stands on the world stage as an influential and respected member of the international community. There is independence in our thought and independence in our actions.

18. I would like to reiterate that our engagement today with all global powers like US, Russia, China, EU, UK, France, Germany and Japan is unprecedented. Engagement with West, East, South East and Central Asia has been significantly stepped up with visible results. We are building new frontiers in our ties with Africa and Latin America. In South Asia we seek to develop a peaceful environment, one that is conducive to ambitious developmental targets. I urge those who question our commitment to an independent foreign policy to display the same degree of confidence in India, as others from outside do.

19. Thus, there is no question that we will ever compromise, in any manner, our independent foreign policy. We shall retain our strategic autonomy.

At the same time, we must not forget India's long-standing commitment to the noble ideas of nuclear disarmament and our refusal to participate in any arms race, including a nuclear arms race. Our commitment to universal, non-discriminatory and total elimination of nuclear weapons remains undiminished. It was this vision of a world free of nuclear weapons which Shri Rajiv Gandhi put before the UN in 1988 and this still has universal resonance.

20. We remain committed to a voluntary, unilateral moratorium on nuclear testing. We are also committed to negotiate a Fissile Material Cut-off Treaty or FMCT in the Conference on Disarmament. India is willing to join only a non-discriminatory, multilaterally negotiated, and internationally verifiable FMCT, as and when it is concluded in the Conference on Disarmament, subject to it meeting our national security interests.

21. Despite changes in government and changes in political leadership we have always tempered the exercise of our strategic autonomy with a sense of global responsibility and with a commitment to the ideals of general and complete disarmament, including global nuclear disarmament. This Government believes that our commitment to these ideals and our efforts to realize them must continue, and continue with even greater vigour, now that we are a nuclear weapon state. The possession of nuclear weapons only increases our sense of responsibility and does not diminish it.

22. Pending global nuclear disarmament, India has maintained an impeccable non-proliferation record. As a responsible nuclear power, India will not be the source of proliferation of sensitive technologies. We stand for the strengthening of the non-proliferation regime as the infirmities in this regime have affected our security interests. We will work together with the international community to advance our common objective of non-proliferation.

23. There are now other landmarks to cross before the goal of India joining the international mainstream as a full and equal partner becomes a reality. We have to finalise an India-specific Safeguards Agreement with the IAEA. Thereafter, the Nuclear Suppliers Group has to agree, by consensus, to adapt its guidelines, we expect without conditions, to enable nuclear commerce with India and to dismantle the restrictions on the transfer of dual use technologies and items to our country. The US Administration is to secure requisite approval from the US Congress. The completion of these next steps will mark the practical realization of this initiative.

24. Our negotiators deserve credit for delivering to the nation an Agreement, which can potentially transform the economic prospects of our country. It is an Agreement that will enable us to meet the twin

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challenges of energy security and environmental sustainability, and remove the technology denial regimes that have, for decades, been a major constraint on our development.

At the same time, it will bring India the recognition it deserves thanks to the outstanding achievements of our scientists in nuclear and space sciences as well as other high technology areas.

25. This historic initiative has received the steadfast support of President Bush and senior members of his Administration. The strengthening and enhancement of our bilateral relations is an objective that has received his unstinting personal support and commitment. This Agreement is a shining example of how far we have progressed.

26. Finally, Sir, let me end by saying that we have achieved an Agreement that is good for India, and good for the world. I am neither given to exaggeration nor am I known to be self-congratulatory. I will let history judge; I will let posterity judge the value of what we have done through this Agreement. In days to come it will be seen that it is not just the United States but nations across the world that wish to arrive at a new equilibrium in their relations with India. This agreement with the United States will open new doors in capitals across the world. It is another step in our journey to regain our due place in global councils. When future generations look back, they will come to acknowledge the significance of this historic deal.

URL: <http://www.pib.nic.in/newsite/erelease.aspx?relid=29793>

**Press Information Bureau
Government of India
Ministry of External Affairs**

03-May-2007 16:8 IST

123 Agreement of Civil Nuclear Power

Rajya Sabha

The External Affairs Minister, Shri Pranab Mukherjee in a written reply to an unstarred question informed the Rajya Sabha today that officials from the Government of India and the Government of the United States have held three rounds of talks on the 123 Agreement from June 12-14, 2006 in New Delhi; March 25-27, 2007 in New Delhi; and April 16-19, 2007 in Cape Town, South Africa. The Indian team was led by Dr. S. Jaishankar, currently High Commissioner of India in Singapore, and included other officials of the Ministry of External Affairs and representatives of Department of Atomic Energy and Prime Minister's Office. The U.S. team was led by Mr. Richard Stratford, Director of Office of Nuclear Energy, Safety and Security, Bureau of Nonproliferation in the U.S. Department of State.

India has maintained that our obligations and commitments would be those that we undertake in the bilateral cooperation agreement and that we expect that to reflect the commitments of July 18 Joint Statement and March Separation Plan. The process of negotiating the 123 Agreement is ongoing. Progress has been made on some issues. The final arrangements on various aspects of nuclear cooperation will emerge only after the Agreement has been concluded.

URL: <http://www.pib.nic.in/newsite/erelease.aspx?relid=27404>

Nuclear and Arms Control Centre

**Press Information Bureau
Government of India
Ministry of External Affairs**

12-December-2006 12:40 IST

Suo-Moto Statement by the Minister of External Affairs, Shri Pranab Mukherjee, on 'Indo-US Civil Nuclear Co-Operation' in Lok Sabha on

The following is the text of the Suo Moto Statement made by the Union Minister of External Affairs, Shri Pranab Mukherjee, on 'Indo-US Civil Nuclear Cooperation' in Lok Sabha today:

“ I rise to share with this august House recent developments pertaining to the implementation of the understanding between India and the United States on the resumption of civilian nuclear energy cooperation. A reconciled Bill for this purpose was passed by the US House of Representatives and the Senate on 8/9 December 2006.

This nuclear understanding with the USA is significant from the larger perspective of our energy security. Energy has become a critical constraint to expanding our economic growth and development. We have to expand our generating capacity in every form of energy. Presently, nuclear energy provides less than 3% of our energy mix. Our current estimates envisage nuclear power generation of 30,000 MWe by 2022 and 63,000 MWe by 2032. The absence of international cooperation seriously constrains us from reaching these nuclear energy targets. India is today seriously pursuing several energy options including clean coal technologies, exploitation of coal bed methane and gas hydrates, wind as well as solar power. India can today expand its access to other forms of energy, relying on market mechanisms to do so. Our access to nuclear energy is impeded by an international regime and requires a political solution consistent with our national security and energy requirements.

The US Administration committed in the 18th July Joint Statement to adjust its laws that otherwise prohibited civil nuclear energy cooperation with India. Although the passage of any legislation is an internal matter of that country on which we would not otherwise comment, this legislation is an enabling measure necessary for civil nuclear energy cooperation to be worked out between India and the United States. Keeping that in mind, the enactment of waivers from certain provisions of the US Atomic Energy Act, which allows the United States to cooperate with India in civilian nuclear energy despite our not accepting full scope safeguards and despite maintaining a strategic programme, is significant. We recognize the initiative that President Bush has taken to make these exceptions for India possible. We also note the bipartisan support that this initiative has garnered in the US Congress.

The legislation that has been passed is an enabling measure that will now allow US negotiators to discuss and conclude with India a bilateral cooperation agreement, which is popularly known as a 123 Agreement. Such an agreement is a pre-requisite for nuclear cooperation and trade with the United States. In parallel, we are engaging the International Atomic Energy Agency with the intention of negotiating and concluding an India-specific Safeguards Agreement and an Additional Protocol. At a broader level, we have already been discussing with member States of the Nuclear Energy Suppliers' Group (NSG) the need for an adjustment of their guidelines to permit transfers to India. We have briefed them collectively on various issues of mutual interest and look forward to their taking a decision on the adjustment of NSG guidelines at an appropriate time. We should bear in mind that while every stage of this process is important, the test of this process is for India to secure full civil nuclear cooperation with the international community while protecting our strategic programme and maintaining the integrity of our three-stage nuclear programme and indigenous research and development.

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I would like to inform the House that the US Administration has categorically assured us that this legislation enables the United States to fulfill all of the commitments it made to India in the July 18 and March 2 Joint Statements and that this legislation explicitly authorizes civil nuclear cooperation with India in a manner fully consistent with those two Statements. We fully expect the July 18 Statement and the March 2 Separation Plan to be reflected in the text of the 123 Agreement.

In regard to the principles and concerns that guide our approach to the nuclear understanding, the Prime Minister had set forth the Government's position when he spoke to the Parliament on August 17, 2006. These principles and concerns continue to remain the basis for our engagement with the United States and the international community on the tasks ahead. I would also like to share with the House that the Government has taken note of certain extraneous and prescriptive provisions in the legislation. We have always maintained that the conduct of foreign policy determined solely by our national interests is our sovereign right. We have also been clear that our strategic programme remains outside the purview of these discussions. We will not allow external scrutiny of or interference with the strategic programme.

Eventually, our objective is that technology denial regimes that have targeted India for so many decades must be dismantled so that our national development is unimpeded. We are also committed to creating a climate where our scientists and technologists can participate in and contribute to international initiative in various fields. We have taken a big step towards that goal and I am sure that the House would continue to support us in that endeavour."

NSD

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**Press Information Bureau
Government of India
Ministry of External Affairs**

23-November-2006 17:42 IST

Current status of Indo-US nuclear deal

LOK SABHA

The US Congress is currently considering amendment to US laws to enable full civil nuclear energy cooperation with India. On 26 June, 2006, the US House International Relations Committee passed a Bill H.R. 5682 titled "United States and India Nuclear Cooperation Promotion Act of 2006" with a strong majority of 37-5. Later the Bill was passed with an overwhelming majority of 359-68 by the US House of Representatives on 26 July, 2006. Similarly, US Senate Foreign Relations Committee approved by a vote of 16-2 its version of the Bill S.3709 entitled the "United States and India Peaceful Atomic Energy Cooperation Act" on June 29, 2006. On 16 November, 2006, the US Senate in its lame duck session passed the Bill by an overwhelming majority of 85-12. A Conference will be convened shortly by the Congress to reconcile the House and Senate versions of the Bill which will then be voted upon in its final form by both chambers.

The nuclear understanding has been discussed with the US side in several meetings since July 18, 2005. Notable meetings, apart from the meetings referred elsewhere in the note, inter alia, include:

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- Meeting between President Bush and Prime Minister on March 2, 2006 in New Delhi.
- Meeting between Prime Minister and President Bush in New York on September 25, 2005
- Meeting between Prime Minister and President Bush in St. Petersburg on July 17, 2006.
- Meetings with leaders in the US Congress during the visits of Foreign Secretary to Washington DC.
- Meeting between Foreign Secretary and US Under Secretary Burns in Washington DC in April 2006.
- Meeting between Foreign Secretary and US Under Secretary Burns in London on May 23, 2006.
- Meeting between Foreign Secretary and US Under Secretary Burns in Paris in July, 2006.
- Meeting between Foreign Secretary and US Under Secretary Burns in New York in September, 2006.
- Meeting between RM and US Secretary of State Condoleezza Rice in New York on September 21, 2006.

The above meetings were used to exchange views and take stock of the process underway to bring about full civil nuclear energy cooperation, and to convey India's concerns on some aspects of the legislation under consideration in the US Congress.

Earlier, an India-US Working Group was set up for implementation of the nuclear understanding and met four times: in Delhi from October 21-22, 2005, in Washington DC from December 21-22, 2005, In Delhi from January 19-20, 2006 and again in Delhi from February 23-24, 2006.

India-US Bilateral Nuclear Cooperation Agreement

Both sides held one round of 123 negotiations from June 12-14, 2006 during which substantial progress was registered. Foreign Secretary also met Under Secretary Burns in July and September, 2006 to discuss US legislation and the next steps on the 123 Agreement negotiations. Thereafter, an informal meeting between teams of the two countries took place in New Delhi from November 6-8, 2006 to discuss various concepts pertaining to the legislation and unresolved issues in the agreement.

Discussions with IAEA

Discussions with IAEA on the Safeguards Agreement were initiated when the Chairman of the Atomic Energy Commission, Dr. A. Kakodkar visited Vienna in early March, 2006 for a meeting with the Director General of the IAEA. Subsequently, an IAEA team visited New Delhi for discussions with the Indian side on July 8, 2006.

Adjustment of NSG Guidelines

As part of its commitments, US circulated a statement in the NSG in March, 2006 proposing to adjust NSG Guidelines with respect to India to enable full civil nuclear cooperation. An Indian delegation made a presentation to the NSG meeting in Vienna in October, 2006. We have also taken up this issue bilaterally with a number of countries.

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Prime Minister had made a statement during a Short Duration Discussion in Rajya Sabha on 17 August and in Lok Sabha on 23 August, 2006. The statements made clear that anything that went beyond the parameters of July 18 Joint Statement would be unacceptable to India. There were elements of concerns with regard to what is in the current version of the Bills, and these had been conveyed to the US Government. It would be premature to predict the eventual outcome of this process or to comment on the matter till we have seen the legislation in its final form.

The India-US nuclear understanding is as laid out in the July 18, 2005 Joint Statement and the Separation Plan tabled in Parliament by the Prime Minister on March 7, 2006. There is no question of accepting any additional requirements beyond those contained in July 18, 2005 Joint Statement and March 2006 Separation Plan. This has been conveyed to the US side. The US side in its Statement of Administration Policy of July 26, 2006 issued after the passage of the House version of the Waiver Bill has clarified that any conditions imposed by the waiver bills to be passed by US Congress that goes beyond the July 18, 2005 Joint Statement would not be acceptable to the US Administration.

India finalized its Separation Plan in March, 2006 and it was tabled in the Parliament by the Prime Minister on March 7, 2006. The full and complete version of this plan as once again laid on the table of the Parliament by PM on 11 May, 2006. The Separation Plan has laid out the schedule of placing India's nuclear reactors under safeguards beginning from 2007. As, Prime Minister stated in the Parliament, on 17 August, 2006, India will not place its nuclear facilities under safeguards till all restrictions on India are lifted.

Government of India is seized of all aspects of the matter. However, specific policy decisions would need to be taken only at an appropriate time.

It is premature to speculate on the specific time by which supplies could commence as the process to enable full civil nuclear energy cooperation with India is still underway.

The above information was given by the External Affairs Minister, Shri Pranab Mukherjee in reply to a question in the Lok Sabha.

NSD/MK

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=22266>

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**Press Information Bureau
Government of India
Ministry of External Affairs**

17-November-2006 13:52 IST

Statement by External Affairs Minister, Shri Pranab Mukherjee on the passage of the bill on Indo-US Civil Nuclear Cooperation in US Senate

The following is the text of the Statement of External Affairs Minister, Shri Pranab Mukherjee on the passage of the Bill on Indo-US Civil Nuclear Cooperation in US Senate:

“We welcome the passage of the Bill on Indo-US civil nuclear cooperation in the US Senate by an overwhelming majority. This, undoubtedly, reflects the very broad bipartisan support which this initiative enjoys.

President Bush and Secretary of State Rice have worked personally to ensure the passage of the Bill and we express our sincere appreciation for their tireless efforts.

We now expect that the final version of the legislation, which would emerge after the Joint Conference of the House and Senate, should adhere as closely as possible to the understandings incorporated in the July 18, 2005 Indo-US Joint Statement and the March 2006 Separation Plan, so that full civil nuclear cooperation between India and the US becomes a reality and contributes to India’s energy security.

We understand that, as per present indications, the Joint Conference will convene after the passage of the Bill, and the final version will likely come up for a vote by both Houses when they reconvene after the Thanksgiving holidays, on December 4, 2006. We must await the final version before drawing any conclusions on the legislation.”

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URL: <http://pib.nic.in/newsite/erelease.aspx?relid=22093>

**Press Information Bureau
Government of India
Ministry of Defence**

25-September-2006 16:10 IST

Defence Minister expresses hope for early commencement of Indo-US nuclear cooperation agreement

The Defence Minister Shri Pranab Mukherjee has said that Indo – US civil nuclear agreement is emblematic of the new relationship between both the countries. Addressing the Indian – American Community at a reception hosted by Indian Ambassador to United States Shri Ronen Sen in New York last night, Shri Mukherjee said that this agreement pertains solely to civilian power generation. He said the agreement does not pertain to and will not in any way affect our strategic and our indigenous research programme. The Defence Minister said that India looks forward to the completion of the legislative and other processes to permit the commencement of civil nuclear cooperation.

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Following is the full text of the speech delivered by Defence Minister Shri Pranab Mukherjee:-

I am delighted to be in your midst this evening. We are in a period of good cheer in India on the eve of our annual festive season, when we will be celebrating festivals of many great faiths which have enriched our heritage over the centuries and millennia. The holy month of Ramzan has just begun today. We marked the beginning of the Jewish New Year yesterday. Amongst you I see so many faces of diverse India, and I feel as if I am at home.

When I look at you and meet other fellow Indians from different parts of the world, I often ask myself - what is it about us that we are able to adapt ourselves so easily to different societies, traditions and cultures? Why is it possible for Indians to make different places their home and to make themselves liked and admired? How is it that they make such meaningful contributions to the societies in which they live? In short, how is it so effortless for them to adapt seamlessly to the globalised world and yet retain their links over generations with the glorious civilizational heritage of India? While I do not always look at antiquity to seek answers to the riddles of contemporary times, I am convinced that many of the answers to the success of Indians at home and abroad lie in our history and culture.

It is indeed a matter of great pride for us that we represent a great and composite civilization that defines our “Indianness” and our worldview. Our thinking is shaped by a history in which practically all the communities of world have thrived. India has always been a mosaic of cultures and an open society. Great religions have been born in our nation, and many from outside have been absorbed and internalised. Not many people are aware that while the great religions of the East - Hinduism, Buddhism, Sikhism, Jainism and many others - grew from the soil of India, the faiths from West Asia were also embraced with equal respect and reverence. It was as early as the middle of the first century AD that Christianity came to India; that is about a thousand years before it took root in most of Europe. Jewish people lived in India with dignity and respect for centuries. Islam came first to India with Arab traders and enriched our civilization. Zoroastrians sought refuge and thrived in India for centuries. This rich heritage became an integral part of our identity. In contemporary India, it is reflected in our commitment to secularism, which is enshrined in our Constitution.

In a world of conflict and bigotry, India provides an alternative model of peaceful co-existence. In an age in which people talk of the end of history and a clash of civilizations, Gandhi’s message is that civilizations enrich each other by overlapping and interacting.

Another characteristic of the globalized world is the exchange of goods, services and people amongst the different parts of the world. It is a reflection of the logic of business and industry that they will move to wherever it is profitable and economical. This was also happening thousands of years ago. A spice route traveled north through Jammu & Kashmir in India to Central Asia to connect with the great Silk Route from China to Europe. Similarly, ships from the Malabar coast of India sailed to the Gulf and the Red Sea for further movement to the west. Ships from the eastern coast of India also traveled great distances to the Far East for trade and other exchanges. This overland and maritime trade connected our land with distant peoples and cultures. India has never been an insular land unused to trade and commerce with others. It is, therefore, not surprising that we see merit today in an increasingly inter-dependent and globalised world. The logic of our economic reforms was to strengthen ourselves to compete, and by competing, further strengthen our nation.

I am aware that you represent the fastest growing and third most populous Asian group in the United States. Indian-Americans are the best educated and amongst the wealthiest ethnic groups in this country. The largest number of foreign students in US universities is from India. Thousands of prominent Indian-American scientists, faculty members and research workers are contributing to the intellectual capital in American

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universities and other institutions. Indian-Americans have made their mark in areas of high technology and innovation, real estate development, journalism, legal practice, literature, music and art. They run a number of successful small businesses, head some large US corporations and control about 40% of hotels in this country. With over 40,000 doctors and more than 12,000 medical students and interns, Indian Americans contribute significantly to healthcare in the United States.

You have the great advantage of coming from an open and pluralist society and making another free society your home. And openness is the basis of human creativity. Democracies sometimes seem noisy and divisive, but they are ultimately the true guarantee of unity and equitable development. Free and fair elections in India over the last six decades and the steady strengthening of democratic institutions have ingrained a tradition of democracy in such a large and diverse a country – a phenomenon which is unparalleled and unprecedented in world history. A society as diverse as India can only be governed as a democratic, federal and pluralist polity. Since, for most of you, your country of origin and your country of adoption are both democracies, I am sure that your participation, as good American citizens, in the political process of this country will serve your and this nation's long-term interests. I have thus been heartened to learn of contribution of the Indian-American community to political life of the United States. I am sure that, with each passing year, your participation in the political processes at the local, state and national level, will continue to increase and be commensurate with your contributions to other aspects of life in the United States.

The Indian-American community has rightly earned for itself an extraordinary place in this country. We rejoice in your well-being and take great pride in your achievements. As you have flourished, so has the relationship between India and the United States. Today, we stand on the cusp of a great transformation in this relationship. Your role in this process is vital. Your creativity, knowledge and work ethic have helped to transform the image of India in American minds. In a relatively short span of time, you have traversed a vast distance. The rise of the influence of the Indian-American community has occurred in parallel with the strategic, economic and technological resurgence of India. India has experienced a noticeable growth of its GDP in the last few years, which reached 7.5% in fiscal 2004 and 8.4% in fiscal 2005. Our economy continues to remain buoyant and we hope to have sustained growth at higher levels. In the first four months of fiscal 2006, our exports have grown by nearly 34%. During the first quarter of 2006-07, foreign direct investment inflows into India have grown 47%. India's industrial growth was 12.4% in July 2006; the fastest in the past decade. It will perhaps not be inaccurate to say that India is today the fastest growing democracy in the world.

India has, and will, continue to be a responsible member of the international community. We are one of the largest troop contributing countries to UN peacekeeping operations. Within our capabilities, we have always responded to the need for relief and supplies in case of natural disasters in any part of the globe. Even as a country affected by the tsunami of December 2004, we were the first to provide help to neighbours such as Sri Lanka, Maldives and Indonesia. When Hurricane Katrina caused death and devastation in the United States, we made a modest contribution in money and relief supplies flown abroad Indian Air Force aircraft as a gesture of our sympathy and solidarity with the American people. When an earthquake struck the northern Indian state of Jammu and Kashmir and parts of Pakistan, we offered assistance to our neighbour.

India has also been a responsible member of the international community in other ways. Despite being the first Asian country to have built a nuclear reactor indigenously and then developing full nuclear fuel cycle activities, we have always used these sensitive technologies with great caution and care. There has not been even one case of outward nuclear proliferation from India to any country. This is the premise on which the international community today is prepared to cooperate with us in developing civil nuclear technology.

Our initiatives have not been limited to that of civil nuclear cooperation. Let us look at some developments in

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the last 18 months alone. During this period, India and the United States signed an Open Skies Agreement to increase the number of flights between our countries and enhance trade and tourism. Since then the number of flights have increased and non-stop flights between the two countries have commenced. We concluded the Next Steps in Strategic Partnership, or the NSSP process. This has made licensing procedures for export of sensitive goods and technologies from the United States to India easier and more predictable. We have established an Energy Dialogue that aims at boosting cooperation across the whole spectrum of energy sources. We have established a new Economic Dialogue between our two Governments, and launched a CEO's Forum representing top Indian and US companies. The New Framework for the India-US Defense Relationship that Defence Secretary Rumsfeld and I concluded in June last year laid the foundation for cooperation, including in defence industry. India and the United States have also signed a bilateral Science and Technology Agreement and established a Bi-National Science and Technology Commission with the objective of vastly enhancing cooperation in basic and applied sciences. We have decided to cooperate in the field of space. We have established a Knowledge Initiative in Agriculture aimed at generating a second Green Revolution in India. We have also taken various India-US initiatives which will have a positive global impact - in promotion of democracy, in natural disaster management, in meeting the challenges caused by pandemics like HIV/AIDS and avian flu and in other fields. Hence growing India-US cooperation will not only be of benefit to India and the USA but have a positive global impact.

I am confident that this trend of closer India-US partnership will strengthen in the coming years. India will continue its rise in the comity of nations, and so will the role of the Indian American community within the United States. The future of India and that of the Indian-American community within the United States thus appear to be intrinsically inter-twined. To respond to the widespread desire of this vibrant and dynamic community to have greater formal links with the land of its origin, our Government took the initiative of creating a separate Ministry of Overseas Indian Affairs and also put in place the overseas citizenship scheme.

I appreciate the fact that you have come from far and near to attend this reception. I extend my warm greetings and good wishes to all of you who are present this evening, as well as to all resident Indian citizens and Indian-Americans. We look forward to continuing to work together even more closely with you in forging a deeper partnership between India and the United States, based on the abiding values cherished by both our countries as well as our common concerns and intersecting interests.

I thank you for gracing this occasion with your presence and giving me a patient hearing.

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**Press Information Bureau
Government of India
Ministry of Defence**

22-September-2006 12:1 IST

Pranab Mukherjee holds talks with Condoleeza Rice on Civil Nuclear Cooperation

The Defence Minister Shri Pranab Mukherjee, who is now in New York to represent India at the 61st United Nations General Assembly, met the US Secretary of State Ms Condoleezza Rice yesterday and held discussions on a wide range of issues including the implementation of the nuclear understanding. They also covered regional and international issues of common interest and concern.

In his meetings with the Foreign Minister Maryam Aladji Diallo of Benin, discussions covered bilateral

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issues, in particular, the subject of technical cooperation and infrastructure development, for which Shri Mukherjee agreed to extend India's support. The Foreign Minister of Benin was appreciative of the role played by India in the region and in international affairs. Benin reiterated its willingness to work with India to achieve the goal of comprehensive reform of the UN Security Council.

In his meeting with Foreign Minister Abdellah El-Khatib of Jordan, the Defence Minister discussed bilateral cooperation with his interlocutor. The two leaders agreed that there was considerable untapped potential in the bilateral economic and commercial relationship, in particular in the areas involving the private sector of both countries. The situation in the West Asia was also discussed by the two leaders.

Minister Saleh Maky of Eritrea briefed Shri Mukherjee about the regional situation, and outlined Eritrea's appreciation for India's support for its developmental programmes. The Defence Minister assured him of India's continued commitment to assist in the development of Eritrea. The Eritrean dignitary described bilateral relations in very positive terms.

Shri Mukherjee also called upon the President of the 61st UN General Assembly, Sheikha Haya Rashed Al-Khalifa. The President of the General Assembly spoke of the need for all member countries of the UN to make efforts to revitalize the Organization, particularly as it has completed its sixtieth year. Areas of focus that emerged in the meeting included developmental issues, the counter-terrorism strategy (adopted in early September by the last General Assembly). Both agreed on the need for reforming the United Nations at this juncture.

Apart from his bilateral meetings, the Defence Minister participated in an informal luncheon meeting of SAARC Ministers, hosted by the Bangladesh Foreign Minister, Mr. Morshed Khan in his capacity as the current Chairman of SAARC. Apart from discussing ways of improving coordination between SAARC countries and the need for implementing the agenda set by the leaders of the SAARC nations at the Summit in Dhaka in November 2005, the group considered ways of expanding coordination at all levels among the SAARC nations. In his capacity as the representative of incoming Chair of SAARC, RM gave the vote of thanks wherein he underlined the importance of expanding coordination among the SAARC nations, so as to realize the potential of the Group, its constituent countries and to realize the vision of the founding fathers of SAARC.

Shri Mukherjee also participated in a meeting of the Asian Cooperation Dialogue, which was chaired by the Foreign Minister of Qatar. Foreign Ministers of equivalent were present at the meeting from as many as 22 countries, and a further six of the participants were at senior representative level. The meeting adopted a report prepared by a Small Group (of four countries) on the future plans and direction of the group, over a period of ninety minutes.

SK / RAJ

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**Press Information Bureau
Government of India
Prime Minister's Office**

26-August-2006 19:55 IST

Nuclear Scientists Welcome PM's Statement in Rajya Sabha on India- US

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Nuclear Agreement

A group of eminent nuclear scientists, including Dr H N Sethna, Dr P K Iyengar, Dr. M R Srinivasan and others, met Prime Minister Dr Manmohan Singh here today and welcomed his statements in Parliament earlier this week on the agreement India is negotiating with the United States of America and the International Atomic Energy Agency on cooperation in civil nuclear energy. One of the scientists, Dr M R Srinivasan, summed up the view of the group stating: “Your statement was beautiful. We loved it.”

The scientists reiterated their concerns about the changes being sought by members of the US Congress to the July 18th 2005 Joint Statement issued by the U.S. President, Mr George Bush and Prime Minister Singh. The Prime Minister reiterated the assurances he had given to Parliament in this regard.

The Prime Minister invited the nuclear scientists to “help outline a path to take advantage of this new opening (provided by the nuclear agreement) to end the nuclear apartheid against India.” He asked them to show “how best to use the opportunities on the horizon, while minimising the risks and taking care of our national interests.”

The 90 minute meeting covered a wide range of issues. The Prime Minister asked the Department of Atomic Energy and the National Security Advisor to remain in touch with the scientists and take their advise while negotiating the safeguards agreement and the India-specific additional protocol with the IAEA.

YSR/ND/SK

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=20326>

**Press Information Bureau
Government of India
Prime Minister's Office**

17-August-2006 21:52 IST

Excerpts from Prime Minister's Reply to Discussion in Rajya Sabha on Civil Nuclear Energy Cooperation with the United States on 17.8.2006

.At the outset, I would like to convey my gratitude to all the Hon'ble Members who have participated in this debate. I am grateful for this opportunity to clarify some of the issues arising from the discussion. I will do so in a non partisan spirit and I have every reason to believe that after I have finished that I will be able to carry the whole House with me. Our Government has never shied away from a full discussion in Parliament on this important issue. On three previous occasions on July 29, 2005, February 27, 2006 and March 7, 2006, I had made detailed statements and discussed this important subject in this august House. Once again, several issues have been raised during the current discussions and I wish to take this opportunity to respond to them. I also intend to cover developments since my last Suo Motu statement of March 7 this year.

2. Two types of comments have been made during the discussion in the House. The first set of issues

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pertains to the basic orientation of our foreign policy. Some Hon'ble Members have observed that by engaging in discussions with, and allegedly acquiescing in the demands made by the United States, we have compromised the independent nature of our foreign policy.

3. The second set of issues pertain to deviations from the July 18 Joint Statement and the March 2 Separation Plan. Many of the points raised by the Hon'ble Members have also been aired outside Parliament, notably also by some senior members of the scientific establishment. Overall, a listing of the important concerns include the following: that the India-US Nuclear initiative and more particularly the content of the proposed legislation in the US Congress, could undermine the autonomy of our decision-making; limit the options or compromise the integrity of our strategic programme; and adversely affect the future of our scientific research and development. To sum up, this would suggest that India's strategic nuclear autonomy is being compromised and India is allowing itself to be pressurized into accepting new and unacceptable conditions that are deviations from the commitments made by me to Parliament in July 2005 and in February and March this year.

4. I recognize that many of these concerns are borne out of genuine conviction that nothing should be done that would undermine long standing policies that have a bearing on India's vital national security interests. I fully share and subscribe to these sentiments. I would like to assure the Hon'ble Members that negotiations with the US regarding the civilian nuclear deal have not led to any change in the basic orientation of our policies, or affected our independent judgment of issues of national interest. Last year during my visit to the US, I addressed the National Press Club in the full glare of the media. A question was put to me regarding what I thought about the US intervention in Iraq. In the full public glare of the media I said that it was a mistake. I said the same to President Bush when he visited India. I said India does not find favour with regime change.

5. The thrust of our foreign policy remains the promotion of our national interest. We are unswerving in our commitment to an independent foreign policy. We do recognize the complexities present in an increasingly inter-dependent and multi-polar world. While we recognize that the United States is a pre-eminent power and good relations with the U.S. are in our national interest, this has not in any way clouded our judgment. There are many areas of agreement with the United States, but at the same time there are a number of areas in which we have differences and we have not shied away from making these known to the US, as also expressing them in public. Currently, we are engaged not only with the US but other global powers like Russia, China, the EU, UK, France and Japan. We are also focusing on ASEAN, as well as countries in West Asia, Africa and Latin America. More importantly, we are devoting proportionately larger time and effort in building relations with countries in our immediate neighbourhood like Nepal, Bhutan, Sri Lanka, Bangladesh, Myanmar, and Pakistan. Our relations with all these countries are determined by the dictates of our enlightened national interest and we have not allowed any other country, including the United States, to influence our policies. This will not change as long as I am Prime Minister.

6. I would, hence, again reiterate in view of the apprehensions expressed, that the proposed US legislation on nuclear cooperation with India will not be allowed to become an instrument to compromise India's sovereignty. Our foreign policy is determined solely by our national interests. No legislation enacted in a foreign country can take away from us that sovereign right. Thus there is no question of India being bound by a law passed by a foreign legislature. Our sole guiding principle in regard to our foreign policy, whether it is on Iran or any other country, will be dictated entirely by our national interest.

7. Let me now turn to some of the concerns that have been expressed on the second set of issues regarding possible deviations from assurances given by me in this august House on the July 18, 2005 Joint Statement and the March 2, 2006 Separation Plan. I would like to state categorically that there have neither

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been nor will there be any compromises on this score and the Government will not allow such compromises to occur in the future.

8. Hon'ble Members will recall that during President Bush's visit to India in March this year, agreement was reached between India and the United States on a Separation Plan in implementation of the India-United States Joint Statement of July 18, 2005. This Separation Plan had identified the nuclear facilities that India was willing to offer, in a phased manner, for IAEA safeguards, contingent on reciprocal actions taken by the United States. For its part, the United States Administration was required to approach the US Congress for amending its laws and the Nuclear Suppliers' Group for adapting its Guidelines to enable full civilian nuclear cooperation between India and the international community.

9. The US Administration had thereafter approached the US Congress to amend certain provisions of the United States Atomic Energy Act of 1954, which currently prohibit civil nuclear cooperation with India. The US House of Representatives International Relations Committee passed a Bill on the subject on 27th June 2006. The House of Representatives passed the Bill as approved by its International Relations Committee on July 27.

10. The Senate Foreign Relations Committee passed its version of the Bill on June 29, 2006. The US Senate is now expected to vote on this version of the Bill some time in September. We have concerns over both the House and Senate versions of the Bill. Since the two Bills are somewhat different in content, according to US practice they will need to be reconciled to produce a single piece of legislation. After adoption by both the House and the Senate, this would become law when the US President accords his approval. The final shape of the legislation would, therefore, be apparent only when the House and the Senate complete the second stage of assent/adoption.

11. Meanwhile, the US Government has approached the Nuclear Suppliers' Group to adapt its guidelines to enable full civil nuclear cooperation between India and the International community. In March this year, the NSG at its plenary meeting in Brazil held a preliminary discussion on this issue. The matter will be further discussed by the Nuclear Suppliers' Group later this year. On our part, we have separately raised this issue with several countries and urged them to lift the existing restrictions on nuclear supplies to India. I myself have raised this issue with the Heads of State or Government of Russia, France, UK, Japan, Germany, Brazil, Norway, Iceland and Cyprus, among others.

12. In view of the concerns voiced by the Hon'ble Members, I shall try to address each of these concerns in some detail. I shall, however, begin by affirming that our approach is guided by the understandings contained in the July 2005 Joint Statement and the March 2006 Separation Plan. What we can agree with the United States to enable nuclear cooperation must be strictly within these parameters.

13. The key provisions to which references have been made in Parliament and outside are the following:

- (i) **Full Civil Nuclear Cooperation** : The central imperative in our discussions with the United State on Civil Nuclear Cooperation is to ensure the complete and irreversible removal of existing restrictions imposed on India through iniquitous restrictive trading regimes over the years. We seek the removal of restrictions on all aspects of cooperation and technology transfers pertaining to civil nuclear energy - ranging from nuclear fuel, nuclear reactors, to re-processing spent fuel, i.e. all aspects of a complete nuclear fuel cycle.

This will be the surest guarantee of India's acceptance as a full and equal partner of the international nuclear community, even while preserving the integrity of our three stage

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nuclear programme and protecting the autonomy of our scientific research and development. We will not agree to any dilution that would prevent us from securing the benefits of full civil nuclear cooperation as amplified above.

- (ii) **Principle of Reciprocity** : I had earlier assured the House that reciprocity is the key to the implementation of our understanding contained in the July 2005 Statement. I stand by that commitment. When we put forward the Separation Plan, we again made it clear to the United States that India could not be expected to take on obligations such as placing its nuclear facilities under safeguards in anticipation of future lifting of restrictions. India and the United States have held one round of discussions on a proposed bilateral cooperation agreement. India and the IAEA have held technical discussions regarding an India-specific Safeguards agreement. Further discussions are required on both these documents. While these parallel efforts are underway, our position is that we will accept only IAEA safeguards on the nuclear facilities, in a phased manner, and as identified for that purpose in the Separation Plan only when all nuclear restrictions on India have been lifted. On July 29 last year, I had stated that before voluntarily placing our civil nuclear facilities under IAEA safeguards, we will ensure that all restrictions on India have been lifted. There has been no shift in our position on this point.
- (iii) **Certification** : The draft Senate Bill requires the US President to make an annual report to the Congress that includes certification that India is in full compliance of its non-proliferation and other commitments. We have made it clear to the United States our opposition to these provisions, even if they are projected as non-binding on India, as being contrary to the letter and spirit of the July Statement. We have told the US Administration that the effect of such certification will be to diminish a permanent waiver authority into an annual one. We have also indicated that this would introduce an element of uncertainty regarding future cooperation and is, not acceptable to us.
- (iv) **India as a State possessing Advanced Nuclear Technology** : Hon'ble Members may recall that the July Statement, had acknowledged that India should be regarded as a State with advanced nuclear technology enjoying the same advantages and benefits as other states with advanced nuclear technology, such as the US. The July Statement did not refer to India as a Nuclear Weapons State because that has a particular connotation in the NPT but it explicitly acknowledged the existence of India's military nuclear facilities. It also meant that India would not attract full-scope safeguards such as those applied to Non-Nuclear Weapon States that are signatories to the NPT and there would be no curbs on continuation of India's nuclear weapon related activities. In these important respects, India would be very much on par with the five Nuclear Weapon States who are signatories to the NPT. Similarly, the Separation Plan provided for an India-specific safeguards agreement with the IAEA with assurances of uninterrupted supply of fuel to reactors together with India's right to take corrective measures in the event fuel supplies are interrupted. We have made clear to the US that India's strategic programme is totally outside the purview of the July Statement, and we oppose any legislative provisions that Mandate scrutiny of either our nuclear weapons programme or our unsafeguarded nuclear facilities.
- (v) **Safeguards Agreement and Fuel Assurances** : In this respect too, it is worth emphasizing that the March 2006 Separation Plan provides for an India-Specific Safeguards Agreement with the IAEA, with assurances of uninterrupted supply of fuel to reactors that would be placed under IAEA safeguards together with India's right to take corrective measures in the event fuel

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supplies are interrupted. We, of course, have the sovereign right to take all appropriate measures to fully safeguard our interests. An important assurance is the commitment of support for India's right to build up strategic reserves of nuclear fuel over the lifetime of India's reactors. We have initiated technical discussions at the expert level with the IAEA on an India-Specific Safeguards Agreement. Both the Bilateral Nuclear Cooperation Agreement with the United States and the India-Specific Safeguards Agreement with the IAEA would be only within the parameters of the July Statement and the March Separation Plan. There is no question of India signing either a Safeguards Agreement with the IAEA or an Additional Protocol of a type concluded by Non-Nuclear Weapons States who have signed the NPT. We will not accept any verification measures regarding our safeguarded nuclear facilities beyond those contained in an India-Specific Safeguards Agreement with the IAEA. Therefore there is no question of allowing American inspectors to roam around our nuclear facilities.

- (vi) **Integrity and reliability of our strategic programme – autonomy of decision-making and future scientific research and development:** In my statement of March 7, 2006, I had assured Parliament that the Separation Plan would not adversely affect our strategic programme. I reiterate that commitment today. The Separation Plan has been so designed as to ensure adequacy of fissile material and other inputs for our strategic programme, based on our current and assessed future needs. The integrity of our 3-Stage nuclear programme will not be affected. The autonomy of our Research and Development activity, including development of our fast breeder reactors and the thorium programme, in the nuclear field will remain unaffected. We will not accept interference by other countries vis-à-vis the development of our strategic programme. We will not allow external scrutiny of our strategic programme in any manner, much less allow it to be a condition for future nuclear cooperation between India and the international community.
- (vii) **Moratorium on production of fissile material:** Our position on this matter is unambiguous. We are not willing to accept a moratorium on the production of fissile material. We are only committed to negotiate a Fissile Material Cut-off Treaty in the Conference on Disarmament in Geneva, a commitment which was given by the previous government. India is willing to join only a non-discriminatory, multilaterally negotiated and internationally verifiable FMCT, as and when it is concluded in the Conference on Disarmament, again provided our security interests are fully addressed.
- (viii) **Non-discriminatory Global Nuclear Disarmament:** Our commitment towards non-discriminatory global nuclear disarmament remains unwavering, in line with the Rajiv Gandhi Action Plan. There is no dilution on this count. We do not accept proposals put forward from time to time for regional non-proliferation or regional disarmament. Pending global nuclear disarmament, there is no question of India joining the NPT as a non-nuclear weapon state, or accepting full-scope safeguards as a requirement for nuclear supplies to India, now or in the future.
- (ix) **Cessation of Future Cooperation :** There is provision in the proposed US law that were India to detonate a nuclear explosive device, the US will have the right to cease further cooperation. Our position on this is unambiguous. The US has been intimated that reference to nuclear detonation in the India-US Bilateral Nuclear Cooperation Agreement as a condition for future cooperation is not acceptable to us. We are not prepared to go beyond a unilateral voluntary moratorium on nuclear testing as indicated in the July Statement. The same is true of other intrusive non-proliferation benchmarks that are mentioned in the proposed US

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legislation. India's possession and development of nuclear weapons is an integral part of our national security. This will remain so.

14. Hon'ble Members will appreciate the fact that an international negotiation on nuclear energy cooperation particularly when it involves dismantling restrictive regimes that have lasted for over three decades is a complex and sensitive exercise. What we are attempting today is to put in place new international arrangements that would overturn three decades of iniquitous restrictions. It is inevitable, therefore, that there would be some contradictory pulls and pressures. This does not mean that India will succumb to pressures or accept conditionalities that are contrary to its national interests.

15. I had personally spoken to President Bush in St. Petersburg last month on this issue, and conveyed to him that the proposed US legislation must conform strictly to the parameters of the July 18, 2005 Statement and the March 2, 2006 Separation Plan. This alone would be an acceptable basis for nuclear cooperation between India and the United States. India cannot, and is not prepared to, take on additional commitments outside this agreed framework or allow any extraneous issues to be introduced. I have received an assurance from the US President that it was not his intention to shift goalposts, and that the parameters of the scope of cooperation would be those contained in the July 2005 Joint Statement and the March 2006 Separation Plan. A White House Statement of Administration Policy of July 26, 2006 recognizes some, though not all, of India's concerns, and conveyed that the Administration has voiced them with the Congress.

16. I can assure you that there is no ambiguity in our position in so far as it has been conveyed to the US. The US is aware of our position that the only way forward is strict adherence to July Statement and March Separation Plan. I am hopeful that the bilateral India-US Civil Nuclear Cooperation Agreement when concluded will take into account the issues raised here. However, I must be honest and frank that I cannot predict with certainty the final form of the US legislation or the outcome of this process with the NSG, which consists of 45 countries with divergent views. We are hopeful that this will lead in a direction wherein our interests are fully protected and that there is a complete lifting of restrictions on India that have existed for three decades. Such an outcome if it materializes will contribute to our long-term energy security by enabling a rapid increase in nuclear power. It would lead to the dismantling of the technology denial regimes that have hampered our development particularly in hi-tech sectors. I will have wide consultations including with the members of the Atomic Energy Commission, the nuclear and scientific communities and others to develop a broad based national consensus on this important matter. I wish to inform members of the House that I have invited members of the Atomic Energy Commission on the 26th August for a meeting. That same day I have also invited the group of distinguished scientists who have expressed concerns to meet me.

17. Finally, I would only like to state that in keeping with our commitments to Parliament and the nation, we will not accept any conditions that go beyond the parameters of the July 18, 2005 Joint Statement and the March 2, 2006 Separation Plan, agreed to between India and the United States. If in their final form the US legislation or the adapted NSG Guidelines impose extraneous conditions on India, the Government will draw the necessary conclusions, consistent with the commitments I have made to Parliament.

[Prime Minister also gave the following responses to points raised by the Left parties]

1. *Whether the deal will give "full" civilian nuclear technology and lift all existing sanctions on dual use technology imposed on India for not signing the NPT.*

Response: The objective of full civil nuclear cooperation is enshrined in the July Statement. This objective can be realized when current restrictions on nuclear trade with India are fully lifted. In accordance with the July Statement, US has initiated steps to amend its legislation and to approach the NSG to adapt its guidelines. We seek the removal of restrictions on all aspects of cooperation and technology transfers pertaining to civil nuclear energy – ranging from supply of nuclear fuel, nuclear reactors, reprocessing spent fuel, i.e., all aspects of complete nuclear fuel supply. Only such cooperation would be in keeping with the

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July Joint Statement.

2. *Cannot accept restrictions on Indian foreign policy to be imposed such as on Iran, irrespective of whether it is in the policy section or in the sense of the House section of the legislation.*

Response: Government is clear that our commitments are only those that are contained in the July Joint Statement and in the Separation Plan. We cannot accept introduction of extraneous issues on foreign policy. Any prescriptive suggestions in this regard are not acceptable to us. Our foreign policy is and will be solely determined by our national interests. No legislation enacted in a foreign country can take away from us this sovereign right.

3. *Signing of IAEA safeguards in perpetuity for the civilian programme to take place after the US Congress had approved a "123 Nuclear Cooperation Agreement". All restrictions on India to be lifted before we sign the IAEA safeguards.*

Response: I had conveyed to Parliament on July 29, 2005 on my return from Washington that before placing any of our nuclear facilities under IAEA safeguards, we will ensure all restrictions on India have been lifted. Under the Separation Plan agreed to with the United States, India has offered to place under IAEA safeguards 14 of its reactors presently operating or under constructions between 2006 and 2014. The nuclear facilities listed in the Separation Plan will be offered for safeguards only after all nuclear restrictions have been lifted on India. This would include suitable amendments to the US legislation to allow for such cooperation, the passing of the bilateral agreement with India and the adaption of the NSG guidelines. It is clear that India cannot be expected to take safeguards obligations on its nuclear facilities in anticipation of future lifting of restrictions.

4. *Guarantees on fuel as agreed in the March 2006 statement. In case the US reneges on supply of fuel, they will ensure continuity through other members of the Nuclear Suppliers Group (NSG).*

Response: Separation Plan includes elaborate fuel supply assurances given by the United States. Understandings in the Separation Plan also provide for contingency of disruption of fuel supplies to India. In such a case, the United States and India would jointly convene a group of friendly supplier countries (Russia, France and United Kingdom) aimed at restoring fuel supplies to India. An important assurance is the commitment of support for India's right to build strategic reserves of fuel over the life time of its nuclear reactors. In the event of disruption of fuel supplies despite the assurances, India will have a right to take corrective measure to ensure the operation of its nuclear reactors.

5. *India will work for an FMCT and for nuclear disarmament with all nuclear weapon states, in line with the Rajiv Gandhi Plan or Delhi Declaration in tandem.*

Response: Our support for global nuclear disarmament remains unwaivering. Prime Minister Rajiv Gandhi had put forward an Action Plan in the 1988 UNGA Special Session on Disarmament. We remain committed to the central goal of this Action Plan, i.e., complete elimination of nuclear weapons leading to global nuclear disarmament in a time-bound framework. India has agreed to negotiations in the Conference on Disarmament in Geneva for a Fissile Material Cut-off Treaty. There has been no change in our position on this matter.

6. *In the original deal, there is no provision for US inspectors, only provision for IAEA inspectors. The draft US Bills contains such provisions.*

Response: In the Separation Plan, we have agreed to offer for IAEA safeguards nuclear facilities specified in the Separation Plan for that purpose. The nature of safeguards will be determined by an India specific safeguards agreement with the IAEA. This will be applied to the safeguarded nuclear facilities in India. Therefore, there is no question of accepting other verification measures or third country inspectors to

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visit our nuclear facilities, outside the framework of the India specific safeguards agreement.

7. *An India-specific protocol and not an Additional Protocol as per IAEA Standard Modified Protocol.*

Response: In the Separation Plan, we have agreed to conclude an India specific safeguards agreement with the IAEA. The question of an Additional Protocol will arise only after the India specific safeguards agreement is in place. As a country with nuclear weapons, there is no question of India agreeing to a Safeguards agreement or an Additional Protocol applicable to non-nuclear weapon states of the NPT.

8. *References to Iran in the House Bill.*

Response: We reject the linkage of any extraneous issue to the nuclear understanding. India's foreign policy will be decided on the basis of Indian national interests only.

9. *Reference to Proliferation Security Initiative in the House and Senate Bills.*

Response: The Proliferation Security Initiative (PSI) is an extraneous issue as it is outside the framework of the July 18 Joint Statement. Therefore, we cannot accept it as a condition for implementing the July Statement. Separately, the Government has examined the PSI. We have certain concerns regarding its legal implications and its linkages with the NPT. We also have concerns with amendments to the suppression of Unlawful Activities at Sea Treaty under the International Maritime Organisation.

10. The Jackson-Vanik Amendment linking the granting of MFN status to USSR to Jewish emigration is an example relevant to the current debate.

Response: *We have studied the proposed US legislation very carefully, including the so-called binding and non-binding provisions. The non-binding provisions do not require mandatory action, but at the same time, have a certain weight in the implementation of the legislation as a whole. We have conveyed our concerns to the US Administration in this respect. Jackson-Vanik Amendment was binding on the Administration and cannot be cited as a precedent for non-binding references in the current bills. A more accurate example than the Jackson-Vanik Amendment is the set of provisions accompanying the renewal of MFN status to China, that included references to China's human rights, China's political and religious prisoners, protection of Tibetan heritage and freedom of political expression.*

11. Role of Parliament in approving foreign policy.

Response: *India follows a Parliamentary model, as specified in our Constitution, wherein treaty making powers rest with the Executive. However, we have kept Parliament fully in the picture regarding various stages of our negotiations with the United States. Broad based domestic consensus cutting across all sections in Parliament and outside will be necessary. We will work towards that objective by addressing various concerns as fully as possible.*

[Prime Minister also gave the following responses to points raised by the group of nuclear scientists]

1. "India should continue to be able to hold on to her nuclear option as a strategic requirement in the real world that that we live in, and in the ever-changing complexity of the international political system. This means that we cannot accede to any restraint in perpetuity on our freedom of action. We have not done this for the last 40 years after the Non-Proliferation Treaty came into being, and there is no reason why we should succumb to this now. Universal nuclear disarmament must be our ultimate aim, and until we see the light at the end of the tunnel on this important issue, we cannot accept any agreement in perpetuity."

Response: *We are very firm in our determination that agreement with United States on Civil Nuclear*

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Energy in no way affects the requirements of our strategic programme. We are fully conscious of the changing complexity of the international political system. Nuclear weapons are an integral part of our national security and will remain so, pending the global elimination of all nuclear weapons and universal non-discriminatory nuclear disarmament. Our freedom of action with regard to our strategic programmes remains unrestricted. The nuclear agreement will not be allowed to be used as a backdoor method of introducing NPT type restrictions on India. Our offer to put nuclear facilities under safeguards in perpetuity is conditional upon these facilities securing fuel from international sources for their life time. If the fuel supply assurances as enumerated in Separation Plan are disrupted, then India will have the right to take corrective measures to ensure the continued operation of these reactors.

2. ‘After 1974, when the major powers discontinued cooperation with us, we have built up our capability in many sensitive technological areas, which need not and should not now be subjected to external control. Safeguards are understandable where external assistance for nuclear materials or technologies are involved. We have agreed to this before, and we can continue to agree to this in the future too, but strictly restricted to those facilities and materials imported from external sources.’

Response: *Sensitive nuclear technology facilities have not been covered in the Separation Plan. Therefore, there is no question of putting them under safeguards or under external controls. Even with regard to nuclear facilities that have been included in Separation Plan, safeguards will be applied in phases between 2006 and 2014. These safeguarded facilities will be eligible for and will receive fuel materials and technology from international sources. If such supplies cease, then India will be free to protect its interests through corrective measures. That will be spelt out clearly in the India specific safeguards agreement.*

3. ‘We find that the Indo-US deal, in the form approved by the US House of Representatives, infringes on our Independence for carrying out indigenous research and development in nuclear science and technology. Our R&D should not be hampered by external supervision or control, or by the need to satisfy any international body. Research and technology development are the Sovereign rights of any nation. This is especially true when they concern strategic national defence and energy self-sufficiency.’

Response: *Our independence for carrying out independent research and development in nuclear science and technology will remain unaffected. There will be no external supervision of our R&D since none of the sensitive R&D facilities which handle nuclear material have been included in the Separation Plan. Nothing in the Separation Plan infringes on our sovereign right to conduct research and technology development concerning our national defence and energy self-sufficiency. Government is committed to preserve the integrity of the three stage nuclear power programme, including utilization of our vast thorium resources. Certain nuclear facilities including centers such as TIFR, Variable Energy Cyclotron Centre, Saha Institute of Nuclear Physics etc., have been designated as civilian in the Separation Plan. As these facilities will not handle nuclear material, there is no question of safeguards being applied to them. We expect these centers to participate as full partners in international collaboration project.*

4. ‘While the sequence of actions to implement the cooperation could be left for discussion between the two governments, the basic principles on which such actions will rest is the right of Parliament and the people to decide. The Prime Minister has already taken up with President George Bush the issue of the new clauses recommended by the US House of Representatives. If the US Congress, in its wisdom, passes the bill in its present form, the ‘product’ will become unacceptable to India, and diplomatically, it will be very difficult to change it later. Hence, it is important for our Parliament to work out, and insist on, the ground rules for the nuclear deal, at this stage itself.’

Response: *I had taken up with President Bush our concerns regarding provisions in the two bills. It is clear that if the final product is in its current form, India will have grave difficulties in accepting the bills. US*

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has been left in no doubt as to our position. The ground rules for our discussions are clear. These are the parameters of the July Statement and the March Separation Plan and commitments given by me to Parliament in the three Suo Moto Statements and my reply to today's discussions will be the guiding principles of our position. Parliament has been kept fully informed at every stage of the discussions. In their final form, if US legislation or the NSG guidelines impose extraneous conditions on India, the Government will draw the necessary conclusions consistent with my commitments to Parliament.

URL: <http://www.pib.nic.in/newsite/erelease.aspx?relid=19938>

**Press Information Bureau
Government of India
Ministry of External Affairs**

17-August-2006 16:38 IST

Chinese response to proposed Indo-US nuclear agreement

Rajya Sabha

The Minister of State in the Ministry of External Affairs, Shri Anand Sharma informed the Rajya Sabha today that the Chinese spokesman reacting to the signing of the Indo-US Civilian Nuclear Co-operation Agreement during President Bush's visit to India on March 2, 2006, said "China has a clear-cut position on the nuclear co-operation between India and the US. At present, the international non-proliferation community is working on enhancing the authority and effectiveness of the international non-proliferation regime. China hopes that the co-operation of relevant countries can contribute to these efforts, conforms to the regulations of the international non-proliferation regime and their own international obligations". He also added "As a signatory to the Non-Proliferation Treaty, China hopes that non-signatory countries can get on board as non-nuclear states at an early date, and contribute to a stronger international non-proliferation regime as well as the regional and international peace and stability".

The international trade in nuclear materials and technology is regulated, inter alia, by the Nuclear Suppliers Group (NSG). China is a member of NSG. The NSG is presently examining the issue of adjusting its guidelines to enable full international civilian nuclear co-operation with India. The statement issued by NSG after its annual plenary meeting in June 2006 noted "Participating Governments continued to examine the issues raised by the US-India Joint Statement of July 2005. They discussed, in this context, a possible NSG-India relationship regarding civilian nuclear co-operation. They decided to continue their consultations and agreed to return to this matter at the next regular Consultative Group Meeting, when further information might be available".

The above information was given by the Minister in reply to a question by Shri Uday Pratap Singh, MP.

AK/NSD/MK

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=19905>

Nuclear and Arms Control Centre

**Press Information Bureau
Government of India
Ministry of External Affairs**

26-July-2006 17:0 IST

Nuclear Cooperation Promotion Act, 2006

Lok Sabha

The Minister of State in the Ministry of External Affairs, Shri Anand Sharma informed the Lok Sabha today that a Bill titled the 'United States and India Nuclear Cooperation Promotion Act of 2006' has been introduced in the US House of Representatives. In the section on Statement of Policy, article 3(b)(4) of this Bill states 'Secure India's full and active participation in United States efforts to dissuade, isolate, and, if necessary, sanction and contain Iran for its efforts to acquire weapons of mass destruction, including a nuclear weapons capability (including the capability to enrich or process nuclear materials), and the means to deliver weapons of mass destruction'.

Shri Sharma further said that the salient feature of the proposed Act is that it gives the US President the authority to waive the application of certain provisions of the 1954 US Atomic Energy Act that currently prohibits nuclear cooperation with India. Once enacted, this waiver authority would represent the fulfillment of US commitment to adjust its laws and policies to permit full civilian nuclear cooperation with India.

The Bill contains sections that refer to issues extraneous to the 18th July 2005 Joint Statement and India's Separation Plan. It is the Government's position that the guiding principle for the resumption of civilian nuclear energy cooperation with the United States must remain the framework of the 18 July Joint Statement and India's Separation Plan. This position has been clearly communicated to the US Administration including by the Prime Minister to the US President. The language of the proposed Act is still under discussion in the US Congress and the Government would continue to engage the US Administration on this matter, Shri Sharma added.

This information was given by the Minister in reply to question by S/Shri C.K. Chandrappan, Prabhunath Singh and Swadesh Chakraborty.

AK/JA

URL: http://pib.nic.in/release/rel_print_page1.asp?relid=19111

**Press Information Bureau
Government of India
Ministry of External Affairs**

11-May-2006 17:33 IST

Bilateral Civil Nuclear Energy Cooperation with US

Lok Sabha

The Minister of State in the Ministry of External Affairs, Shri Anand Sharma, in reply to a question by Smt. S.G. Indira informed the Rajya Sabha today that discussions are going on between India and United States on

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a bilateral civil nuclear energy cooperation agreement. Among the elements suggested by the United States, there is a provision on cooperation being discontinued were India to detonate a nuclear explosive device.

The Minister further clarified that India has conveyed to the United States that such a provision has not place in the proposed bilateral agreement and that India is bound only by its commitment in the July 18 Joint Statement to continuing a unilateral moratorium on nuclear testing. Further negotiations with the U.S. Government on a bilateral cooperation agreement are expected, he added.

AK/NSD/Hb

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=17609>

**Press Information Bureau
Government of India
Prime Minister's Office**

07-March-2006 13:19 IST

PRIME MINISTER'S SUO-MOTU STATEMENT ON DISCUSSION ON CIVIL NUCLEAR ENERGY COOPERATION WITH THE UNITED STATES : IMPLEMENTATION OF INDIA'S SEPARATION PLAN

Following is the text of Prime Minister, Dr. Manmohan Singh's Suo-Motu Statement on Discussion on Civil Nuclear Energy Cooperation with the United States : Implementation of India's Separation Plan in Parliament today :

“In my Statement on February 27, 2006, I had provided an assurance that this august House will be informed of developments in our discussions with the United States on separation of our civilian and military nuclear facilities. I now inform this august House of developments since my suo motu statement of 27 February.

The President of the United States, His Excellency Mr. George W. Bush visited India between March 1-3, 2006. His visit provided our two countries an opportunity to review progress made in deepening our strategic partnership since the Joint Statement issued during my visit to Washington last July. Our discussions covered the expansion of our ties in the fields of agriculture, economic and trade cooperation, energy security and clean environment, strengthening innovation and the knowledge economy, issues relating to global safety and security and on deepening democracy. Expanded cooperation in each of these areas will have a significant impact on India's social and economic development. The full text of the Joint Statement issued during President Bush's visit is placed on the Table of the House.

I have pleasure in informing the House that during President Bush's visit, as part of the process of promoting cooperation in civilian nuclear energy, agreement was reached between India and the United States on a Separation Plan. Accordingly, India will identify and separate its civilian and military nuclear facilities and place its civilian nuclear facilities under IAEA safeguards. Sir, I place on the Table of the House the Separation Plan that has been drawn up by India and agreed between India and the United States in implementation of the India-United States Joint Statement of July 18, 2005.

I would like to outline some salient elements of the Separation Plan:

i) India will identify and offer for IAEA safeguards 14 thermal power reactors between 2006-14. There are 22

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thermal power reactors in operation or currently under construction in the country. Fourteen of these will be placed under safeguards by 2014 in a phased manner. This would raise the total installed thermal power capacity in Megawatts under safeguards from 19% at present to 65% by 2014. I wish to emphasize that the choice of specific nuclear reactors and the phases in which they would be placed under safeguards is an Indian decision. We are preparing a list of 14 reactors that would be offered for safeguards between 2006-14.

ii) We have conveyed that India will not accept safeguards on the Prototype Fast Breeder Reactor (PFBR) and the Fast Breeder Test Reactor (FBTR), both located at Kalpakkam. The Fast Breeder Programme is at the R&D stage. This technology will take time to mature and reach an advanced stage of development. We do not wish to place any encumbrances on our Fast Breeder programme, and this has been fully ensured in the Separation Plan.

(iii) India has decided to place under safeguards all future civilian thermal power reactors and civilian breeder reactors, and the Government of India retains the sole right to determine such reactors as civilian. This means that India will not be constrained in any way in building future nuclear facilities, whether civilian or military, as per our national requirements.

(iv) India has decided to permanently shut down the CIRUS reactor, in 2010. The fuel core of the Apsara reactor was purchased from France, and we are prepared to shift it from its present location and make it available for placing under safeguards in 2010. Both CIRUS and Apsara are located at the Bhabha Atomic Research Centre. We have decided to take these steps rather than allow intrusive inspections in a nuclear facility of high national security importance. We are determined that such steps will not hinder ongoing Research and Development.

(v) Reprocessing and enrichment capabilities and other facilities associated with the fuel cycle for our strategic programme have been kept out of the Separation Plan.

(vi) One of the major points addressed in the Separation Plan was the need to ensure reliability of fuel supplies, given our unfortunate past experience with regard to interruption in supply of fuel for Tarapur. We have received commitments from the United States for the reliable supply of fuel to India for reactors that will be offered for safeguards. The United States has also reaffirmed its assurance to create the necessary conditions for India to have assured and full access to fuel for such reactors. Under the July 18 Joint Statement, the United States is committed to seeking agreement from its Congress to amend domestic laws and to work with friends and allies to adjust the practices of the Nuclear Suppliers Group to create the necessary conditions for India to obtain full access to the international market for nuclear fuel, including reliable, uninterrupted and continual access to fuel supplies from firms in several nations. This has been reflected in the formal understandings reached during the visit and included in the Separation Plan.

(vii) To further guard against any disruption of fuel supplies for India, the United States is prepared to take other additional steps, such as :

a) Incorporating assurances regarding fuel supply in a bilateral U.S.-India agreement on peaceful uses of nuclear energy which would be negotiated.

b) The United States will join India in seeking to negotiate with the IAEA an India-specific fuel supply agreement.

c) The United States will support an Indian effort to develop a strategic reserve of nuclear fuel to guard against any disruption of supply over the lifetime of India's reactors.

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d) If despite these arrangements, a disruption of fuel supplies to India occurs, the United States and India would jointly convene a group of friendly supplier countries to include countries such as Russia, France and the United Kingdom to pursue such measures as would restore fuel supply to India.

In light of the above understandings with the United States, an India-specific safeguards agreement will be negotiated between India and the IAEA. In essence, an India-specific safeguards would provide : on the one hand safeguards against withdrawal of safeguarded nuclear material from civilian use at any time, and on the other permit India to take corrective measures to ensure uninterrupted operation of its civilian nuclear reactors in the event of disruption of foreign fuel supplies. Taking this into account, India will place its civilian nuclear facilities under India-specific safeguards in perpetuity and negotiate an appropriate safeguards agreement to this end with the IAEA. In the terms of the Separation plan, there is hence assurance of uninterrupted supply of fuel to reactors that would be placed under safeguards together with India's right to take corrective measures in the event fuel supplies are interrupted. The House can rest assured that India retains its sovereign right to take all appropriate measures to fully safeguard its interests.

During my Suo Motu Statements on this subject made on July 29, 2005 and on February 27, 2006, I had given a solemn assurance to this august House and through the Honorable members to the country, that the Separation Plan will not adversely effect our country's national security. I am in a position to assure the Members that that this is indeed the case. I might mention :

i) that the separation plan will not adversely effect our strategic programme. There will be no capping of our strategic programme, and the separation plan ensures adequacy of fissile material and other inputs to meet the current and future requirements of our strategic programme, based on our assessment of the threat scenarios. No constraint has been placed on our right to construct new facilities for strategic purposes. The integrity of our Nuclear Doctrine and our ability to sustain a Minimum Credible Nuclear Deterrent is adequately protected. Our nuclear policy will continue to be guided by the principles of restraint and responsibility.

ii) The Separation Plan does not come in the way of the integrity of our three stage nuclear programme, including the future use of our thorium reserves. The autonomy of our Research and Development activities in the nuclear field will remain unaffected. The Fast Breeder Test Reactor and the Prototype Fast Breeder Reactor remain outside safeguards. We have agreed, however, that future civilian Thermal power reactors and civilian Fast Breeder Reactors would be placed under safeguards, but the determination of what is civilian is solely an Indian decision.

As I mentioned in my Statement on February 27, the Separation Plan has been very carefully drawn up after an intensive internal consultation process overseen by my Office. The Department of Atomic Energy and our nuclear scientific community have been associated with the preparation of the Separation Plan. The Chairman of the Atomic Energy Commission and the Principal Scientific Adviser to the Government of India were actively involved closely at every stage. I am in a position to assure the Hon'ble members that we have not permitted information of national security significance to be compromised in any way during the negotiations.

I believe that the significance of the July 18, 2005 Statement is the prospect it offers for ending India's nuclear isolation. It will open up prospects for cooperation not only with the US but with countries like Russia, France and other countries with advanced nuclear capabilities, including those from the NSG. The scope for cooperation in the energy related research will vastly expand, so will cooperation in nuclear research activities. India will be able to join the international mainstream and occupy its rightful place among the top countries of the nuclear community. There would be a quantum jump in our energy generating

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capacity with a consequential impact on our GDP growth. It also ensures India's participation as a full partner in cutting edge multilateral scientific effort in the nuclear field such as ITER and Generation IV Initiative.

Sir, successful implementation of the July 18 Joint Statement requires reciprocal actions by the United States as well as India. Steps to be taken by India will be contingent upon actions taken by the US. For our part, we have prepared a Separation Plan that identifies those civilian facilities that we are willing to offer for safeguards. The United States Government has accepted this Separation Plan. It now intends to approach the US Congress for amending its laws and the Nuclear Suppliers Group for adapting its Guidelines to enable full civilian cooperation between India and the international community. At the appropriate stage, India will approach the IAEA to discuss and fashion an India-specific safeguards agreement, which will reflect the unique character of this arrangement. Since such a safeguards agreement is yet to be negotiated it will be difficult to predict its content, but I can assure the House that we will not accept any provisions that go beyond the parameters of the July 18, 2005 Statement and the Separation Plan agreed between India and the United States, on March 2, 2006. We are hopeful that this process will move forward in the coming weeks and months.

I would request Hon'ble Members to look at this matter through the larger perspective of energy security. Currently, nuclear energy provides only three per cent of our total energy mix. Rising costs and reliability of imported hydrocarbon supplies constitute a major uncertainty at a time when we are accelerating our growth rate. We must endeavor to expand our capabilities across the entire energy spectrum ? from clean coal and coal-bed methane, to gas hydrates and wind and solar power. We are actively seeking international partnerships across the board and are members of many international initiatives dedicated to energy. Indeed, at the end of my talks with President Bush, we announced Indian participation in two more programmes: the Future-Gen programme for zero emission thermal power plants and the Integrated Ocean Drilling Programme for gas hydrates.

The House will appreciate that the search for an integrated policy with an appropriate mix of energy supplies is central to the achievement of our broader economic or social objectives. Energy is the lifeblood of our economy. Without sufficient and predictable access, our aspirations in the social sector cannot be realized. Inadequate power has a deleterious effect in building a modern infrastructure. It has a direct impact on the optimal usage of increasingly scarce water resources. Power shortage is thus not just a handicap in one sector but a drag on the entire economy.

I believe that the needs of the people of India must become the central agenda for our international cooperation. It is precisely this approach that has guided our growing partnership with the United States. I would, in particular, draw attention to the launching of the Knowledge Initiative in Agriculture with a three year financial commitment to link our universities and technical institutions and businesses to support agricultural education, research, capacity building, including in the area of bio-technology. Our first Green Revolution benefited in substantial measure from assistance provided by the US. We are hopeful that the Knowledge Initiative on Agriculture will become the harbinger of a second Green Revolution in our country.

Sir, India and the United States have much to gain from this new partnership. This was the main underlying theme of our discussions during the visit of President Bush. The resumption of civilian nuclear energy cooperation would demonstrate that we have entered a new and more positive phase of our ties, so that we can finally put behind us years of troubled relations in the nuclear field. I am confident that this is a worthy objective that will receive the full support of this House."

YSR/HS/HK/CS

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=16276>

Nuclear and Arms Control Centre

**Press Information Bureau
Government of India
Ministry of External Affairs**

02-March-2006 12:31 IST

Nuclear Energy agreement with USA

Rajya Sabha

The Minister of State in the Ministry of External Affairs, Shri E. Ahamed told the Rajya Sabha today that under the terms of the 18 July 2005 Indo-US Joint Statement, India and US are continuing their discussions to fully implement the Understanding on Cooperation in Civil Nuclear Energy.

Under the terms of this Understanding, India will be identifying and separating its civilian and military nuclear facilities and programs in a phased manner and filing a declaration regarding its civilians facilities with the International Atomic Energy Agency (IAEA) and would place voluntarily its civilian nuclear facilities under IAEA safeguards. The separation of the Indian nuclear facilities would be done voluntarily by us based on India's national interest.

The Government has seen reports of nuclear experts, academics, analysts and former diplomats expressing a wide variety of views on the extent and implications of the separation of nuclear facilities. The Government has consulted all relevant organisations in addressing the issue of separation. The India-US Working group on civil nuclear energy, led by the Foreign Secretary, has representatives from the National Security Council Secretariat, Department of Atomic Energy and Ministry of External Affairs.

This information was given by the Minister in reply to a question by Shri Lekhraj Bachani.

AK/JA

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=16091>

**Press Information Bureau
Government of India
Prime Minister's Office**

27-February-2006 19:28 IST

PM's statement in Parliament on Civil Nuclear Energy Cooperation with United States

Following is the text of the Prime Minister, Dr. Manmohan Singh's suo motu statement regarding Civil Nuclear Energy Cooperation with the United States in Parliament:

"I rise to inform this august House of the status of discussions with the United States on civil nuclear energy co-operation. Substantive aspects of this are reflected in the Joint Statement of July 18, 2005 that US President Bush and I agreed upon during my visit to Washington DC last year. I would like to use this occasion to outline the context and core elements of the Joint Statement, before detailing the status of the ongoing negotiations.

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Hon'ble Members are aware that our effort to reach an understanding with the United States to enable civil nuclear energy cooperation was based on our need to overcome the growing energy deficit that confronts us. As India strives to raise its annual GDP growth rate from the present 7-8% to over 10%, the energy deficit will only worsen. This may not only retard growth, it could also impose an additional burden in terms of the increased cost of importing oil and natural gas, in a scenario of sharply rising hydrocarbon prices. While we have substantial reserves of coal, excessive dependence on coal-based energy has its own implications for our environment. Nuclear technology provides a plentiful and non-polluting source of power to meet our energy needs. However, to increase the share of nuclear power in our energy mix, we need to break out of the confines imposed by inadequate reserves of natural uranium, and by international embargos that have constrained our nuclear programme for over three decades.

Established through the vision of Pandit Jawaharlal Nehru and sustained by the commitment of scientists like Dr. Homi Bhabha, our nuclear programme is truly unique. Its uniqueness lies in the breadth of its overarching vision: of India mastering a three-stage nuclear programme using our vast thorium resources, and mastering more complex processes of the full nuclear fuel cycle. Consequently, our civilian and strategic programmes are deeply intertwined across the expanse of the nuclear fuel cycle. There are hardly any other countries in a similar situation. Over the years, the maturation of our nuclear programme, including the development of world-class thermal power reactors, has made it possible to contemplate some changes. These are worth considering if benefits include gaining unhindered access to nuclear material, equipment, technology and fuel from international sources.

However, international trade in nuclear material, equipment and technologies is largely determined by the Nuclear Suppliers' Group (NSG)—an informal group of 45 countries. Members include the United States, Russia, France and the United Kingdom. India has been kept out of this informal arrangement and therefore denied access to trade in nuclear materials, equipment and various kinds of technologies. It was with this perspective that we approached negotiations with the United States on enabling full civilian nuclear energy cooperation with India. The essence of what was agreed in Washington last July was a shared understanding of our growing energy needs. In recognition of our improved ties, the United States committed itself to a series of steps to enable bilateral and international cooperation in nuclear energy. These include adjusting domestic policies, and working with allies to adjust relevant international regimes. There was also a positive mention of possible fuel supply to the first two nuclear power reactors at Tarapur. US support was also indicated for India's inclusion as a full partner in the International Thermonuclear Experimental Research Project and the Generation IV International Forum.

But more importantly, in the Joint Statement, the United States implicitly acknowledged the existence of our nuclear weapons programme. There was also public recognition that as a responsible State with advanced nuclear technologies, India should acquire the same benefits and advantages as other States which have advanced nuclear technology, such as the United States. The Joint Statement offered the possibility of decades-old restrictions being set aside to create space for India's emergence as a full member of a new nuclear world order.

On our part, as Hon'ble Members may recall from my suo motu statement on July 29 last year, we committed ourselves to separating the civilian and strategic programme. However this was to be conditional upon, and reciprocal to, the United States fulfilling its side of the understanding. I had stressed that reciprocity was the key and we expected that the steps to be taken by India would be conditional upon and contingent on action taken by the United States. I had emphasized then—and I reiterate today—that no part of this process would affect or compromise our strategic programme.

I now come to the negotiations that have taken place in the past few months. While these have been

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principally with the US, there have been discussions with other countries like Russia, UK and France as well. At the political level, I have maintained contact with President Chirac of France, President Putin of Russia, Prime Minister Blair of the UK. I have also raised this subject with the Heads of State/Government of Norway, Republic of Korea, Netherlands, Czech Republic and Ireland - all members of the NSG. I also met President Bush in New York last September and discussed implementation of the July 18 statement. In the same period, several American Congressional leaders and policy-makers have visited India in the past few months, many of whom met me. We have amply clarified our objective in pursuing full civil nuclear energy cooperation for our energy security and to reassure them of India's impeccable non-proliferation credentials.

At the official level, we have constituted two groups comprising key functionaries concerned with strategic and nuclear matters. They included the Department of Atomic Energy, the Ministry of External Affairs, the Armed Forces and my Office. These two groups were respectively mandated to draw up an acceptable separation plan, and to negotiate on this basis. The directive given to both groups was to ensure that our strategic nuclear programme is not compromised in any way, while striving to enlarge avenues for full civil nuclear energy cooperation with the international community. The negotiations by our officials have been extensive and prolonged. These have focused on four critical elements: the broad contours of a Separation Plan; the list of facilities being classified civilian; the nature of safeguards applied to facilities listed in the civilian domain; and the nature and scope of changes expected in US domestic laws and NSG guidelines to enable full civilian nuclear energy cooperation with India.

Hon'ble Members may be assured that in deciding the contours of a separation plan, we have taken into account our current and future strategic needs and programmes after careful deliberation of all relevant factors, consistent with our Nuclear Doctrine. We are among very few countries to adhere to the doctrine of 'No first Use'. Our doctrine envisions a credible minimum nuclear deterrent to inflict unacceptable damage on an adversary indulging in a nuclear first strike. The facilities for this, and the required level of comfort in terms of our strategic resilience have thus been our criterion in drawing up a separation plan. Ours is a sacred trust to protect succeeding generations from a nuclear threat and we shall uphold this trust. Hon'ble Members may therefore be assured that in preparing a Separation Plan, there has been no erosion of the integrity of our Nuclear Doctrine, either in terms of current or future capabilities.

The Separation Plan that is being outlined is not only consistent with the imperatives of national security, it also protects our vital research and development interests. We have ensured that our three-stage nuclear programme will not be undermined or hindered by external interference. We will offer to place under safeguards only those facilities that can be identified as civilian without damaging our deterrence potential or restricting our R&D effort, or in any way compromising our autonomy of developing our three stage nuclear programme. In this process, the Department of Atomic Energy has been involved at every stage, and the separation plan has been drawn up with their inputs.

Therefore, our proposed Separation Plan entails identifying in phases, a number of our thermal nuclear reactors as civilian facilities to be placed under IAEA safeguards, amounting to roughly 65% of the total installed thermal nuclear power capacity, by the end of the separation plan. A list of some other DAE facilities may be added to the list of facilities within the civilian domain. The Separation Plan will create a clearly defined civilian domain, where IAEA safeguards apply. On our part, we are committed not to divert any nuclear material intended for the civilian domain from designated civilian use or for export to third countries without safeguards.

Negotiations are currently at a delicate stage. In our dialogue with our interlocutors, we have judged every proposal made by the US side on merits, but we remain firm in that the decision of what facilities may

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be identified as civilian will be made by India alone, and not by anyone else.

At the same time, we are not underestimating the difficulties that exist in these negotiations. There are complex issues involved. Several aspects of the nuclear programme lend themselves in the public discussions to differing interpretations, such as the Fast Breeder Programme or our fuel-cycle capabilities such as re-processing and enrichment requirements. The nature and range of strategic facilities that we consider necessarily outside safeguards constitute yet another example. We have however conveyed to our interlocutors that while discussing the Separation Plan, there are details of the nature and content of our strategic requirements that we cannot share. We will not permit information of national security significance to be compromised in the process of negotiation.

It is essential to recall that the July 18 Statement was not about our strategic programme. It was intended to be the means to expand our civilian nuclear energy capacities and thereby to help pave the way for faster economic progress. In seeking to achieve this objective, we appreciate the need for patience to remove misperceptions that abound. I reiterate that India has an exemplary record on non-proliferation and this will continue to be so. All in all, one major achievement so far is that a change is now discernible in the international system. We believe that when implemented, the understandings reflected in the Joint Statement will give India its due place in the global nuclear order. The existence of our strategic programme is being acknowledged even while we are being invited to become a full partner in international civil nuclear energy cooperation.

I must emphasize that the nation is justly proud of the tremendous work of our nuclear scientists and the Department of Atomic Energy in mastering all the key aspects of the full nuclear fuel cycle, often under difficult circumstances. The tremendous achievements of our scientists in mastering the complete nuclear fuel cycle - the product of their genius and perseverance – will not be frittered away. We will ensure that no impediments are put in the way of our research and development activities. We have made it clear that we cannot accept safeguards on our indigenous Fast Breeder Programme. Our scientists are confident that this technology will mature and that the programme will stabilize and become more robust through the creation of additional capability. This will create greater opportunities for international cooperation in this area as well. An important reason why the US and other countries with advanced nuclear technologies are engaging with India as a valued partner is precisely because of the high respect and admiration our scientists enjoy internationally, and the range and quality of the sophisticated nuclear programme they have managed to create under the most difficult odds. This gives us confidence to engage in these negotiations as an equal partner.

As I said, many aspects of the proposed separation plan are currently under negotiation. It is true that certain assurances in the July 18 Statement remain to be fulfilled – the supply of imported fuel for Tarapur I and II, for one. Some elements, such as US support for India's participation in the ITER programme, have materialized. The issue of the nature of safeguards to be applied to facilities designated civilian also remains pending resolution. I seek the indulgence of this House not to divulge every single detail of the negotiations at this time. However, this august House can be assured that the limits are determined by our overarching commitment to national security and the related issue of the autonomy of our nuclear programme. Our Government will take no step that could circumscribe or cast a shadow over either.

I am aware that concerns have been raised over information being shared with outsiders, but not with our own citizens. Members may be assured that nothing that could compromise our nuclear deterrent has been shared with anyone. On this aspect there is no reason for concern or doubt.

As I said at the outset, our approach is defined by the need to utilize the window of opportunity before us, to find a solution to our energy deficit. We have also been guided by the need to dismantle international

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restrictions, which, when achieved, could unleash our scientific talent and increase commercial potential in the nuclear and related sectors. The nation will be kept informed, through this august House.”

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URL: <http://pib.nic.in/newsite/erelease.aspx?relid=15955>

**Press Information Bureau
Government of India
Ministry of External Affairs**

23-February-2006 18:58 IST

Nuclear agreement with USA

RAJYA SABHA

The Minister of State for External Affairs, Shri Anand Sharma told the Rajya Sabha today that India and US reached an understanding on cooperation in civil nuclear energy on 18 July 2005 during the visit of Prime Minister to US in the context of India’s quest for energy security as an essential component of our vision of our development.

He further informed that under the terms of this understanding, India will be identifying and separating its civilian and military nuclear facilities and programs in a phased manner and filing a declaration regarding its civilians facilities with the International Atomic Energy Agency (IAEA) and would place voluntarily its civilian nuclear facilities under IAEA safeguards.

The Minister added that the understanding on cooperation in civil nuclear energy in no way compromises India’s traditional non-alignment policy that mandates decisions to be taken on the basis of our national interests and national security considerations only.

The above information was given by the Shri Sharma in reply to a question by Smt. Jaya Bachchan and Shri Mangani Lal Mandal..

AK/SK/JA

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=15810>

Nuclear and Arms Control Centre

**Press Information Bureau
Government of India
Ministry of External Affairs**

27-April-2005 17:24 IST

US co-operation in nuclear energy field

The Minister of State for External Affairs, Shri Rao Inderjit Singh told the Lok Sabha today that the India-US Energy Dialogue announced during the Washington visit of Shri Natwar Singh on 14-15 April, 2005 would be led by the Deputy Chairman of the Planning Commission Dr. Montek Singh Ahluwalia and the US Energy Secretary Samuel Bodman. The main components of this dialogue would include civil nuclear energy, hydrocarbons and cleaner technologies.

The Minister further informed that the Government is engaged in a dialogue with key interlocutors such as Russia and France for furthering cooperation in the energy sector, including nuclear energy, as it has placed considerable importance on nuclear energy in its energy mix, as a cheap and clean source of energy.

Shri Singh, however, added that in order to facilitate international cooperation in nuclear energy, India will not change its policy on the NPT. Any programme for such cooperation will be pursued in a manner consistent with the requirements of our national security, he said.

He was replying to a question by Sh Anirudh Prasad Alias Sadhu Yadav and others.

AK/SK/JA

URL: <http://pib.nic.in/release/release.asp?relid=8824>

INDIA-RUSSIA CO-OPERATION IN
NUCLEAR ENERGY

Nuclear and Arms Control Centre

**Press Information Bureau
Government of India
Department of Space**

09-August-2012 17:41 IST

Indigenous Nuclear Reactors

An Inter-governmental (IGA) has been signed between India and Russian Federation on December 5, 2008 for assistance to build more nuclear reactors.

The capacity of the additional nuclear power reactors to be set up with Russian Cooperation is:-

Site & Location	Capacity (MW)
Kudankulam, Tamil Nadu	4 X 1000
Haripur, West Bengal	6 X 1000

Kudankulam Nuclear Power Project Units 1&2 (KKNPP 1&2) are at advanced stage of completion and scheduled to commence commercial operation by October 2012 & June 2013 respectively.

Commencement of work on KKNPP Units 3&4 is planned in the XII Five Year Plan period, with scheduled completion in the early XIII Five Year Plan. Other reactors to be set up with Russian cooperation are planned to be taken up in the XIII Five Year Plan and beyond, so as to progressively complete in the XIV Five Year Plan and beyond.

The above information was given by the Minister of State in the Ministry Personnel, PG & Pensions and in the Prime Minister's Office (Shri V. Narayanasamy) in a written reply in the Lok Sabha.

URL: <http://pib.nic.in/newsite/PrintRelease.aspx?relid=85904>

INDIA-FRANCE CO-OPERATION IN
NUCLEAR ENERGY

Nuclear and Arms Control Centre

Press Information Bureau
Government of India
Ministry of Commerce & Industry

31-January-2012 16:08 IST

Anand Sharma Invites French Luxury Goods Companies to Establish Manufacturing Bases in India

India to get US\$ 100 billion in Nuclear Power Sector

India will see investments in excess of US\$ 100 billion in next two decades in the nuclear power sector at least a quarter of from France alone. Addressing the 4th India-France CEOs Forum at Paris yesterday, the Union Minister for Commerce, Industry and Textiles, Shri Anand Sharma said “in the energy sector, we greatly value our partnership with France especially in the nuclear power sector where France is a global leader. In the coming two decades, India will see investments in excess of US\$ 100 billion in the nuclear power sector alone and I am sure that at least a quarter of these will come from France.”

The Minister said that though investment of over US\$ 14 billion from France are in the pipeline there is a need to enhance French investment in India. “Given the strong position of French companies, the level of French investment in India is way below the potential. There are 800 French companies in India which engage over 80,000 people and we would like to see this growing in the coming years” Shri Sharma said. He invited fashion design institutes from France to bring their best practices to India in partnerships with the indigenous lifestyles industry. Referring to recent decision to allow 100% FDI in single brand retail Shri Anand Sharma expressed the hope that French luxury goods companies will establish manufacturing bases in India. “This will create a win-win situation as India has emerged as a huge market for luxury goods and establishment of manufacturing in India will provide maximum value” said the Minister.

Recalling the success of Capgemini in India, which alone employs 30,000 people in developing off shore IT solutions across seven Indian cities, Shri Sharma invited French investments in Indian IT sector. He said that the Indian BPO operations have moved up the value chain from being a mere data processing centres to carrying out value added research and software development. Similarly, the Minister welcomed the interest shown in the Indian automobile sector by French companies like Renault and Peugeot for investing in India and also by Michelin which would strengthen India’s position as an automobile and auto part manufacturing hub.

Talking about establishment of National Investment and Manufacturing Zones as green field integrated townships under recently announced National Manufacturing Policy, Shri Sharma invited collaboration with French companies in both the establishment of these Zones as well as in making investment for manufacturing. French expertise in urban water management and waste water systems would be especially useful in developing these regions. France has some of the largest infrastructure and utility management companies of the world including Vinci, Bouygues, Suez who would stand to gain from investments in India.

Bilateral trade between India and France stands at over US\$ 8 billion. Today, France is India’s 5th largest trading partner and investor in Europe, and 4rd largest recipient in Europe of Indian investments.

DS/gk

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=79985>

Nuclear and Arms Control Centre

**Press Information Bureau
Government of India
Department of Atomic Energy**

23-November-2011 16:52 IST

Nuclear Projects under Civil Nuclear Cooperation

Nuclear Power Corporation of India Limited (NPCIL) is considering the techno-economic details of the proposed nuclear power reactors to be set up at Jaitapur in Maharashtra in technical cooperation with France. The work on the project will be started after obtaining the administrative and financial approval of the Government.

The Minister of State in the Prime Minister's office Sh V Narayanasamy gave this information in a written reply to a question by Sh Pradeep Majhi in Lok Sabha today.

KP

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=77422>

**Press Information Bureau
Government of India
Department of Atomic Energy**

10-August-2011 17:37 IST

Civil Nuclear Cooperation Deal

The agreement between the government of the Republic of India and the Government of the French Republic on the Development of Peaceful Uses of Nuclear Energy signed on 30.09.2008 has entered into force with effect from 14.01.2010.

The Agreement with France is a general agreement covering wide areas including nuclear reactors, nuclear fuel and nuclear fuel cycle management to be followed by specific agreements between the Parties or persons designated by the Parties, provides for technology transfer on industrial or commercial scale between the Parties or designated persons. It also provides for facilitating fuel supplies for the lifetime operation of supplied nuclear power plants, establishment of long-term contracts between designated entities of the Parties, developing a strategic reserve of nuclear fuel and reprocessing consent.

Shri V. Narayanasamy, Minister of State for Personnel, Public Grievances & Pensions and in the Prime Minister's Office gave this information in a written reply to a question by Shri Francisco Sardinha in Lok Sabha today.

KP

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=74295>

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Nuclear and Arms Control Centre

Government of India
Ministry of External Affairs

11-March-2010 17:30 IST

Indo-France Nuclear deal

RAJYA SABHA

The Cooperation Agreement between India and France on the Development of Peaceful Uses of Nuclear Energy entered into force on 14th January 2010 following the exchange of instruments of ratification between the two Governments.

The Agreement would enable cooperation between India and France in the areas of nuclear reactors, nuclear fuel supply, nuclear energy applications in agronomy, biology, earth sciences, medicine and industry, nuclear safety, nuclear waste management and controlled thermonuclear fusion.

This information was given by Shri S.M.Krishna, Union Minister of External Affairs in reply to a question by Shri Nand Kumar Sai in Rajya Sabha today.

TFK/HN

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=59473>

Press Information Bureau
Government of India
Ministry of Environment and Forests

13-March-2006 16:57 IST

India wants Nuclear Energy included under CDM

FRENCH DELEGATION AGREES ON THE NEED TO INCLUDE CARBON SINKS AND NUCLEAR ENERGY IN EU-ETS

The 7-member French delegation led by Mr. JeanYues Le Deaut on Fact finding mission related to greenhouse effects today called on the Minister of State for Environment & Forests, Shri Namo Narain Meena. Welcoming the delegation, Shri Meena informed them about India's commitment to the United Nations Climate Change Convention and Kyoto Protocol. The Minister also elaborated on the various measures taken by India to improve energy efficiency, promote hydro and renewal energy, clean coal technologies, environmental quality management, development of energy and infrastructure, etc. which intend to reduce greenhouse gas emissions. He also stated that the government is committed to increase the forest cover and tree from 23 to 33% of the land area which is equivalent to the total area of any single EU country. He said that India is actively participating in the CDM mechanism of the Protocol and till date have given Host Country Approval to 256 eligible projects, the largest number of approved projects by any country in the world. But the Minister added that the first and foremost concern of India are the alleviation of poverty, economic growth, and energy security and any approach to climate change must address these issues.

Nuclear and Arms Control Centre

During the discussion, Secretary, Environment & Forests, Shri Prodipto Ghosh emphasized that Annex-I countries should take deeper commitments for the second commitment period. “The Convention and Protocol call for transfer of technology and financial resources to developing countries for reducing emissions, but this has not happened to any significant extent”, he added. He also said that at the Gleneagles Summit, Prime Minister Dr Manmohan Singh, had proposed a means of undertaking collaborative R&D in clean technology by networking of research institutions in Annex I and Non-Annex I countries, with sharing of the resultant IPRs and India wants that this proposal be further pursued. Dr. Ghosh stressed on the urgent need for France and other Annex I countries to commit financial resources as well as technologies in the area of adaptation because developing countries like India would be the worst sufferers of climate change.

Dr. Ghosh also emphasised that CDM mechanism should be strengthened, and the high transactions costs involved for processing and registration of the projects should be reduced to enable small and medium scale projects join the CDM mechanism. “Programmatic CDM should also be encouraged and nuclear energy presently not considered under CDM should be included as this is one of the cleanest source of energy”, he added. He also said that the EU Emission-Trading Scheme (EU-ETS) has some barriers like caps on CERs, reservation of large hydro projects and sinks and stressed on the need to address these issues to facilitate healthy development of CDM markets.

The French delegation in their turn observed that they were in agreement with inclusion of carbon sinks and nuclear energy in the EU-ETS. They also agreed that research and transfer of technology should be encouraged to fight against Climate Change, the greatest threat to humanity. The French were also interested to know the measures taken by India on the transportation as well housing sector to reduce green house gas emissions. Secretary while informing the proactive measures undertaken by us in the recent years welcomed French initiative in these areas through the route of CDM. Both sides decided to further explore the possibilities of strengthening cooperation in the areas of climate change and cleaner environmental technologies.

HRK/SK

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=16530>

**Press Information Bureau
Government of India
Prime Minister's Office**

21-February-2006 11:50 IST

Declaration by India and France on the Development of Nuclear Energy for Peaceful Purposes

Following is the text of Declaration by India and France on the Development of Nuclear Energy for Peaceful Purposes signed here yesterday.

"India and France, recalling their deep ties of friendship and cooperation and the importance of the Strategic Dialogue established between them in January 1998, recognize that nuclear energy provides a safe, environmental friendly and sustainable source of energy. They underline the need to further develop international cooperation in promoting the use of nuclear energy for peaceful purposes. They believe that nuclear energy will provide an indispensable source of energy to future generations.

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India and France consider that proliferation of nuclear, chemical and biological weapons, as well as their means of delivery, constitutes a threat to international peace and security. They share common concerns and objectives in the field of non-proliferation of weapons of mass destruction and their means of delivery including in view of possible linkages with terrorism.

India and France recall their past exchanges on civilian nuclear energy. They stress with satisfaction the development, since the creation of the Strategic Dialogue, of a fruitful bilateral dialogue on civil nuclear cooperation and on nuclear safety and, in accordance with their respective international obligations and commitments, the joint projects that are taking place as a result of this dialogue.

They recall that the joint statement issued by the President of the Republic of France and the Prime Minister of the Republic of India on 12 September 2005 stated that India and France would work towards the conclusion of a bilateral nuclear cooperation agreement. India and France affirm their willingness to further develop their cooperation in the use of nuclear energy exclusively for peaceful purposes under that agreement including in nuclear power generation, with a view to achieving sustainable development.

India and France recall the framework of the bilateral working group on Energy established in January 1998, of the France-India Joint Committee for Atomic Energy created by the 16 September 2002 MoU signed between AEC (Atomic Energy Commission), India, and CEA (Commissariat à l'Énergie Atomique), France, and of the dialogue between their Nuclear Safety Authorities launched by the 29 July 1999 Arrangement, renewed by the 24 October 2005 Arrangement between AERB (Atomic Energy Regulatory Board), India, and DGSNR (Direction Générale de la Sécurité Nucléaire et de la Radioprotection), France. They express their willingness to expand and strengthen their bilateral dialogue on peaceful uses of nuclear energy.

In accordance with the principles governing their respective nuclear policies, India and France confirm that they are engaging in discussions to conclude a bilateral cooperation agreement on the development of nuclear energy for peaceful purposes, subject to their respective international commitments and obligations. India and France look forward to adjustment of international civil nuclear cooperation framework with respect to India and confirm their intention to work to that end so that the agreement can be implemented fully.

In this respect, India and France share the same understanding of the following:

1) Cooperation under the future agreement may cover the following areas: basic and applied research not requiring the supply of uranium enriched to twenty (20) per cent or greater in the isotope U235; development and use of nuclear energy applications in the fields of agronomy, biology, earth sciences and medicine, and in industry; application of nuclear energy to power generation, including setting up of power projects; nuclear fuel management; nuclear waste management; nuclear safety, radioprotection and environmental protection; prevention of, and response to, emergency situations resulting from radioactive or nuclear accidents; public awareness and acceptance of the benefits of the use of nuclear energy exclusively for peaceful purposes; and in any other field as jointly agreed by the Parties to that agreement.

2) Cooperation under the future agreement may take the following forms: exchange and training of scientific and technical staff; exchange of scientific and technical information; participation by scientific and technical staff of one Party in research and development activities conducted by the other Party; joint conduct of research and engineering activities, including joint research and experimentation (that is to say for which the two Parties are providing equivalent resources); organization of scientific and technical conferences and symposiums; provision of material, nuclear material, equipment, technology, facilities and services; consultations and cooperation in relevant international fora; and any other form of cooperation jointly agreed

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by the Parties to that agreement.

3) Agreements already signed between the concerned institutions of both countries such as DAE (Department of Atomic Energy) and CEA; BARC (Bhabha Atomic Research Centre) and IRSN (Institut de Radioprotection et de Surete Nucleaire); AERB and DGSNR in the field of atomic energy will become a part of this framework agreement and will continue to be implemented as at present.

4) India and France will ensure that cooperation pursuant to the future agreement shall be exclusively for peaceful purposes and covered where applicable by appropriate safeguards agreements with the IAEA. The cooperation agreement, and as appropriate, subsequent specific agreements, will also address issues relating to inter alia confidentiality of information, third party nuclear liability, intellectual property, measures relating to physical protection and retransfers to third States.

Done at New Delhi on this twentieth day of February 2006 in English and French languages.

For the Republic of India: Dr. Anil Kakodkar, Chairman, Atomic Energy Commission
For the French Republic: Mr. Philippe Douste-Blazy, Minister of Foreign Affairs"

YSR/DS/SK

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=15655>

**Press Information Bureau
Government of India
Prime Minister's Office**

20-February-2006 20:25 IST

“Chirac visit a Landmark” – PM

BRIGHT PROSPECTS FOR INDO-FRENCH COOPERATION IN NUCLEAR ENERGY

Prime Minister Dr Manmohan Singh invited French business leaders accompanying French President Jacques Chirac to “have faith in India and invest in a big way”. He assured them that the Government was committed to making India an easier place to do business in. Dr Singh dubbed President Chirac’s visit as a “landmark visit” and expressed the hope that the various agreements signed would strengthen the bond between the two countries. The Prime Minister thanked President Chirac for bringing along with him such a “high powered business delegation”. Dr Singh said that the Government was focusing on the infrastructure sector and invited French companies to invest in India.

Representatives of top French companies told the Prime Minister that their experience in India was good and they were all encouraged to increase their investment in India. French companies evinced keen interest in investing in manufacturing, services and financial sectors. Some of the participants expressed their interest in India’s civilian nuclear programme.

The National Security Advisor, Mr M K Narayanan expressed the hope that the dialogue on civilian nuclear cooperation between India and members of the Nuclear Suppliers Group, including France and the United States, would result in the Nuclear Suppliers Group lifting restrictions on India. He informed the gathering that French companies would be able to participate in feasibility studies to implement proposed projects for setting up 1000MW capacity nuclear power plants once the NSG restrictions are removed. He said that a

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French company was already engaged in pre-feasibility studies for a nuclear power plant to be located in Maharashtra.

The meeting was attended by over 25 top French business leaders and representatives of Indian business. Government representatives included finance minister P Chidambaram, commerce and industries minister Kamal Nath, telecom and IT minister Dayanidhi Maran, deputy chairman of Planning Commission, Montek Ahluwalia, and senior officials of the Prime Minister's Office and the ministry of external affairs.

YSR/DS/CS

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=15653>

**Press Information Bureau
Government of India
Ministry of Science & Technology**

26-October-2005 15:34 IST

French Nuclear Regulatory delegation visits Atomic Energy Regulatory Board

A five-member delegation of the French Nuclear and Radiation Regulatory Organization led by their Director General Dr. A.C. Lacoste visited the Atomic Energy Regulatory Board (AERB) on October 25, 2005. The visit was under the Agreement between the two organizations signed in July 1999 on Exchange of information and co-operation in the regulation of nuclear safety and radiation protection. During the present visit, discussions were held on the topics of safety in transport of radioactive materials, safety and leak tests of pre-stressed concrete containments and flooding hazard at nuclear power plants.

The AERB and Nuclear Safety and Radiation Protection Directorate of the French Republic also renewed the agreement for Exchange of Information and Cooperation in the Regulation of Nuclear Safety and Radiation Protection.

PRA:SPS:NC

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=12921>

INDIA-UNITED KINGDOM
CO-OPERATION IN NUCLEAR ENERGY

Nuclear and Arms Control Centre

**Press Information Bureau
Government of India
Ministry of External Affairs**

17-August-2005 14:7 IST

Transfer of Nuclear Technology by Britain

Lok Sabha

The Minister of State for External Affairs, Shri Rao Inderjit Singh told the Lok Sabha today that India and the UK are engaged in a comprehensive dialogue as part of their close and multi-faceted relationship. In September 2004, Prime Ministers of the two countries launched a Joint Declaration “Towards New and Dynamic Partnership” in which they agreed to expand cooperation in the field of civilian nuclear activities in accordance with their international obligations.

The Minister further informed the house that the Government of UK is an active member of the Nuclear Suppliers’ Group (NSG). The UK earlier had a policy of denying export licensing applications for items listed in the NSG dual use list to nuclear and nuclear related end users in India, which exceeded the restrictions imposed by NSG.

The Minister added that recently the UK Government has adjusted its policy with regard to nuclear related transfers and scientific contacts with India in line with their NSG commitments. Accordingly, while the UK will continue to deny applications in respect of items on the NSG Dual Use list when they are destined for unsafeguarded nuclear fuel cycle or nuclear explosive activities, it will now consider on a case-by-case basis license applications for items on the NSG Dual Use list destined for other activities in India

The above information was given by the Minister in reply to a question by Smt. D. Purandeswari.

AK/SK/JA

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=11295>

INDIA-CANADA CO-OPERATION IN
NUCLEAR ENERGY

Nuclear and Arms Control Centre

**Press Information Bureau
Government of India
Department of Atomic Energy**

12-August-2010 18:45 IST

Construction of New Nuclear Power plants

An agreement between the Government of the Republic of India and the Government of Canada for Co-operation in Peaceful Uses of Nuclear Energy has been signed on 27th June 2010. The agreement has not yet entered into force. Twenty five new reactors are planned to be added by the year 2020. Of these 4 Reactors (Kaiga-4, KK-1&2 and FBR) in advanced stages of construction will be added by 2012 progressively; 4 Reactors (KAPP-3&4 and RAPP-7&8) just launched will be added by 2017. Work on 4 Pressurised Heavy Water Reactors; 10 Light Water Reactors; 2 Fast Breeder Reactors and 1 Advanced Heavy Water Reactor is planned to be started in XI Plan/early XII Plan.

This information was given by Sh. Prithviraj Chavan, Minister of State for Science & Technology and Earth Sciences, PMO, Personnel, Public Grievances and Pensions and Parliamentary Affairs in written reply to a question in Rajya Sabha today.

SBS/RS

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=64690>

**Press Information Bureau
Government of India
Prime Minister's Office**

27-June-2010 11:49 IST

Media Note - Agreement between India and Canada for Co-Operation in Peaceful uses of Nuclear Energy

The India-Canada Agreement for Cooperation in Peaceful Uses of Nuclear-Energy which was signed today provides for cooperation in areas as design, construction, maintenance, sharing of operating experience and decommissioning of nuclear reactors, supply of uranium, projects in third countries, nuclear fuel cycle and nuclear waste management. The two countries may promote cooperation in the development and use of nuclear energy applications in the fields of agriculture, health care, industry and environment; and nuclear safety, radiation safety and environmental protection.

2. India and Canada are friendly States with comprehensive capabilities in advanced nuclear technologies. They recognize that nuclear energy is a safe, environment friendly and sustainable source of energy. Taking into account their respective strengths with regard to Pressurized Heavy Water Reactors (PHWRs) and CANDU Reactors, there is considerable scope for joint work between the two countries.

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India-Canada Memorandum of Understanding for Cooperation in Mining

An India-Canada Memorandum of Understanding (MoU) signed today will establish cooperation between the two countries in the fields of mining and earth sciences. The MoU envisages cooperation in the specific areas of:

- a. exploration geochemistry and geophysics;
- b. geo-hazards;
- c. geo-science information and related informatics;
- d. environmental geology;
- e. cooperation in improved dialogue on mining and related activities at various international fora;
- f. encouragement of improved market access and bilateral investment in relation to mining in both countries where appropriate; and
- g. other areas of mutual interest to be decided upon by the participants.

2. Canada is a major mining nation with state-of-the-art technology, expertise in the mining sector. India will benefit from this MoU by way of education, training, and human resource development in geosciences as well as minerals and metals; transfer of technology in support of collaborative projects; and exchange of information on research and development.

India-Canada Memorandum of Understanding for Cooperation in Culture

The India-Canada Memorandum of Understanding on Cultural Cooperation signed today will strengthen and promote better mutual understanding in art, literature, history, sports and other cultural disciplines, and enhance protection and promotion of cultural diversity;

2. Encourage arts and cultural festivals, holding of exhibitions and special events and exchange programmes, particularly during major international events in both countries;
3. Encourage and facilitate exchanges of professionals/experts, knowledge, technical support and expertise in Archaeology, Museums, Cinematography, Arts, Libraries, Archives, Mass media, Tourism and exchanges of exhibitions of artistic, informative, historic and archaeological nature including fine arts, crafts, photography, new media arts, human and social history and heritage;
4. Share expertise on issues related to creation, production, distribution and dissemination of Indian and Canadian cultural goods and services, and facilitate participation in cultural and trade events to promote various cultural goods and services from both countries.
5. Canada will organise an exhibition on 'Inuit Art' in the National Museum, New Delhi in 2010. India will organise a Festival of India in Canada in 2011.

India-Canada Memorandum of Understanding for Cooperation in Higher Education

The India-Canada Memorandum of Understanding for cooperation in Higher Education signed today provides for:

2. Exchanges of students at undergraduate, graduate and post-doctoral level, and short-term awards for faculty and

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- students for research and curriculum development including doctoral studies at Indian and Canadian universities;
3. Joint workshops, seminars, special technical programs and professional/academic development activities, exchange of research materials, publications, educational literature, teaching aids, demonstration material and information;
 4. Twinning arrangements between institutions of higher learning and promotion of teaching and research about India and Canada. It will bring together institutions of educational excellence in technical, vocational and higher education through education and training programmes;
 5. Allows both countries to explore possibilities of mutual recognition of educational qualifications; and reciprocal internship programs in areas of mutual interest.
- URL: <http://pib.nic.in/newsite/erelease.aspx?relid=62850>

**Press Information Bureau
Government of India
Ministry of External Affairs**

16-December-2009 15:59 IST

Civil Nuclear Agreement

Lok Sabha

India has concluded negotiations on a Civil Nuclear Cooperation Agreement with Canada. The Agreement, which is yet to be signed by the two Governments, will provide the basis for cooperation between the two countries for peaceful uses of nuclear energy.

Since the NSG decision on civil nuclear cooperation with India of 6 September 2008, India has reached civil nuclear cooperation agreements with France, USA, Russia, Namibia, Mongolia and Argentina. Prior to this decision, civil nuclear cooperation with India had been hampered by the NSG's Guidelines for nuclear transfers first elaborated in 1978.

This information was given by Shri S.M.Krishna, Union Minister of External Affairs in reply to a question by Shri Milind Deora in Lok Sabha Today.

TFK/KS

URL: <http://pib.nic.in/newsite/erelease.aspx?relid=56039>

NUCLEAR ENERGY- INTERNATIONAL
AGREEMENTS

Nuclear and Arms Control Centre

Press Information Bureau
Government of India
Department of Atomic Energy

10-July-2008 17:54 IST

Agreement between the government of India and the International Atomic Energy Agency for the application of safeguards to civilian nuclear facilities

Following is the text of the agreement between the government of India and the International Atomic Energy Agency for the application of safeguards to civilian nuclear facilities:

RECOGNIZING the significance India attaches to civilian nuclear energy as an efficient, clean and sustainable energy source for meeting global energy demand, in particular for meeting India's growing energy needs;

WHEREAS India is committed to the full development of its national three-stage nuclear programme to meet the twin challenges of energy security and protection of the environment;

WHEREAS India has a sovereign and inalienable right to carry out nuclear research and development activities for the welfare of its people and other peaceful purposes;

WHEREAS India, a State with advanced nuclear technology, wishes to expand civil nuclear cooperation for its national development;

WHEREAS India is desirous of further expanding cooperation with the International Atomic Energy Agency (hereinafter referred to as "the Agency") and its Member States with the

objective of the full development and use of nuclear energy for peaceful purposes, on a stable, reliable and predictable basis;

WHEREAS India supports the role of the Agency in the promotion of the safe and peaceful uses of nuclear energy as set forth in the Statute of the Agency (hereinafter referred to as the "Statute");

WHEREAS India and the Agency have long standing cooperation in various aspects of the Agency's activities;

RECOGNIZING that such cooperation between India and the Agency must be carried out with full respect for the objectives of the Statute and with due observance of the sovereign rights of India;

WHEREAS the Statute authorizes the Agency to apply safeguards, at the request of the parties, to any bilateral or multilateral arrangement, or at the request of a State to any of the State's activities in the field of atomic energy and, in this context:

Noting the relevance for this Agreement of the understandings between India and the United States of America expressed in the India-U.S. Joint Statement of 18 July 2005, in which India, inter alia, has stated its willingness:

- to identify and separate its civilian and military nuclear facilities and programmes in a phased

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manner;

- to file with the Agency a declaration regarding its civilian nuclear facilities (hereinafter referred to as "the Declaration");
- to take a decision to place voluntarily its civilian nuclear facilities under Agency safeguards;

Noting also for the purposes of this Agreement that:

- India will place its civilian nuclear facilities under Agency safeguards so as to facilitate full civil nuclear cooperation between India and Member States of the Agency and to provide assurance against withdrawal of safeguarded nuclear material from civilian use at any time;
- An essential basis of India's concurrence to accept Agency safeguards under an India-specific safeguards agreement (hereinafter referred to as "this Agreement") is the conclusion of international cooperation arrangements creating the necessary conditions for India to obtain access to the international fuel market, including reliable, uninterrupted and continuous access to fuel supplies from companies in several nations, as well as support for an Indian effort to develop a strategic reserve of nuclear fuel to guard against any disruption of supply over the lifetime of India's reactors; and
- India may take corrective measures to ensure uninterrupted operation of its civilian nuclear reactors in the event of disruption of foreign fuel supplies;

WHEREAS India is desirous of expanding civil nuclear cooperation with other Member States of the Agency;

WHEREAS the conclusion of this Agreement is intended to facilitate the broadest possible cooperation between India and Member States of the Agency in the peaceful uses of nuclear energy and ensure international participation in the further development of India's civilian nuclear programme on a sustained and long-term basis;

RECALLING that the Agency in accordance with its Statute and safeguards system must take into account, in the implementation of safeguards in India, the need to avoid hampering the peaceful uses of nuclear energy, economic and technological development or international cooperation in the field of peaceful uses of nuclear energy; respect health, safety and physical protection and related security provisions in force in India; and take every precaution to protect commercial, technological and industrial secrets as well as other confidential information coming to its knowledge;

WHEREAS the frequency and intensity of activities described in this Agreement shall be kept to the minimum consistent with the objective of effective and efficient Agency safeguards;

WHEREAS India has requested the Agency to apply safeguards with respect to items subject to this Agreement;

WHEREAS the Board of Governors of the Agency (hereinafter referred to as the "Board") acceded to that request on

NOW THEREFORE, taking into account the above, India and the Agency have agreed as follows:

I. GENERAL CONSIDERATIONS

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A. BASIC UNDERTAKINGS

1. India undertakes that none of the items subject to this Agreement, as defined in paragraph 11, shall be used for the manufacture of any nuclear weapon or to further any other military purpose and that such items shall be used exclusively for peaceful purposes and shall not be used for the manufacture of any nuclear explosive device.
2. The Agency undertakes to apply safeguards, in accordance with the terms of this Agreement, to the items subject to this Agreement, as defined in paragraph 11, so as to ensure, as far as it is able, that no such item is used for the manufacture of any nuclear weapon or to further any other military purpose and that such items are used exclusively for peaceful purposes and not for the manufacture of any nuclear explosive device.

B. GENERAL PRINCIPLES

3. The purpose of safeguards under this Agreement is to guard against withdrawal of safeguarded nuclear material from civilian use at any time.
4. The application of safeguards under this Agreement is intended to facilitate implementation of relevant bilateral or multilateral arrangements to which India is a party, which are essential to the accomplishment of the objective of this Agreement.
5. Bearing in mind Article II of the Statute, the Agency shall implement safeguards in a manner designed to avoid hampering India's economic or technological development, and not to hinder or otherwise interfere with any activities involving the use by India of nuclear material, non-nuclear material, equipment, components, information or technology produced, acquired or developed by India independent of this Agreement for its own purposes.
6. The safeguards procedures set forth in this document shall be implemented in a manner designed to be consistent with prudent management practices required for the economic and safe conduct of nuclear activities.
7. In implementing safeguards, the Agency shall take every precaution to protect commercial and industrial secrets. No member of the Agency's staff shall disclose, except to the Director General and to such other members of the staff as the Director General may authorize to have such information by reason of their official duties in connection with safeguards, any commercial or industrial secret or any other confidential information coming to his knowledge by reason of the implementation of safeguards by the Agency.
8. The Agency shall not publish or communicate to any State, organization or person any information obtained by it in connection with the implementation of safeguards in India, except that:
 - (a) Specific information relating to such implementation in India may be given to the Board and to such Agency staff members as require such knowledge by reason of their official duties in connection with safeguards, but only to the extent necessary for the Agency to fulfil its safeguards responsibilities;
 - (b) Summarized lists of items being safeguarded by the Agency may be published upon decision of the Board; and
 - (c) Additional information may be published upon decision of the Board and if all States directly concerned agree.
9. In the light of Article XII.A.5 of the Statute, safeguards shall continue with respect to produced special fissionable material and to any materials substituted therefor.

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10. Nothing in this Agreement shall affect other rights and obligations of India under international law.

II. CIRCUMSTANCES REQUIRING SAFEGUARDS

A. ITEMS SUBJECT TO THIS AGREEMENT

11. The items subject to this Agreement shall be:

- (a) Any facility listed in the Annex to this Agreement, as notified by India pursuant to paragraph 14(a) of this Agreement;
- (b) Any nuclear material, non-nuclear material, equipment and components supplied to India which are required to be safeguarded pursuant to a bilateral or multilateral arrangement to which India is a party;
- (c) Any nuclear material, including subsequent generations of special fissionable material, produced, processed or used in or by the use of a facility listed in the Annex or in or by the use of any nuclear material, non-nuclear material, equipment and components referred to in paragraph 11(b);
- (d) Any nuclear material substituted in accordance with paragraph 27 or 30(d) of this Agreement for nuclear material referred to in paragraph 11(b) or 11(c) of this Agreement;
- (e) Any heavy water substituted in accordance with paragraph 32 of this Agreement for heavy water subject to this Agreement;
- (f) Any facility other than a facility identified in paragraph 11(a) above, or any other location in India, while producing, processing, using, fabricating or storing any nuclear material, non-nuclear material, equipment or components referred to in paragraph 11(b), (c), (d) or (e) of this Agreement, as notified by India pursuant to paragraph 14(b) of this Agreement.

12. The scope of this Agreement is limited to the items subject to this Agreement as defined in paragraph 11 above.

Declaration

13. Upon entry into force of this Agreement, and a determination by India that all conditions conducive to the accomplishment of the objective of this Agreement are in place, India shall file with the Agency a Declaration, based on its sovereign decision to place voluntarily its civilian nuclear facilities under Agency safeguards in a phased manner.

Notifications

14.

- (a) India, on the basis of its sole determination, shall notify the Agency in writing of its decision to offer for Agency safeguards a facility identified by India in the Declaration referred to in paragraph 13, or any other facility to be determined by India. Any facility so notified by India to the Agency will be included in the Annex, and become subject to this Agreement, as of the date of receipt by the Agency of such written notification from India.
- (b) Should India, on the basis of its sole determination, decide to import or transfer any nuclear material, non-nuclear material, equipment or components subject to this Agreement to any facility or other location in India provided for in paragraph 11(f) of this Agreement, it shall so notify the Agency. Any such facility

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or location so notified by India pursuant to this sub-paragraph shall become subject to this Agreement as of the date of receipt by the Agency of such written notification from India.

15. India shall notify the Agency of the receipt of any nuclear material, non-nuclear material, equipment and components referred to in paragraph 11(b) of this Agreement within four weeks of the arrival in India of such nuclear material, non-nuclear material, equipment and components.

Provision of Information to the Agency

16. In the event that India's notification pursuant to paragraph 14(a) of this Agreement relates to a facility subject to Agency safeguards under another Safeguards Agreement or Agreements in India at the time of entry into force of this Agreement, India shall provide the Agency, along with the relevant notification, such information as is required pursuant to the other Safeguards Agreement or Agreements as relates to any nuclear material, non-nuclear material, equipment and components subject to safeguards thereunder.
17. With respect to any other facility listed in the Annex pursuant to paragraph 14(a) of this Agreement, India shall provide the Agency, within four weeks of the relevant notification, with:
- (a) a list of all nuclear material at each such facility; and
 - (b) where relevant, and if required pursuant to a bilateral or multilateral arrangement to which India is party, information relating to:
 - (i) Any nuclear material, non-nuclear material, equipment and components supplied to India for production, processing, storage or use in such facility;
 - (ii) Any nuclear material, including subsequent generations of special fissionable material, produced, processed or used in or by the use of such facility or in or by the use of any nuclear material, non-nuclear material, equipment and components supplied to India for production, processing or use in such facility.
18. Each notification pursuant to paragraph 15 of the Agreement shall include all information relevant to the nuclear material, non-nuclear material, equipment and components so notified, including the facility or location where the nuclear material, non-nuclear material, equipment and components so notified will be received.
19. The information provided by India pursuant to paragraphs 16, 17 and 18 of this Agreement shall specify, inter alia, to the extent relevant, the nuclear and chemical composition, physical form and quantity of the nuclear material; the date of shipment; the date of receipt; the identity of the consigner and the consignee; and any other relevant information, such as the type and capacity of any facility (or parts thereof), components or equipment; and the type and quantity of non-nuclear material. In the case of a facility or other location subject to this Agreement, the information to be provided shall include the type and capacity of that facility or location, and any other relevant information.
20. India shall thereafter notify the Agency by means of reports, in accordance with this Agreement, of any nuclear material, non-nuclear material, equipment and components referred to in paragraph 11(b), (c), (d) or (e) of this Agreement. The Agency may verify the calculations of the amounts and/or quantities of such nuclear material, non-nuclear material, equipment and components, and appropriate adjustments shall be made by agreement between India and the Agency.
21. The Agency shall maintain an inventory of items subject to this Agreement. The Agency shall send a copy of the inventory it maintains with respect to such information to India every twelve months and also at any other

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times specified by India in a request communicated to the Agency at least two weeks in advance.

B. SAFEGUARDS UNDER OTHER AGREEMENTS

22. The application of Agency safeguards under other Safeguards Agreements concluded by India with the Agency and in force at the time of entry into force of this Agreement may, subject to agreement by the Parties to such other Safeguards Agreements and following notification by India of the relevant facilities pursuant to paragraph 14(a), be suspended while this Agreement is in force. The application of safeguards under this Agreement to nuclear material, non-nuclear material, equipment or components subject to safeguards under such other Agreements shall commence as of the date of receipt by the Agency of India's notification. India's undertaking not to use items subject thereto in such a way as to further any military purpose, and its undertaking that such items shall be used exclusively for peaceful purposes and shall not be used for the manufacture of any nuclear explosive device, shall continue to apply.

C. EXEMPTIONS FROM SAFEGUARDS

General Exemptions

23. Nuclear material that would otherwise be subject to safeguards shall be exempted from safeguards at the request of India, provided that the material so exempted in India may not at any time exceed:
- (a) 1 kilogram in total of special fissionable material, which may consist of one or more of the following:
 - (i) Plutonium;
 - (ii) Uranium with an enrichment of 0.2 (20 %) and above, taken account of by multiplying its weight by its enrichment;
 - (iii) Uranium with an enrichment below 0.2 (20 %) and above that of natural uranium, taken account of by multiplying its weight by five times the square of its enrichment;
 - (b) 10 metric tons in total of natural uranium and depleted uranium with an enrichment above 0.005 (0.5 %);
 - (c) 20 metric tons of depleted uranium with an enrichment of 0.005 (0.5 %) or below; and
 - (d) 20 metric tons of thorium.

Exemptions Related to Reactors

24. Produced or used nuclear material that would otherwise be subject to safeguards because it is being or has been produced, processed or used in a reactor which has been supplied wholly or substantially under a project agreement, submitted to safeguards under a safeguards agreement by the parties to a bilateral or multilateral arrangement or unilaterally submitted to safeguards under a safeguards agreement; or because it is being or has been produced in or by the use of safeguarded nuclear material, shall be exempted from safeguards if:
- (a) It is plutonium produced in the fuel of a reactor whose rate of production does not exceed 100 grams of plutonium per year; or
 - (b) It is produced in a reactor determined by the Agency to have a maximum calculated power for continuous operation of less than 3 thermal megawatts, or is used in such a reactor and would not be subject to safeguards except for such use, provided that the total power of the reactors with respect to which these

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exemptions apply in any State may not exceed 6 thermal megawatts.

25. Produced special fissionable material that would otherwise be subject to safeguards only because it has been produced in or by the use of safeguarded nuclear material shall in part be exempted from safeguards if it is produced in a reactor in which the ratio of fissionable isotopes within safeguarded nuclear material to all fissionable isotopes is less than 0.3 (calculated each time any change is made in the loading of the reactor and assumed to be maintained until the next such change). Such fraction of the produced material as corresponds to the calculated ratio shall be subject to safeguards.

D. SUSPENSION OF SAFEGUARDS

26. Safeguards with respect to nuclear material may be suspended while the material is transferred, under an arrangement or agreement approved by the Agency, for the purpose of processing, reprocessing, testing, research or development, within India or to any other Member State or to an international organization, provided that the quantities of nuclear material with respect to which safeguards are thus suspended in India may not at any time exceed:

- (a) 1 effective kilogram of special fissionable material;
- (b) 10 metric tons in total of natural uranium and depleted uranium with an enrichment 0.005 (0.5 %);
- (c) 20 metric tons of depleted uranium with an enrichment of 0.005 (0.5 %) or below; and
- (d) 20 metric tons of thorium.

27. Safeguards with respect to nuclear material in irradiated fuel which is transferred for the purpose of reprocessing may also be suspended if the State or States concerned have, with the agreement of the Agency, placed under safeguards substitute nuclear material in accordance with paragraph 30(d) of this Agreement for the period of suspension. In addition, safeguards with respect to plutonium contained in irradiated fuel which is transferred for the purpose of reprocessing may be suspended for a period not to exceed six months if the State or States concerned have, with the agreement of the Agency, placed under safeguards a quantity of uranium whose enrichment in the isotope uranium-235 is not less than 0.9 (90%) and the uranium-235 content of which is equal in weight to such plutonium. Upon expiration of the said six months or the completion of reprocessing, whichever is earlier, safeguards shall, with the agreement of the Agency, be applied to such plutonium and shall cease to apply to the uranium substituted therefor.

28. Under conditions specified in the Subsidiary Arrangements, the Agency shall suspend safeguards with respect to any parts of the facilities listed in the Annex which are removed for maintenance or repair.

E. TERMINATION OF SAFEGUARDS

29. The termination of safeguards on items subject to this Agreement shall be implemented taking into account the provisions of GOV/1621 (20 August 1973).

30. Nuclear material shall no longer be subject to safeguards under this Agreement after:

- (a) It has been returned to the State that originally supplied it (whether directly or through the Agency), if it was subject to safeguards only by reason of such supply and if:
 - (i) It was not improved while under safeguards; or
 - (ii) Any special fissionable material that was produced in it under safeguards has been separated out, or

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safeguards with respect to such produced material have been terminated ; or

- (b) The Agency has determined that:
- (i) It was subject to safeguards only by reason of its use in a principal nuclear facility which has been supplied wholly or substantially under a project agreement, submitted to safeguards under a safeguards agreement by the parties to a bilateral or multilateral arrangement or unilaterally submitted to safeguards under a safeguards agreement;
 - (ii) It has been removed from such a facility; and
 - (iii) Any special fissionable material that was produced in it under safeguards has been separated out, or safeguards with respect to such produced material have been terminated; or
- (c) The Agency has determined that it has been consumed, or has been diluted in such a way that it is no longer usable for any nuclear activity relevant from the point of view of safeguards, or has become practicably irrecoverable; or
- (d) India has, with the agreement of the Agency, placed under safeguards, as a substitute, such amount of the same element, not otherwise subject to safeguards, as the Agency has determined contains fissionable isotopes:
- (i) Whose weight (with due allowance for processing losses) is equal to or greater than the weight of the fissionable isotopes of the material with respect to which safeguards are to terminate; and
 - (ii) Whose ratio by weight to the total substituted element is similar to or greater than the ratio by weight of the fissionable isotopes of the material with respect to which safeguards are to terminate to the total weight of such material;
- provided that the Agency may agree to the substitution of plutonium for uranium-235 contained in uranium whose enrichment is not greater than 0.05 (5.0 %); or
- (e) It has been transferred out of India under paragraph 33(d) of this Agreement, provided that such material shall again be subject to safeguards if it is returned to India; or
- (f) The terms of this Agreement, pursuant to which it was subject to safeguards under this Agreement, no longer apply, by expiration of this Agreement or otherwise.

31. If India wishes to use safeguarded source material for non-nuclear purposes, such as the production of alloys or ceramics, it shall agree with the Agency on the circumstances under which the safeguards on such material may be terminated.

32. Safeguards shall be terminated on a facility listed in the Annex after India and the Agency have jointly determined that the facility is no longer usable for any nuclear activity relevant from the point of view of safeguards. Safeguards on non-nuclear material, equipment and components subject to this Agreement may be terminated as and when the non-nuclear material, equipment or components have been returned to the supplier or arrangements have been made by the Agency to safeguard the non-nuclear material, equipment or components in the State to which it is being transferred, or when India and the Agency have jointly determined that the non-nuclear material, equipment or component in question has been consumed, is no longer usable for any nuclear activity relevant from the point of view of safeguards or has become practicably irrecoverable. Safeguards may be terminated on heavy water upon India's placing under safeguards as substitute the same

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amount of heavy water of equivalent or better heavy water concentration.

F. TRANSFERS

33. No safeguarded nuclear material shall be transferred outside the jurisdiction of India until the Agency has satisfied itself that one or more of the following conditions apply:
- (a) The material is being returned, under the conditions specified in paragraph 30(a) of this Agreement, to the State that originally supplied it; or
 - (b) The material is being transferred subject to the provisions of paragraph 26 or 27 of this Agreement; or
 - (c) Arrangements have been made by the Agency to safeguard the material in the State to which it is being transferred; or
 - (d) The material was not subject to safeguards pursuant to a project agreement and will be subject, in the State to which it is being transferred, to safeguards other than those of the Agency but generally consistent with such safeguards and accepted by the Agency.
34. India shall notify the Agency of its intention to transfer within its jurisdiction any nuclear material, non-nuclear material, equipment or component subject to this Agreement to any facility or location in India to which paragraph 11(f) applies and shall provide to the Agency, before such transfer is effected, the necessary information to enable the Agency to make arrangements for the application of safeguards to such nuclear material, non-nuclear material, equipment or component after its transfer. The Agency shall also be given the opportunity as early as possible in advance of such a transfer to review the design of the facility for the sole purpose of determining that the arrangements provided for in this Agreement can be effectively applied. India may transfer the nuclear material, non-nuclear material, equipment or component only after the Agency has confirmed that it has made such arrangements.
35. India shall notify the Agency of its intention to transfer any nuclear material, non-nuclear material, equipment or component subject to this Agreement to a recipient which is not under the jurisdiction of India. Except as provided for in paragraph 30(a) of this Agreement, such nuclear material, non-nuclear material, equipment or component shall be so transferred only after the Agency has informed India that it has satisfied itself that Agency safeguards will apply with respect to the nuclear material, non-nuclear material, equipment or component in the recipient country. Upon receipt by the Agency of the notification of transfer from India and the confirmation of receipt by the recipient country, safeguards on such nuclear material, non-nuclear material, equipment or component shall be terminated under this Agreement.
36. The notifications referred to in paragraphs 34 and 35 of this Agreement shall be made to the Agency sufficiently in advance to enable it to make the arrangements required before the transfer is effected. The Agency shall promptly take any necessary action. The time limits for and the contents of these notifications shall be set out in the Subsidiary Arrangements.

III. SAFEGUARDS PROCEDURES

A. GENERAL PROCEDURES

Introduction

37. The safeguards procedures to be applied by the Agency are those specified in this Agreement, as well as such additional procedures as result from technological developments, and other procedures as may be agreed to between the Agency and India. The safeguards procedures set forth below shall be followed, as far as relevant,

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with respect to any item subject to this Agreement.

38. The Agency shall conclude with India Subsidiary Arrangements concerning the implementation of the safeguards procedures referred to above. The Subsidiary Arrangements shall also include any necessary arrangements for the application of safeguards to any item subject to this Agreement, including such containment and surveillance measures as are required for the effective implementation of safeguards. The Subsidiary Arrangements shall enter into force no later than six months after entry into force of this Agreement.

Design Review

39. The Agency shall review the design of principal nuclear facilities, for the sole purpose of satisfying itself that a facility will permit the effective application of safeguards.
40. The design review of a principal nuclear facility shall take place at as early a stage as possible. In particular, such review shall be carried out in the case of:
- (a) An Agency project, before the project is approved;
 - (b) A bilateral or multilateral arrangement under which the responsibility for administering safeguards is to be transferred to the Agency, or an activity or facility unilaterally submitted by India, before the Agency assumes safeguards responsibilities with respect to the facility;
 - (c) A transfer of safeguarded nuclear material to a principal nuclear facility whose design has not previously been reviewed, before such transfer takes place; and
 - (d) A significant modification of a principal nuclear facility whose design has previously been reviewed, before such modification is undertaken.
41. To enable the Agency to perform the required design review, India shall submit to it relevant design information sufficient for the purpose, including information on such basic characteristics of the principal nuclear facility as may bear on the Agency's safeguards procedures. The Agency shall require only the minimum amount of information and data consistent with carrying out its responsibility under this section. It shall complete the review promptly after the submission of this information by India and shall notify the latter of its conclusions without delay.
42. If the Agency wishes to examine design information which India regards as sensitive, the Agency shall, if India so requests, conduct the examination on premises in India. Such information should not be physically transmitted to the Agency provided that it remains readily available for examination by the Agency in India.

Records

43. India shall arrange for the keeping of records with respect to principal nuclear facilities and also with respect to all safeguarded nuclear material outside such facilities. For this purpose India and the Agency shall agree on a system of records with respect to each facility and also with respect to such material, on the basis of proposals to be submitted by India in sufficient time to allow the Agency to review them before the records need to be kept.
44. All records shall be kept in English.
45. The records shall consist, as appropriate, of:

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- (a) Accounting records of all safeguarded nuclear material; and
- (b) Operating records for principal nuclear facilities.

46. All records shall be retained for at least two years.

Reports

General Requirements

47. India shall submit to the Agency reports with respect to the production, processing and use of safeguarded nuclear material in or outside principal nuclear facilities. For this purpose, India and the Agency shall agree on a system of reports with respect to each facility and also with respect to safeguarded nuclear material outside such facilities, on the basis of proposals to be submitted by India in sufficient time to allow the Agency to review them before the reports need to be submitted. The reports need include only such information as is relevant for the purpose of safeguards.

48. All reports shall be submitted in English.

Routine Reports

49. Routine reports shall be based on the records compiled in accordance with paragraphs 43 to 46 of this Agreement and shall consist, as appropriate, of:

- (a) Accounting reports showing the receipt, transfer out, inventory and use of all safeguarded nuclear material. The inventory shall indicate the nuclear and chemical composition and physical form of all material and its location on the date of the report; and
- (b) Operating reports showing the use that has been made of each principal nuclear facility since the last report and, as far as possible, the programme of future work in the period until the next routine report is expected to reach the Agency.

50. The first routine report shall be submitted as soon as:

- (a) There is any safeguarded nuclear material to be accounted for; or
- (b) The principal nuclear facility to which it relates is in a condition to operate.

Progress in Construction

51. The Agency may request information as to when particular stages in the construction of a principal nuclear facility have been or are to be reached.

Special Reports

52. India shall report to the Agency without delay:

- (a) If any unusual incident occurs involving actual or potential loss or destruction of, or damage to, any safeguarded nuclear material or principal nuclear facility;
- (b) If there is good reason to believe that safeguarded nuclear material is lost or unaccounted for in quantities that exceed the normal operating and handling losses that have been accepted by the Agency as

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characteristic of the facility; or

- (c) Disruption of operation of facilities listed in the Annex on account of material violation or breach of bilateral or multilateral arrangements to which India is a party.

53. India shall report to the Agency, as soon as possible, and in any case within two weeks, any transfer not requiring advance notification that will result in a significant change (to be defined by the Agency in agreement with India) in the quantity of safeguarded nuclear material in a principal nuclear facility. Such report shall indicate the amount and nature of the material and its intended use.

Amplification of Reports

54. At the Agency's request, India shall submit amplifications or clarifications of any report, in so far as relevant for the purpose of safeguards.

Inspections

General Procedures

55. The Agency may inspect any items subject to this Agreement.
56. The purpose of safeguards inspections under this Agreement shall be to verify compliance by India with this Agreement and to assist India in complying with this Agreement and in resolving any questions arising out of the implementation of safeguards.
57. The number, duration and intensity of inspections actually carried out shall be kept to the minimum consistent with the effective implementation of safeguards, and if the Agency considers that the authorized inspections are not all required, fewer shall be carried out.
58. Inspectors shall neither operate any facility themselves nor direct the staff of a facility to carry out any particular operation.

Routine Inspections

59. Routine inspections may include, as appropriate:
- (a) Audit of records and reports;
 - (b) Verification of the amount of safeguarded nuclear material by physical inspection, measurement and sampling;
 - (c) Examination of principal nuclear facilities, including a check of their measuring instruments and operating characteristics; and
 - (d) Check of the operations carried out at principal nuclear facilities.
60. Whenever the Agency has the right of access to a principal nuclear facility at all times, it may perform inspections of which notice as required by paragraph 4 of the Inspectors Document need not be given, in so far as this is necessary for the effective application of safeguards. The actual procedures to implement these provisions shall be agreed upon between India and the Agency.

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Initial Inspections of a Principal Nuclear Facility

61. To verify that the construction of a principal nuclear facility is in accordance with the design reviewed by the Agency, an initial inspection or inspections of the facility may be carried out:
- (a) As soon as possible after the facility has come under Agency safeguards, in the case of a facility already in operation; and
 - (b) Before the facility starts to operate, in other cases.
62. The measuring instruments and operating characteristics of the facility shall be reviewed to the extent necessary for the purpose of implementing safeguards. Instruments that will be used to obtain data on the nuclear materials in the facility may be tested to determine their satisfactory functioning. Such testing may include the observation by inspectors of commissioning or routine tests by the staff of the facility, but shall not hamper or delay the construction, commissioning or normal operation of the facility.

Special Inspections

63. The Agency may carry out special inspections if:
- (a) The study of a report indicates that such inspection is desirable; or
 - (b) Any unforeseen circumstance requires immediate action.

The Board shall subsequently be informed of the reasons for and the results of each such inspection.

64. The Agency may also carry out special inspections of substantial amounts of safeguarded nuclear material that are to be transferred outside the jurisdiction of India, for which purpose India shall give the Agency sufficient advance notice of any such proposed transfer.

B. SPECIAL PROCEDURES FOR REACTORS

Reports

65. The frequency of submission of routine reports shall be agreed between the Agency and India, taking into account the frequency established for routine inspections. However, at least two such reports shall be submitted each year and in no case shall more than 12 such reports be required in any year.

Inspections

66. One of the initial inspections of a reactor shall if possible be made just before the reactor first reaches criticality.
67. The maximum frequency of routine inspections of a reactor and of the safeguarded nuclear material in it shall be determined from the following table:

Whichever is the largest of: (a) Facility inventory (including loading); (b) Annual throughput; (c) Maximum potential annual production of special fissionable material (Effective kilograms of nuclear material)	Maximum number of routine inspections annually
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Up to 1	More than 1 and up to 5	More than 5 and up to 10	More than 10 and up to 15	More than 15 and up to 20	More than 20 and up to 25	More than 25 and up to 30	More than 30 and up to 35	More than 35 and up to 40	More than 40 and up to 45	More than 45 and up to 50	More than 50 and up to 55	More than 55 and up to 60	More than 60	0	1	2	3	4	5	6	7	8	9	10	11	12
													Right of access at all times													

68. The actual frequency of inspection of a reactor shall take account of:

- (a) The fact that India possesses irradiated fuel reprocessing facilities;
- (b) The nature of the reactor; and
- (c) The nature and amount of the nuclear material produced or used in the reactor.

C. SPECIAL PROCEDURES RELATING TO SAFEGUARDED NUCLEAR MATERIAL OUTSIDE PRINCIPAL NUCLEAR FACILITIES

Nuclear Material in Research and Development Facilities

Routine Reports

69. Only accounting reports need be submitted in respect of nuclear material in research and development facilities. The frequency of submission of such routine reports shall be agreed between the Agency and India, taking into account the frequency established for routine inspections; however, at least one such report shall be submitted each year and in no case shall more than 12 such reports be required in any year.

Routine Inspections

70. The maximum frequency of routine inspections of safeguarded nuclear material in a research and development facility shall be that specified in the table in paragraph 67 of this Agreement for the total amount of material in the facility.

Source Material in Sealed Storage

71. The following simplified procedures for safeguarding stockpiled source material shall be applied if India undertakes to store such material in a sealed storage facility and not to remove it therefrom without previously informing the Agency.

Design of Storage Facilities

72. India shall submit to the Agency information on the design of each sealed storage facility and agree with the Agency on the method and procedure for sealing it.

Routine Reports

73. Two routine accounting reports in respect of source material in sealed storage shall be submitted each year.

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Routine Inspections

74. The Agency may perform one routine inspection of each sealed storage facility annually.

Removal of Material

75. India may remove safeguarded source material from a sealed storage facility after informing the Agency of the amount, type and intended use of the material to be removed, and providing sufficient other data in time to enable the Agency to continue safeguarding the material after it has been removed.

Nuclear Material in Other Locations

76. Except to the extent that safeguarded nuclear material outside of principal nuclear facilities is covered by any of the provisions set forth in paragraphs 69 to 75 of this Agreement, the following procedures shall be applied with respect to such material (for example, source material stored elsewhere than in a sealed storage facility, or special fissionable material used in a sealed neutron source in the field).

Routine Reports

77. Routine accounting reports in respect of all safeguarded nuclear material in this category shall be submitted periodically. The frequency of submission of such reports shall be agreed between the Agency and India, taking into account the frequency established for routine inspections; however, at least one such report shall be submitted each year and in no case shall more than 12 such reports be required in any year.

Routine Inspections

78. The maximum frequency of routine inspections of safeguarded nuclear material in this category shall be one inspection annually if the total amount of such material does not exceed five effective kilograms, and shall be determined from the table in paragraph 67 of this Agreement if the amount is greater.

D. PROVISIONS FOR REPROCESSING PLANTS

Introduction

79. Additional procedures applicable to the safeguarding of reprocessing plants are set out below.

Special Procedures

Reports

80. The frequency of submission of routine reports shall be once each calendar month.

Inspections

81. A reprocessing plant having an annual throughput not exceeding 5 effective kilograms of nuclear material, and the safeguarded nuclear material in it, may be routinely inspected twice a year. The reprocessing plant, having an annual throughput exceeding 5 effective kilograms of nuclear material, and the safeguarded nuclear material in it, may be inspected at all times. The arrangements for inspections set forth in paragraph 60 of this Agreement shall apply to all inspections to be made under this paragraph. It is understood that for plants having an annual throughput of more than 60 effective kilograms, the right of access at all times would be

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normally be implemented by means of continuous inspection.

82. When a reprocessing plant is under Agency safeguards only because it contains safeguarded nuclear material, the inspection frequency shall be based on the rate of delivery of safeguarded nuclear material.
83. India and the Agency shall cooperate in making all the necessary arrangements to facilitate the taking, shipping or analysis of samples, due account being taken of the limitations imposed by the characteristics of a plant already in operation when placed under Agency safeguards.

Mixtures of Safeguarded and Unsafeguarded Nuclear Material

84. India and the Agency may agree on the following special arrangements in the case of a reprocessing plant which has not been supplied wholly or substantially under a project agreement, submitted to safeguards under a safeguards agreement by the parties to a bilateral or multilateral arrangement or unilaterally submitted to safeguards under a safeguards agreement, and in which safeguarded and unsafeguarded nuclear materials are present:
- (a) Subject to the provisions of sub-paragraph (b) below, the Agency shall restrict its safeguards procedures to the area in which irradiated fuel is stored, until such time as all or any part of such fuel is transferred out of the storage area into other parts of the plant. Safeguards procedures shall cease to apply to the storage area or plant when either contains no safeguarded nuclear material; and
 - (b) Where possible, safeguarded nuclear material shall be measured and sampled separately from unsafeguarded material, and at as early a stage as possible. Where separate measurement, sampling or processing are not possible, the whole of the material being processed in that campaign shall be subject to the safeguards procedures set out in Part III.D of this Agreement. At the conclusion of the processing the nuclear material that is thereafter to be safeguarded shall be selected by agreement between India and the Agency from the whole output of the plant resulting from that campaign, due account being taken of any processing losses accepted by the Agency.

E. PROVISIONS FOR CONVERSION PLANTS, ENRICHMENT PLANTS AND FABRICATION PLANTS

Introduction

85. Additional procedures applicable to conversion plants and fabrication plants are set out below. This terminology is synonymous with the term "a plant for processing or fabricating nuclear material (excepting a mine or ore-processing plant)" which is used in paragraph 117 of this Agreement.
86. In the event that India decides to offer an enrichment plant in the future as a facility subject to this Agreement, the Agency and India shall consult and agree on the application of the Agency's safeguards procedures for enrichment plants before any such facility is added to the Annex.

Special Procedures

Reports

87. The frequency of submission of routine reports shall be once each calendar month.

Inspections

88. A conversion plant or a fabrication plant which has been supplied wholly or substantially under a project

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agreement, submitted to safeguards under a safeguards agreement by the parties to a bilateral or multilateral arrangement, or unilaterally submitted to safeguards under a safeguards agreement, and the nuclear material in it, may be inspected at all times if the plant inventory at any time, or the annual input, of nuclear material exceeds five effective kilograms. Where neither the inventory at any time, nor the annual input, exceeds five effective kilograms of nuclear material, the routine inspections shall not exceed two a year. The arrangements for inspections set forth in paragraph 57 of this Agreement shall apply to all inspections to be made under this paragraph. It is understood that, for plants having an inventory at any time, or an annual input, of more than 60 effective kilograms, the right of access at all times would normally be implemented by means of continuous inspection. Where neither the inventory at any time nor the annual input exceeds one effective kilogram of nuclear material, the plant would not normally be subject to routine inspection.

89. When a conversion plant or a fabrication plant which has not been supplied wholly or substantially under a project agreement, submitted to safeguards under a safeguards agreement by the parties to a bilateral or multilateral arrangement or unilaterally submitted to safeguards under a safeguards agreement contains safeguarded nuclear material, the frequency of routine inspections shall be based on the inventory at any time and the annual input of safeguarded nuclear material. Where the inventory at any time, or the annual input, of safeguarded nuclear material exceeds five effective kilograms the plant may be inspected at all times. Where neither the inventory at any time, nor the annual input, exceeds five effective kilograms of safeguarded nuclear material, the routine inspections shall not exceed two a year. The arrangements for inspection set forth in paragraph 60 shall apply to all inspections to be made under this paragraph. It is understood that, for plants having an inventory at any time, or an annual input, of more than 60 effective kilograms, the right of access at all times would normally be implemented by means of continuous inspection. Where neither the inventory at any time nor the annual input exceeds one effective kilogram of nuclear material, the plant would not normally be subject to routine inspection.
90. The intensity of inspection of safeguarded nuclear material at various steps in a conversion plant or a fabrication plant shall take account of the nature, isotopic composition and amount of safeguarded nuclear material in the plant. Safeguards shall be applied in accordance with the general principles set forth in paragraphs 4 to 8 of this Agreement. Emphasis shall be placed on inspection to control uranium of high enrichments and plutonium.
91. Where a plant may handle safeguarded and unsafeguarded nuclear material, India shall notify the Agency in advance of the programme for handling safeguarded batches to enable the Agency to make inspections during these periods, due account being also taken of the arrangements under paragraph 92 of this Agreement.
92. India and the Agency shall cooperate in making all the necessary arrangements to facilitate the preparation of inventories of safeguarded nuclear material and the taking, shipping and/or analysis of samples, due account being taken of the limitations imposed by the characteristics of a plant already in operation when placed under Agency safeguards.

Residues, Scrap and Waste

93. India shall ensure that safeguarded nuclear material contained in residues, scrap or waste created during conversion or fabrication is recovered, as far as is practicable, in its facilities and within a reasonable period of time. If such recovery is not considered practicable by India, India and the Agency shall cooperate in making arrangements to account for and dispose of the material.

Safeguarded and Unsafeguarded Nuclear Material

94. India and the Agency may agree on the following special arrangements in the case of a conversion plant or a fabrication plant which has not been supplied wholly or substantially under a project agreement, submitted to

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safeguards under a safeguards agreement by the parties to a bilateral or multilateral arrangement or unilaterally submitted to safeguards under a safeguards agreement, and in which safeguarded and unsafeguarded nuclear material are both present:

- (a) Subject to the provisions of sub-paragraph (b) below, the Agency shall restrict its safeguards procedures to the area in which safeguarded nuclear material is stored, until such time as all or any part of such nuclear material is transferred out of the storage area into other parts of the plant. Safeguards procedures shall cease to be applied to the storage area or plant when it contains no safeguarded nuclear material; and
- (b) Where possible, safeguarded nuclear material shall be measured and sampled separately from unsafeguarded nuclear material, and at as early a stage as possible. Where separate measurement, sampling or processing is not possible, any nuclear material containing safeguarded nuclear material shall be subject to the safeguards procedures set out in Part III.E of this Agreement. At the conclusion of processing, the nuclear material that is thereafter to be safeguarded shall be selected, in accordance with paragraph 96 of this Agreement when applicable, by agreement between India and the Agency, due account being taken of any processing losses accepted by the Agency.

Blending of Nuclear Material

95. When safeguarded nuclear material is to be blended with either safeguarded or unsafeguarded nuclear material, the State shall notify the Agency sufficiently in advance of the programme of blending to enable the Agency to exercise its right to obtain evidence, through inspection of the blending operation or otherwise, that the blending is performed according to the programme.
96. When safeguarded and unsafeguarded nuclear material are blended, if the ratio of fissionable isotopes in the safeguarded component going into the blend to all the fissionable isotopes in the blend is 0.3 or greater, and if the concentration of fissionable isotopes in the unsafeguarded nuclear material is increased by such blending, then the whole blend shall remain subject to safeguards. In other cases, the following procedures shall apply:
 - (a) Plutonium/plutonium blending: The quantity of the blend that shall continue to be safeguarded shall be such that its weight, when multiplied by the square of the weight fraction of contained fissionable isotopes, is not less than the weight of originally safeguarded plutonium multiplied by the square of the weight fraction of fissionable isotopes therein, provided however that:
 - (i) In cases where the weight of the whole blend, when multiplied by the square of the weight fraction of contained fissionable isotopes, is less than the weight of originally safeguarded plutonium multiplied by the square of the weight fraction of fissionable isotopes therein, the whole of the blend shall be safeguarded; and
 - (ii) The number of fissionable atoms in the portion of the blend that shall continue to be under safeguards shall in no case be less than the number of fissionable atoms in the originally safeguarded plutonium;
 - (b) Uranium/uranium blending: The quantity of the blend that shall continue to be safeguarded shall be such that the number of effective kilograms is not less than the number of effective kilograms in the originally safeguarded uranium, provided however that:
 - (i) In cases where the number of effective kilograms in the whole blend is less than in the safeguarded uranium, the whole of the blend shall be safeguarded; and
 - (ii) The number of fissionable atoms in the portion of the blend that shall continue to be under safeguards shall in no case be less than the number of fissionable atoms in the originally safeguarded uranium;

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- (c) Uranium/plutonium blending: The whole of the resultant blend shall be safeguarded until the uranium and the plutonium constituents are separated. After separation of the uranium and plutonium, safeguards shall apply to the originally safeguarded component; and
- (d) Due account shall be taken of any processing losses agreed upon between the State and the Agency.

IV. AGENCY INSPECTORS

- 97. The provisions of paragraphs 1 to 10 and 12 to 14, inclusive, of the Inspectors Document shall apply to Agency inspectors performing functions pursuant to this Agreement. However, paragraph 4 of the Inspectors Document shall not apply with regard to any facility or to nuclear material to which the Agency has access at all times. The actual procedures to implement paragraph 60 of this Agreement shall be agreed to between the Agency and India.
- 98. The relevant provisions of the Agreement on the Privileges and Immunities of the Agency (INFCIRC/9/Rev.2) shall apply to the Agency, its inspectors performing functions under this Agreement and to any property of the Agency used by them in the performance of their functions under this Agreement.

V. PHYSICAL PROTECTION

- 99. India shall take all suitable measures necessary for the physical protection of the facilities and nuclear material subject to this Agreement, taking into account the recommendations made in Agency's document INFCIRC/225/Rev.4, as may be amended from time to time.

VI. SYSTEM OF ACCOUNTING AND CONTROL

- 100. India shall establish and maintain a system of accounting for and control of all items subject to safeguards under this Agreement, in accordance with provisions to be set out in the Subsidiary Arrangements.

VII. FINANCE

- 101. India and the Agency shall each bear any expense incurred in the implementation of their responsibilities under this Agreement. The Agency shall reimburse India for any special expenses, including those referred to in paragraph 6 of the Inspectors Document, incurred by India or persons under its jurisdiction at the written request of the Agency, if India notified the Agency before the expense was incurred that reimbursement would be required. These provisions shall not prejudice the allocation of expenses attributable to a failure by either India or the Agency to comply with this Agreement.
- 102. India shall ensure that any protection against third party liability, including any insurance or other financial security, in respect of a nuclear incident occurring in a facility under its jurisdiction shall apply to the Agency and its inspectors when carrying out their functions under this Agreement as that protection applies to nationals of India.

VIII. NON-COMPLIANCE

- 103. If the Board determines in accordance with Article XII.C of the Statute of the Agency that there has been any non-compliance by India with this Agreement, the Board shall call upon India to remedy such non-compliance forthwith, and shall make such reports as it deems appropriate. In the event of failure by India to take full remedial action within a reasonable time, the Board may take any other measures provided for in Article XII.C of the Statute. The Agency shall promptly notify India in the event of any determination by the Board pursuant in this regard.

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IX. COOPERATION, INTERPRETATION AND APPLICATION OF THE AGREEMENT AND SETTLEMENT OF DISPUTES

104. The Agency and India shall cooperate to facilitate the implementation of this Agreement.
105. At the request of either India or the Agency, there shall be consultations about any question arising out of the interpretation or application of this Agreement. India and the Agency shall endeavour to settle by negotiation any dispute arising from the interpretation or application of this Agreement. India shall have the right to request that any question arising out of the interpretation or application of the Agreement be considered by the Board. The Board shall invite India to participate in the discussion of any such question by the Board.
106. In the event of any question or questions arising from the implementation of this Agreement, the Agency shall provide India with an opportunity to clarify and facilitate the resolution of such questions. The Agency shall not draw any conclusions in connection with the question or questions until India has had an opportunity to provide clarifications.

X. FINAL CLAUSES

107. India and the Agency shall, at the request of either of them, consult about amending this Agreement.
108. This Agreement shall enter into force on the date on which the Agency receives from India written notification that India's statutory and/or constitutional requirements for entry into force have been met.
109. This Agreement shall remain in force until, in accordance with its provisions, safeguards have been terminated on all items subject to this Agreement, or until terminated by mutual agreement of the parties to this Agreement.

XI. DEFINITIONS

110. "Agency" means the International Atomic Energy Agency.
111. "Board" means the Board of Governors of the Agency.
112. "Campaign" means the period during which the chemical processing equipment in a reprocessing plant is operated between two successive wash-outs of the nuclear material present in the equipment.
113. "Conversion plant" means a facility (excepting a mine or ore-processing plant) to improve unirradiated nuclear material, or irradiated nuclear material that has been separated from fission products, by changing its chemical or physical form so as to facilitate further use or processing. The term conversion plant includes the facility's storage and analytical sections. The term does not include a plant intended for separating the isotopes of nuclear material.
114. "Director General" means the Director General of the Agency.
115. "Effective kilograms" means:
- (i) In the case of plutonium, its weight in kilograms;
 - (ii) In the case of uranium with an enrichment of 0.01 (1 %) and above, its weight in kilograms multiplied by the square of its enrichment;

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- (iii) In the case of uranium with an enrichment below 0.01 (1 %) and above 0.005 (0.5 %), its weight in kilograms multiplied by 0.0001; and
 - (iv) In the case of depleted uranium with an enrichment of 0.005 (0.5 %) or below, and in the case of thorium, its weight in kilograms multiplied by 0.00005.
116. "Enrichment plant" means a plant for separating the isotopes of nuclear material.
117. "Facility" means, for the purposes of this Agreement:
- (i) A "principal nuclear facility", which means a reactor, a plant for processing nuclear material irradiated in a reactor, a plant for separating the isotopes of a nuclear material, a plant for processing or fabricating nuclear material (excepting a mine or ore-processing plant) or a facility or plant of such other type as may be designated by the Board from time to time, including associated storage facilities, as well as a critical facility or a separate storage installation;
 - (ii) A research and development facility as defined in paragraph 127 of this Agreement;
 - (iii) Any location where nuclear material in amounts greater than one effective kilogram is customarily used;
 - (iv) A plant for the upgrading of heavy water or a separate storage installation for heavy water.
118. "Fuel fabrication plant" means a plant to manufacture fuel elements or other components containing nuclear material and includes the plant's storage and analytical sections.
119. "Improved" means, with respect to nuclear material, that either:
- (i) The concentration of fissionable isotopes in it has been increased; or
 - (ii) The amount of chemically separable fissionable isotopes in it has been increased; or
 - (iii) Its chemical or physical form has been changed so as to facilitate further use or processing.
120. "Inspector" means an Agency official designated in accordance with the Inspectors Document.
121. "Inspectors Document" means the Annex to the Agency's document GC(V)/INF/39.
122. "Nuclear material" means any source or special fissionable material as defined in Article XX of the Statute.
123. "Produced, processed or used" means any utilization or any alteration of the physical or chemical form or composition, including any change of the isotopic composition, of nuclear material;
124. "Project agreement" means a safeguards agreement relating to an Agency project and containing provisions as foreseen in Article XI.F.4.(b) of the Statute.
125. "Reactor" means any device in which a controlled, self-sustaining fission chain-reaction can be maintained.
126. "Reprocessing plant" means a facility to separate irradiated nuclear materials and fission products, and includes the facility's head-end treatment section and its associated storage and analytical sections. This term is

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synonymous with the term "a plant for processing nuclear material irradiated in a reactor" which is used in paragraph 117 of this Agreement.

127. "Research and development facility" means a facility, other than a principal nuclear facility, used for research or development in the field of nuclear energy.
128. "Statute" means the Statute of the Agency.
129. "Throughput" means the rate at which nuclear material is introduced into a facility operating at full capacity.
130. "Unilaterally submitted" means submitted by India to Agency safeguards.

DONE at Vienna, on the day of 2008, in duplicate, in the English language.

For the GOVERNMENT OF INDIA: For the INTERNATIONAL ATOMIC ENERGY AGENCY:

ANNEX

LIST OF FACILITIES SUBJECT TO SAFEGUARDS UNDER THE AGREEMENT BETWEEN THE GOVERNMENT OF INDIA AND THE INTERNATIONAL ATOMIC ENERGY AGENCY FOR THE APPLICATION OF SAFEGUARDS TO CIVILIAN NUCLEAR FACILITIES

	FACILITY OFFERED FOR SAFEGUARDS BY INDIA	FOR	DATE OF RECEIPT OF NOTIFICATION
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PRA/SKK

URL:<http://pib.nic.in/newsite/erelease.aspx?relid=40249>