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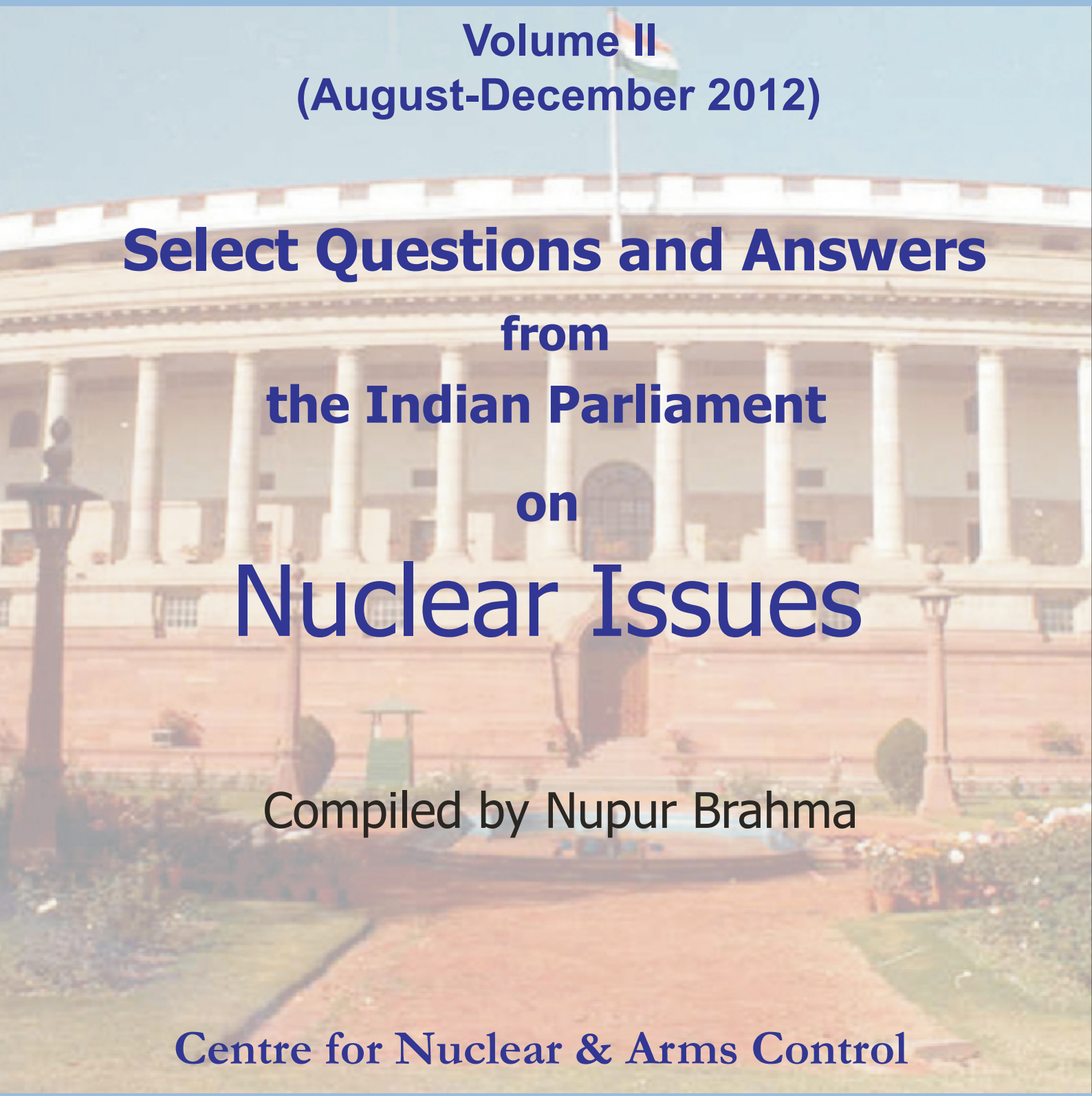
Select Questions and Answers
from
the Indian Parliament
on
Nuclear Issues



Compiled by Nupur Brahma

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GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.2953
TO BE ANSWERED ON 20.12.2012

DUMPING OF NUCLEAR WASTE

2953. SHRI T.M. SELVAGANAPATHI:

Will the PRIME MINISTER be pleased to state:

(a) whether it is a fact that the Nuclear Power Corporation of India Limited (NPCIL) has been facing a serious problem regarding handling of nuclear waste;
(b) if so, the details thereof;
(c) whether it is also a fact that the local people have been objecting dumping of nuclear waste in their respective places;
(d) if so, the details thereof;
(e) whether the NPCIL is considering to adopt any technology to dispose off the nuclear waste; and
(f) if so, the details thereof?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) No, Sir.
(b) Does not arise.
(c)&(d) In India, nuclear wastes are safely stored and disposed as per the international practices. As a national policy, each nuclear plant in India has a designated storage facility co-located in the plant site and, as needed, such waste is further processed in designated DAE facilities for compaction and immobilisation. There is no objection from the local people about storage and management of waste at such sites.
(e)&(f) India follows a closed nuclear fuel cycle policy in which the spent nuclear fuel is not treated as waste. It is reprocessed at reprocessing facilities for obtaining valuable fuel for use in the programme. After reprocessing, the small amount of high level waste is vitrified in the waste immobilisation plants co-located with the reprocessing plants and stored in engineered facilities.
Nuclear wastes generated at nuclear power plants are of low to intermediate radioactivity level. These are treated, immobilised in cement/polymer matrices and stored in specially designed double walled, high integrity containers placed in RCC trenches / storage facilities at the nuclear power plant site itself in accordance with the well-established and proven procedures. The area around the waste storage facility is regularly monitored to ensure that there is no effect on the environment. The radioactivity of these wastes reduces to near ambient levels by the end of operational life of the plant.

(http://dae.nic.in/writereaddata/rsus2953.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.2952
TO BE ANSWERED ON 20.12.2012

QUANTUM OF THORIUM RESERVE WITH INDIA

2952. SHRI RASHEED MASOOD:

Will the PRIME MINISTER be pleased to state:

(a) the quantum of thorium reserves with India;
(b) the quantity of thorium exported by India over the years; and
(c) the details thereof?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) A total quantity of 10.70 million tonnes of in-situ reserves of Monazite has been established in the country. This contains approximately 0.856 million tonnes of Thorium. Thorium does not exist in nature as metal. Thorium is present to an extent of about 8% in monazite which is a naturally occurring Beach sand mineral; and further, monazite always co-exists with other Beach sand minerals such as ilmenite, rutile, leucoxene, sillimanite , garnet and zircon.

(b)&(c) Thorium is a processed output product of monazite, which is a 'prescribed substance' under the Atomic Energy Act 1962. Thorium itself is also a prescribed substance under the Atomic Energy Act 1962. Further, under the Atomic Energy (Working of the Mines, Minerals and Handling of Prescribed Substances) Rules 1984, License from the Government of India, DAE is required to handle /import /export /transport /store etc. any prescribed substance, including Monazite.

The only entity that has been given a licence by DAE to export thorium, in the form of thorium compounds, is Indian Rare Earths Limited (IREL), a Public Sector Undertaking under DAE. A total of 11.16 tonnes of Thorium nitrate and 151 kilograms of Thorium oxide has been exported by IREL in the ten years period upto 2011-12; as under:

Year	**Year Export of Thorium Nitrate (in tonnes)**	**Export of Thorium Oxide (in kgs)**
2002-03	0	0
2003-04	0	0
2004-05	0	0
2005-06	0	0
2006-07	0	0
2007-08	0	0

2008-09	0.660	100
2009-10	1.250	51
2010-11	5.200	0
2011-12	4.050	0

(http://dae.nic.in/writereaddata/rsus2952.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.2951
TO BE ANSWERED ON 20.12.2012

EXPANDING OF HEAVY WATER PRODUCING CAPACITY

2951. SHRI PARSHOTTAM KHODABHAI RUPALA:

Will the PRIME MINISTER be pleased to state:

(a) whether Department of Atomic Energy intends to expand heavy water production capacity within coming five years and the Department intend to set up one more stream at Hazira;
(b) heavy water exported within last five years and target set up for export for coming five years;
(c) what steps have been taking up by the Department to accurate quality of heavy water; and
(d) whether the Department take all possible steps for transportation of heavy water by road, the details thereof?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) Yes, sir. The location of the additional facility however is yet to be finalized.
(b) A total of 59.6 MT of Heavy water has been exported during the last 5 years. No target is fixed for export of Heavy Water in the coming 5 years.
(c) Qualified and authorized personnel of Heavy Water Board, a constituent unit of the Department of Atomic Energy are handling production as well as quality control of Heavy Water with the help of advanced scientific instruments.
(d) Heavy Water is neither toxic nor radioactive material and therefore very safe for transportation. However, considering its value and significance, well established procedures are followed for transportation of Heavy Water which are escorted by Central Industrial Security Force in special vehicle.

(http://dae.nic.in/writereaddata/rsus2951.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.2950
TO BE ANSWERED ON 20.12.2012

SAFETY REVIEW DONE BY IAEA

2950. SHRI OM PRAKASH MATHUR:

Will the PRIME MINISTER be pleased to state:

(a) whether a safety review of the Atomic power stations including Rawatbhata in Rajasthan has been done recently by the International Atomic Energy Agency (IAEA) or by other agencies;
(b) if so, the details thereof and steps Government proposes to take to address the concerns expressed during such review;
(c) whether Government proposes to conduct periodic safety review of all the Atomic Power Stations in the country; and
(d) if so, by when and the details thereof, State-wise?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) Yes Sir. The safety review of Rajasthan Atomic Power Station (RAPS) Units 3&4 at Rawatbhata was carried out by the Operational Safety Review Team (OSART) of the International Atomic Energy Agency (IAEA) at the request of the Government of India during October 29 to November 14, 2012.
(b) The OSART identified a series of good practices at the station, to be shared by IAEA with the global nuclear industry as well as made suggestions where operations in the units could be further improved. The final report of the OSART has not been received. The recommendations/suggestions of the OSART are reviewed for systemic change.
(c)&(d) The safety reviews of the Indian nuclear power plants are carried out periodically by the regulatory authority, the Atomic Energy Regulatory Board (AERB). In addition, international peer reviews are also carried out by experts of the World Association of Nuclear Operators (WANO). Post Fukushima, Government decided to get the safety of RAPS Units 3&4 reviewed by the OSART of IAEA also, which has been completed.

(http://dae.nic.in/writereaddata/rsus2950.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.2949
TO BE ANSWERED ON 20.12.2012

NUCLEAR POWER PLANTS IN THE TWELFTH PLAN

2949. DR. T. SUBBARAMI REDDY:

Will the PRIME MINISTER be pleased to state:

(a) whether Government proposes to set up new nuclear power plants in the country during the Twelfth Plan period;
(b) if so, the details along with the proposed locations thereof;
(c) the status of work at the various nuclear power reactors which are under construction; and
(d) the year in which construction started at these sites and the time by which they are likely to be made operational?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) Yes, Sir.

(b) The details on project on which work is planned to be started in the XIIth Five year Plan are given below ;-

Project	**Location**	**Capacity (MW)**
Indigenous Reactors		
Gorakhpur, Units 1&2	Gorakhpur, Haryana	2X700
Chutka, Units 1&2	Chutka, Madhya Pradesh	2X700
Mahi Banswara, Units 1&2	Mahi Banswara, Rajasthan	2X700
Kaiga, Units 5&6	Kaiga, Karnataka	2X700
Fast Breeder Reactor Units 1&2	Kalpakkam, Tamil Nadu	2X500
Advanced Heavy Water Recator	Site to be decided	300
Reactor with Foreign Technical Cooperation		
Kundankulam, Units 3&4	Kudankulam, Tamil Nadu	2X1000
Jaitpur Units 1&2	Jaitpur, Maharashtra	2X1650
Kovvadda Units1&2	Kovvadda, Andhra Pradesh	2X1500
Chhaya Mithi Virdi Units 1&2	Chhaya Mithi Virdi, Gujrat	2X1100

(c)&(d) The details of projects under construction are given below :

Project	Location	Capacity (MW)	Start of construction (First pour of Concrete)	Current status and Physical Progress (%) as of November 2012	Expected Completion
Kudankulam Nuclear Power Project, Units 1&2	Kudankulam, Tamil Nadu	2X1000	March, 2012	Advanced Stage of Commissioning 97.03%	Unit-1-2012-13 Unit-2-2012-14
Karkrapar Atomic Power Project, Units 3&4	Kakrapar, Gujrat	2X700	November 2010	Under construction 30.6%	2016-17
Rajasthan Atomic Power Project, Units 7&8	Rawatbhata, Rajasthan	2X700	July, 2011	Under construction 19.2%	2016-17
Prototype Fast Breeder Reactor	Kalpakkam, Tamil Nadu	2X500	December 2004	Under construction 91.25%	2014-15

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(http://dae.nic.in/writereaddata/rsus2949.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.29
TO BE ANSWERED ON 20.12.2012

LOCATION OF NUCLEAR POWER PLANTS

29. SHRI MAHENDRA SINGH MAHRA:

Will the PRIME MINISTER be pleased to state:

(a) the details of the places in the country where nuclear power plants have been established and are to be established;
(b) the countries with whose cooperation or through which these plants have been/are to be established; and
(c) the percentage of fuel available in the country and the percentage of fuel imported for these plants along with the name of the countries?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a)&(b) The details in respect of nuclear power reactors already established and proposed to be established in the country are given below :-

Location & State	**Units**	**Capacity MW**	**Country in cooperation with which established/to be established**
In operation			
Tarapur, Maharashtra	TAPS-1&2	2 X 160	USA
	TAPS-3&4	2 X 540	Indigenous
Rawatbhata, Rajasthan	*RAPS-1&2	100+200	Canada
	RAPS-3&4	2 X 220	Indigenous
	RAPS-5&8	2 X 220	
Kalpakkam, Tamil Nadu	MAPS-1&2	2 X220	Indigenous
Narora, Uttar Pradesh	NAPS 1&2	2 X 220	Indigenous
Kakrapar, Gujrat	KAPS-1&2		
Kaiga, Karnataka	KAIGA-1&2	2 X 220	Indigenous
	KAIGA-3&4	2 X 220	
Under Construction			
Rawatbhata, Rajasthan	RAPP 7&8	2 X 700	Indigenous
Kalpakkam, Tamil Nadu	PFBR	500	Indigenous
Kakrapar, Gujrat	KAPP 3&4	2 X 700	Indigenous

Kudankulam, Tamil Nadu	KK 1&2	2 X 1000	Russian Federation
Planned			
Jaitpur, Maharashtra	Units 1to 6	6 X 1650	France
Kovvada, Andhra Pradesh	Units 1 to 6	6 X 1500	USA
Chhaya Mithi Virdi, Gujarat	Units 1 to 6	6 X 1100	USA
Haripur, West Bengal	Units 1 to 6	6 X 1000	Russian Federation
Kalpakkam, Tamil Nadu	FBR Units 1&2	2 X 500	Indigenous
Kaiga, Karnataka	Units 5 & 6	2 X 700	Indigenous
Kudankulam, Tamil Nadu	KK Units 3 to 6	4 X 1000	Russian Federation
Gorakhpur, Haryana	Units 1 to 4	4 X 700	Indigenous
Chutka, Madhya Pradesh	Units 1 & 2	2 X 700	
Mahi Banswara, Rajasthan	Units 1 to 4	4 X 700	
Bhimpur, Madhya Pradesh	Units 1 to 4	4 X 700	
Location not decided	AHWR	1 X 300	

* RAPS-1- Under extended shutdown

(c) Of the 19 operating reactors, 9 reactors are under International Atomic Energy Agency (IAEA) Safeguards and use imported uranium. The remaining 10 reactors are fuelled by indigenous uranium. The uranium for the nuclear power reactors under IAEA safeguards is imported from Russian Federation, Kazakhstan and France. The reactors planned to be built with indigenous technology and placed under IAEA safeguards and those set up in technical cooperation with foreign countries would be fuelled with imported uranium

(http://dae.nic.in/writereaddata/rsus29.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.2947
TO BE ANSWERED ON 20.12.2012

SITE SELECTED FOR NEW ATOMIC ENERGY PROJECT IN BANSWADA

2947. SHRI ASHK ALI TAK:

Will the PRIME MINISTER be pleased to state:

(a) whether it is a fact that the site selection committee of the Nuclear Power Corporation has selected a site for setting up a new atomic energy project near Mahi Bajaj Sagar dam in Banswada;
(b) if so, the work done in this regard by Government till date, the details thereof; and
(c) by when this project will be completed?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) Yes, Sir.
(b) The government has accorded 'in principle' approval for locating four units of indigenous 700 MW Pressurised Heavy Water Reactors at the site. The preproject activities and the process of land acquisition have been initiated.
(c) The units at the site are planned in two phases, each of 2X700 MW with a gap of about four years. The start of work on two units of the first phase is planned in the 12th Five Year Plan, with expected completion in the 13th Five Year Plan/early part of 14th Five Year Plan.

(http://dae.nic.in/writereaddata/rsus2947.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.2946
TO BE ANSWERED ON 20.12.2012

NUCLEAR POWER PLANT IN FATEHABAD DISTRICT OF HARYANA

2946. DR. KANWAR DEEP SINGH:

Will the PRIME MINISTER be pleased to state:

(a) whether Government has taken note to discontent among local residents about the setting up of a nuclear power plant in the Fatehabad district of Haryana;
(b) if so, the details thereof and the steps that Government has taken to address these concerns;
(c) whether the proposed power plant has obtained the required clearances from the pertinent authorities;
(d) if so, the details thereof; and
(e) if not, the reasons therefor?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a)&(b) Initially, a section of the farmers whose land was being acquired had expressed discontent over the compensation and related issues. The compensation package for the land acquired, finalised in consultation with the state government is quite attractive and most of the farmers have collected their compensation cheques. As such, there is no general discontent among the farmers. For enhancing awareness on project related issues, series of public outreach programmes have been conducted on the benefits, safety and other aspects of the project.
(c)to(e) The Environmental Impact Assessment (EIA) report has been completed and public hearing held. The Ministry of Environment & Forests (MoEF) has asked for additional information from the project proponent. The application for siting consent for Gorakhpur site has been submitted to the Atomic Energy Regulatory Board (AERB).

(http://dae.nic.in/writereaddata/rsus2946.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.4235
TO BE ANSWERED ON 19.12.2012

TREATMENT OF SEWAGE THROUGH RADIATION

4235. SHRI P.C. GADDIGOUDAR:

Will the PRIME MINISTER be pleased to state:

(a) whether Bhabha Atomic Research Centre (BARC) has developed or proposes to develop a technology for treatment of sewage through radiation and its conversion into bio-fertiliser; and
(b) if so, the details thereof and the States where this technology is likely to be used?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a)&(b) Yes Sir. Bhabha Atomic Research Centre (BARC) has developed technology for hygienisation of sewage sludge through treatment by gamma radiation. A technology demonstration plant has been jointly set up at Vadodara in Gujarat by BARC, Vadodara Municipal Corporation and Government of Gujarat and is in operation for about 15 years. The radiation hygienised sludge can be easily converted into bio-fertilizers. Farmers around Vadodara, are using hygienised sludge. Delhi Jal Board has shown interest to set up a similar plant in Delhi.

(http://dae.nic.in/writereaddata/lsusq%204235.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.4216
TO BE ANSWERED ON 19.12.2012

DEVELOPMENT OF NEW DESIGN REACTORS

4216. SHRI A.T. NANA PATIL:

Will the PRIME MINISTER be pleased to state:

(a) whether the nuclear scientists have designed or have been designing new nuclear reactors which can be located in densely populated areas in the country; and
(b) if so, the details thereof and the progress made by the Government in this regard so far?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) Yes, sir. Bhabha Atomic Research Centre (BARC) is currently engaged in design and development of Advanced Heavy Water Reactor (AHWR). The reactor design addresses substantial technology development towards advanced passive safety features as needed for large scale deployment of nuclear energy in a densely populated country like India, in future. A strong case can be made for locating this reactor close to population centers, but it will require successful demonstration of the first prototype reactor incorporating these advanced technologies, followed by a revision of existing Atomic Energy Regulatory Board (AERB) siting Code.
(b) Several passive systems (listed below) have been incorporated in AHWR to ensure safety and confinement of radioactivity under complete loss of power, loss of external supply of coolant water and absence of prompt operator actions, etc.
i. Core heat removal by natural circulation of coolant (requiring no pumps) during normal operation and shutdown conditions.
ii. Direct injection of Emergency Core Cooling System (ECCS) water in the fuel cluster in passive mode during postulated accident conditions like Loss of Coolant Accident (LOCA).
iii. Containment cooling by passive containment coolers.
iv. Passive containment isolation by water seal, following a large break LOCA.
v. Availability of large inventory of water in Gravity Driven Water Pool at higher elevation inside the containment to facilitate sustenance of core decay heat removal, ECCS injection.
vi. Passive shutdown by poison injection in the moderator, using the system pressure, in case of Main Heat Transport system high pressure due to failure of wired mechanical shutdown system and liquid poison injection system.
vii. Passive moderator cooling system to minimise the pressurisation of calandria and release of tritium through cover gas during shutdown and station blackout.
viii. Passive concrete cooling system for protection of the concrete structure in high temperature zone.
Extensive Safety evaluation has been performed for AHWR with various postulated

initiating events and it has been shown that in each of these events, there would be no release of radioactivity.
There have been three nuclear accidents so far in the world: Three Mile Island in USA, Chernobyl in the erstwhile USSR and Fukushima in Japan. AHWR has been assessed for the initiating events in each of these accidents and the results have been observed to be acceptable.

(http://dae.nic.in/writereaddata/lsusq%204216.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
STARRED QUESTION NO. 379
TO BE ANSWERED ON 19.12.2012

UNTAPPED URANIUM/THORIUM RESERVES

*379. SHRI NISHIKANT DUBEY:
SHRI RAKESH SINGH:

Will the PRIME MINISTER be pleased to state:

(a) the quantum of uranium and thorium produced in the country during the last three years and the current year, year-wise;
(b) whether there is huge untapped reserves of uranium and thorium in the country;
(c) if so, the details thereof, State-wise and the reasons therefor; and
(d) the action taken/being taken by the Government in this regard?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY)

(a) to (d) A statement is laid on the Table of the House.
STATEMENT REFERRED TO IN REPLY TO LOK SABHA STARRED QUESTION NO.379 FOR ANSWER ON 19.12.2012 BY SHRI NISHIKANT DUBEY: SHRI RAKESH SINGH REGARDING UNTAPPED URANIUM/THORIUM RESERVES.
(a) to (d) India has relatively modest reserves of uranium and considerable reserves of thorium.

About 1,84,964 tonnes of in situ uranium reserves and 107 Lakh tonnes of Monazite reserves (which contain about 8.56 lakh tonnes of thorium Oxide) have been confirmed, till date, in the country. State wise details are as follows:

Uranium Reserves:

State	Established Uranium resources (in tones)
Andhra Pradesh	93,492
Jharkhand	53,079
Meghalaya	20, 457
Rajasthan	7, 244
Karnataka	4, 682
Chhattisgarh	3, 986
Uttar Pradesh	781005
Uttarakhand	784
Himachal Pradesh	355
Total	1,84,964

Monazite reserves

State	Established Monazite resources(in Lakh tonnes)
Kerala	15.1
Tamil Nadu	21.6
Andhra Pradesh	37.4
Odisha	18.5
West Bengal	12.2
Jharkhand	02.2
Total	107

Atomic Minerals Directorate for Exploration and Research (AMD), a constituent Unit of Department of Atomic Energy is the specialist agency entrusted with the task of survey and exploration for Atomic Mineral reserves in the country. The agency has been in operation since 1949. Uranium Corporation of India Limited, (UCIL), a PSU under the Department of Atomic Energy, is engaged in mining and processing of uranium ore in the country. The Company routinely assesses the newly established uranium resources of the country for the techno-economic viability of their development and extraction of uranium. Indian Rare Earths Limited (IREL), a PSU under the Department of Atomic Energy, is engaged in mining and beneficiation of beach sand minerals (which includes Monazite) present in the coastal areas of Kerala, Tamil Nadu and Odisha. Factors such as problems on land acquisition, rehabilitation/resettlement of affected persons, environmental sensitivity due to proximity of drinking water sources, reserve forest / tiger sanctuary locations, socio-political issues, availability of water, environmental and forest issues, public consensus, etc. influence the decisions on mining and exploitation of established uranium and thorium resources in the country. The Department is continuously making efforts to establish the presence of more uranium and thorium reserves in the country; and exploit the same through mining and processing for utilisation to meet the needs of the country.

It is not in the public interest to disclose information on the quantity of uranium and thorium produced in the country.

(http://dae.nic.in/writereaddata/lssq%20379.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
STARRED QUESTION NO. 367
TO BE ANSWERED ON 19.12.2012

SAFETY OF NUCLEAR PLANTS

*367. SHRI ANAND PRAKASH PARANJPE:
SHRI B.B. PATIL:

Will the PRIME MINISTER be pleased to state:

(a) whether the Government has made any assessment of the safety of the Nuclear Power Plants (NPPs) in the country and if so, the details and the outcome thereof;
(b) whether the safety system of NPPs in the country is at par with the standards set by the International Atomic Energy Agency (IAEA);
(c) if so, the details thereof and if not, the reasons therefor along with the steps taken/being taken
by the Government in this regard;
(d) whether the Government proposes to create an Independent Nuclear Safety Regulatory Authority; and
(e) if so, the details thereof and the time by which a final decision is likely to be taken in this regard?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY)

(a) to (e) A statement is laid on the Table of the House.
STATEMENT REFERRED TO IN REPLY TO LOK SABHA STARRED QUESTION NO.367 FOR ANSWER ON 19.12.2012 BY SHRI ANAND PRAKASH PARANJPE: SHRI B.B. PATIL REGARDING SAFETY OF NUCLEAR PLANTS

(a) Yes Sir. The safety reviews of the Indian nuclear power plants (NPPs) are carried out by the regulatory authority, the Atomic Energy Regulatory Board (AERB). All nuclear power projects undergo an elaborate in-depth safety review during their various consenting stages, viz. siting, construction, commissioning, etc. After satisfactory review during project stage, AERB issues operating license to a NPP for a period of up to five years. During operational phase, the safety performance of NPP is monitored continuously and a consolidated safety assessment of plant is undertaken while renewing the operating license.

Safety audits of all Indian nuclear power plants against external events were also undertaken by AERB and Nuclear Power Corporation of India Ltd. (NPCIL) independently following the Fukushima accident.

(b)&(c) Yes Sir. The safety system of nuclear power plants is established and enforced in India with Safety Codes, Safety Guides, Safety Manuals and Technical documents developed by the

AERB which are prepared in line with the International Atomic Energy Agency (IAEA) Safety Documents.

(d)&(e) Yes Sir. The Central Government introduced the Nuclear Safety Regulatory Authority (NSRA) Bill, 2011 in the Lok Sabha on 7 September 2011.

(http://dae.nic.in/writereaddata/lssq%20367.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.2178
TO BE ANSWERED ON 13.12.2012

NETWORK TO DEAL WITH NUCLEAR RADIATION EMERGENCY SITUATIONS

2178. DR. V. MAITREYAN :

Will the PRIME MINISTER be pleased to state:

(a) whether Government proposes to set up a network of radiation emergency response centres in different parts of the country to deal with nuclear emergency situations;
(b) if so, the details thereof along with the cost involved;
(c) the benefits that are likely to be accrued as a result thereof; and
(d) the time by which such centres are likely to be operational in the country with their locations?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a)&(b) A network of twenty-two radiation Emergency Response Centers (ERC) equipped with adequate radiation measuring and personnel protective equipment and trained Emergency Response Teams have been established by Department of Atomic Energy (DAE) in different parts of the country to respond to nuclear and radiation emergency situations occurring anywhere in the country. The existing Emergency Response Centres are located at following places:

a) Mumbai (Nodal DAE-ERC), Maharashtra
b) Tarapur, Maharashtra
c) Kaiga, Karnataka
d) Kota, Rajasthan
e) Kakrapar, Gujarat
f) Narora, Uttar Pradesh
g) Kalpakkam, Tamil Nadu
h) Kolkata, West Bengal
i) Hyderabad, Andhra Pradesh
j) Aluva, Kerala
k) Jaduguda, Jharkhand
l) Bangalore, Karnataka
m) Shillong, Meghalaya
n) Jaipur, Rajasthan,
o) Nagpur, Maharashtra
p) New Delhi
q) Kudankulam, Tamil Nadu
r) Indore, Madhya Pradesh

s) Gandhinagar, Gujarat
t) Mysore, Karnataka
u) Manavalakurichi, Tamil Nadu
v) Chatrapur, Odisha

These centers have been established at a total cost of `15 Crores.

(c) These centres have strengthened preparedness at National level for response tonuclear and radiological emergencies and will enable the first responders from NationalDisaster Response Force (NDRF)/Police or any other agencies to get proper advice,guidance and technical support in case of nuclear and radiological emergency in publicdomain.
(d) All the twenty-two DAE-Emergency Response Centers are already commissioned and made operational as mentioned in answer to part (a) & (b) of question.

(http://dae.nic.in/writereaddata/rsus2178.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.2177
TO BE ANSWERED ON 13.12.2012

SAFETY MEASURES RECOMMENDED BY EXPERT COMMITTEE

2177. SHRIMATI VASANTHI STANLEY :

Will the PRIME MINISTER be pleased to state:

(a) whether the Kudankulam plant is to be commissioned comply with the 17 safety measures recommended by the Expert Committee;
(b) whether the department's plan is to comply with all the recommendations of the Expert Committee; and
(c) if not, the reasons therefor?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) The Kudankulam plant design has several advanced features including those for ensuring safety against external events of natural origin as well as accidents.
Additional 17 safety enhancements recommended by Atomic Energy Regulatory Board (AERB) are by way of abundant caution.
(b) Yes, Sir.
(c) Does not arise.

(http://dae.nic.in/writereaddata/rsus2177.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.2176
TO BE ANSWERED ON 13.12.2012

UPGRADATION OF SAFETY MEASURES

2176. SHRI MOHD. ALI KHAN :
SHRIMATI T. RATNA BAI :

Will the PRIME MINISTER be pleased to state:

(a) whether Government wants safety measures upgraded at nuclear facilities;
(b) if so, the details thereof; and
(c) if not, the reasons therefor?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) & (b) Hon'ble Prime Minister in his statement of 14 March 2011 after the Fukushima accident reiterated that the Government attaches highest importance to nuclear safety.

All the nuclear power plants in India are under continuous regulatory surveillance by Atomic Energy Regulatory Board (AERB) and detailed periodic safety reviews of these plants are conducted while renewing their operating licence. In addition, all the nuclear power plants have an established programme of operating experience feedback under which the events occurring in Indian nuclear power plants and other countries are reviewed. Even though the safety record of Indian nuclear power plants is excellent, the upgradation of safety to still higher levels is an ongoing exercise, conducted through periodic reviews and incorporation of lessons learnt from national and international operational feedback. The safety upgrades in Indian nuclear facilities, as needed to maintain the state of the art safety features, are accordingly implemented.

(c) Does not arise.

(http://dae.nic.in/writereaddata/rsus2176.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.2175
TO BE ANSWERED ON 13.12.2012

SECURITY AT UNITS OF ATOMIC ENERGY

2175. SHRI MANSUKH L. MANDAVIYA :
SHRI PARSHOTTAM KHODABHAI RUPALA :

Will the PRIME MINISTER be pleased to state:

(a) what action has been taken by Department of Atomic Energy (DAE) in coordination with State Government of Gujarat to enhance security at various units of DAE;
(b) the details thereof; and
(c) whether Department enhancing security forces at heavy water producing unit of Hazira of Gujarat as this unit is located in sea-shore area?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a)&(b) The Department of Atomic Energy is having four Units in the State of Gujarat viz : (i) Kakrapar Atomic Power Station (KAPS), Surat (ii) Heavy Water Plant, Baroda (iii) Heavy Water Plant, Hazira and (iv) Institute of Plasma Research, Gandhi Nagar. The security arrangements in these units are managed as follows:
i) KAPS, Surat is under Central Industrial Security Force (CISF) security cover.
ii) Heavy Water Plant, Baroda is having departmental security personnel with armed police support under the command of Dy. Commissioner of Police, Special Branch, Baroda City.
iii) Heavy Water Plant, Hazira is co-located with the fertilizer plant of Krishak Bharati Cooperative Limited (KRIBHCO) and security is taken care of by KRIBHCO security personnel in addition to armed police personnel from the State Police.
iv) Institute of Plasma Research (IPR), Gandhi Nagar is having private security.
The security arrangements of all the above units are reviewed and rehearsed periodically by CISF / departmental security in consultation with central agencies and state police in order to ensure integrated security plans.
(c) Adequate security infrastructure including security personnel of KRIBHCO and state police exists at Heavy Water Plant, Hazira. In addition, required support from state police and Indian Coast Guards is available to meet demands of any security contingency.

(http://dae.nic.in/writereaddata/rsus2175.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.2174
TO BE ANSWERED ON 13.12.2012

EXEMPTION OF KUDANKULAM PLANT FROM NUCLEAR LIABILITY ACT

2174. SHRI OM PRAKASH MATHUR :

Will the PRIME MINISTER be pleased to state:

(a) whether the Nuclear Power Corporation of India Ltd. (NPCIL) and Russia have requested Government for exemption of Kudankulam Plant from the Nuclear Liability Act;
(b) if so, details thereof and reasons therefor;
(c) whether Attorney General was consulted in this matter and if so, what advice given by him; and
(d) the names of the entities that will pay in case of any accident happens to Plant?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a)&(b) Atomstroyexport (ASE), the authorised organisation of Russian Federation, in their commercial offer to Nuclear Power Corporation of India Limited (NPCIL) in respect of Kudankulam Units 3&4 has stated that NPCIL being operator is fully responsible for any damage caused to any person and property as a result of a nuclear incident occurring at NPP. ASE has mentioned that their plea is based on the principle of continuity of cooperation in construction of KKNPP in accordance with the agreement between the USSR and Republic of India dated 20th November 1988, supplement thereto dated 21st June, 1998 and in line with the provisions of Intergovernmental Agreement dated 5th December, 2008. (c) The Attorney General of India has opined that the decision on not exercising the right of recourse under Section 17 of Civil Liability for Nuclear Damage Act, 2010 at the stage of signing of Techno-Commercial Offer (TCO) is legally permissible.

(d) In case of an accident, the Operator is required to pay the compensation up to an amount of `1500 crore and compensation in excess of `1500 crore is payable by the Central Government subject to an overall ceiling of 300 million Special Drawing Rights (SDRs). However, the Central Government may take additional measures, where necessary, if the compensation to be awarded exceeds above amount.

(http://dae.nic.in/writereaddata/rsus2174.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.2173
TO BE ANSWERED ON 13.12.2012

RADIATION ACCIDENTS IN ATOMIC POWER STATIONS

2173. DR. T.N. SEEMA :

Will the PRIME MINISTER be pleased to state:

(a) whether exposure to radiation atomic mishap/accidents has been happening in Atomic Power Stations and Nuclear plants in India;
(b) if so, the details thereof and the number of workers affected by the radiation in last three years and the current year;
(c) whether Government has conducted any inquiries in this regard;
(d) if so, the outcome thereof;
(e) the steps taken/being taken by Government to avoid such incidents in future; and
(f) the details of the guidelines/rules which govern the amount of compensation in the event of an atomic mishap/accident?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) to (e) There has been no radiation atomic mishap or accident in Nuclear Power Plants in India.

AERB has issued safety directive on the dose limits for occupational exposures. As per this directive, the cumulative effective dose limit for each consecutive block of five years shall be one hundred millisievert (100-mSv) for individual radiation workers. In addition, the annual effective dose to individual workers in any calender year should not exceed 30-mSv. These limits are in-line with the recommendations of the International Commission on Radiological Protection (ICRP). These limits are very conservative as no adverse impact on health of workers is expected upto the radiation exposure of 1-Sv.

In order to have better control over individual exposures, AERB has specified investigation levels above which all the cases of individual exposures are to be investigated. These levels are as follows:
Monitoring Period Exposure Level
1-month 10-mSv
3-months 15-mSv
1-year 20-mSv

The exposure cases above these levels are investigated by a Exposure Investigation Committee (EIC) constituted by Station. This Committee investigates genuineness of the reported exposure, investigates the causes of exposure; suggests remedial measures to prevent recurrence of such

exposures and suggests further action in respect of work to be allocated to such exposed persons. The Committee recommends medical follow-up, if required, and assign doses for inclusion in the records. The report of EIC is submitted to AERB. Investigation of exposures exceeding 100-mSv is done by a Committee constituted by Chairman, SARCOP.

The details regarding investigation levels and the review mechanism are brought out in AERB Safety Manual on 'Radiation Protection for Nuclear Facilities' (AERB/NF/SM/O-2 Rev.4, 2005).

During the last three years and the current year, there was **no** case of individual exposure exceeding 100-mSv in five consecutive years at Indian NPPs (KGS). However, there were five cases of individual exposure exceeding annual limit of 30- mSv in a calendar year. It may be noted that these doses are too small to cause any detectable impact on the biological health of the workers, as established by international experience.

AERB undertook special regulatory inspections to investigate the circumstances that resulted in these exposures. Safety Review Committee for Operating Plants (SARCOP) of AERB reviewed the reports on investigation of these exposures and made recommendations to avoid re-occurrence of such events. (f) The amount of compensation for the workers in the event of an accident will be governed by the "Workmen's Compensation Act, 1923".

(http://dae.nic.in/writereaddata/rsus2173.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.2171
TO BE ANSWERED ON 13.12.2012

PROPOSAL FOR ATOMIC POWER PLANT AT FATEHABAD

2171. DR. KANWAR DEEP SINGH :

Will the PRIME MINISTER be pleased to state:

(a) whether the atomic power plant being set up in the Fatehabad district of Haryana has been cleared by the Ministry of Environment and Forests and the Atomic Energy Regulation Board;
(b) if so, the details thereof; and
(c) if not, the reasons therefor and the proposed plan of action, if any?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) to (c) The Environmental Impact Assessment (EIA) report has been completed and public hearing held. The Ministry of Environment & Forests (MoEF) has asked for additional information from the project proponent. The application for siting consent for Gorakhpur site has been submitted to the Atomic Energy Regulatory Board (AERB).

(http://dae.nic.in/writereaddata/rsus2171.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
STARRED QUESTION NO. 288
TO BE ANSWERED ON 13.12.2012

REGULATORY INSPECTION NOT DONE BY AERB

*288. SHRI JAGAT PRAKASH NADDA :

Will the PRIME MINISTER be pleased to state:

(a) whether it is a fact that the Atomic Energy Regulatory Board (AERB) has not conducted 85 per cent of regulatory inspections for both industrial radiography and radiotherapy units;
(b) if so, the reasons thereof;
(c) the details of the measures taken by Government to ensure that timely inspections are conducted by AERB; and
(d) whether it is fact that AERB failed to enforce safety provisions and compliance with its own stipulations in the case of unit in Kerala?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY)
(a) to (d) A statement is laid on the Table of the House.

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STATEMENT REFERRED TO IN REPLY TO RAJYA SABHA STARRED QUESTION NO.288 FOR ANSWER ON 13.12.2012 BY SHRI JAGAT PRAKASH NADDA REGARDING REGULATORY INSPECTION NOT DONE BY AERB.

(a) to (c) The facilities and activities coming within the regulatory control of AERB range from large Nuclear Power Plants to small medical x-ray units. AERB has been following a graded approach in regulatory control of these facilities and activities, which is primarily based on the safety significance and technological complexity.

In the case of radiation applications in the public domain for medical and R&D, there have been limitations posed by the large number of units spread across the length and breadth of the country and the accelerated growth in the number of such facilities. Owing to their large number and varied degree of radiological hazard potential. AERB has been following a graded approach with respect to their regulatory control. The basis for conducting regulatory inspections by AERB is as follows :

- Radiological risk associated with each category of Licencee
- Reported incidents during the year
- Issues related to individual Licencees

• Recommendations arising from Inspections

The basis for inspection by AERB is in line with international practices. Regulatory Inspection is only one of the tools for checking compliance. The mechanism for monitoring of radiation facilities also include a system of safety status reports, which the facilities are required to furnish periodically, and their review in AERB. Inspections are carried out on a sample basis, for verifying that the ground realities are in line with the status reports and the license conditions.

With the recent augmentation in its manpower, AERB is enhancing the inspection coverage of the radiation facilities, in accordance with the frequency of inspections suggested in the draft manual.

For ensuring safety in use of diagnostic X-ray facilities, AERB follows an approach involving control during manufacture/sale of the equipment and random Inspections of facilities. Initiatives have been taken with regard to X-ray facilities, for formation of State-level Directorates of Radiation Safety (DRS), accreditation of Quality Assurance providers, etc.

Additional initiatives taken up by AERB recently, with regard to facilitating regulation of X-ray facilities are; (a) rationalization and simplification of the existing regulations for users in diagnostic x-ray practice, by way of amendments of AERB Safety Code,
(b) enhancing regulatory control on Manufacturer/supplier, over the user,
(c)development of an easy and approachable interface for the user to facilitate easy registration, using the new web based system and (d) public awareness programs.
(d) Deficiencies with respect to some of the X-ray units, reported by the Directorate of Radiation Safety (DRS) Kerala were operational discrepancies that could readily be rectified. The violations observed were practice-specific, such as TLD badge not been issued and not related to built in safety, which enabled the institution to rectify the
deficiencies in the defined period.

(http://dae.nic.in/writereaddata/rssq288.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
STARRED QUESTION NO. 287
TO BE ANSWERED ON 13.12.2012

FINE UNDER THE NUCLEAR LIABILITY ACT, 2010

*287. SHRIMATI KUSUM RAI :

Will the PRIME MINISTER be pleased to state:

(a) whether at present, maximum fine that can be imposed by the regulator in case of nuclear accident on an offending nuclear plant is `500/- only;
(b) if so, the details thereof;
(c) the basis on which the maximum fine ceiling has been devised;
(d) whether Government would revise the fine limit by amending the Nuclear Liability Act, 2010;
(e) if so, the details thereof; and
(f) if not, the reasons for playing with the safety of common people?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY)

(a) to (f) A statement is laid on the Table of the House.

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STATEMENT REFERRED TO IN REPLY TO RAJYA SABHA STARRED QUESTION NO.287 FOR ANSWER ON 13.12.2012 BY SHRIMATI KUSUM RAI REGARDING FINE UNDER THE NUCLEAR LIABILITY ACT, 2010.

(a)to(c) No, Sir.

Section 30(3) of the Atomic Energy Act, 1962 states that, "Rules made under this Act may provide that a contravention of the rules shall, save as otherwise expressly provided in the Act, be punishable with fine, which may extend up to five hundred rupees". However, as per Section 24 of the Act, contravention of any rules made under Section 17 (special provisions as to safety) shall be punishable with imprisonment for a term which may extend to five years, or with fine, or both. Section 24 of the Act has expressly made provisions for just and reasonable punishment for serious violations while.

The Atomic Energy Regulatory Board (AERB) encounters issues of noncompliances to the specified safety requirements for which it is empowered to take enforcement measures which range from issuing written directives for compliance to the requirements, modifications in the design and operational practices and in serious cases curtailing the operation of the facility, including the suspension or withdrawal of licence for operation. A measure such as the

suspension of licence or operation involves serious economic penalty to the concerned utility/operator with the potential of affecting its financial health.

(d)to(e) The Civil Liability for Nuclear Damage (CLND) Act, 2010 provides for civil liability for nuclear damage and prompt compensation to the victims of a nuclear incident through a no-fault liability regime channeling liability to the operator. The liability of an operator for each nuclear incident is: ` 1500 crores for reactors with 10 or more MW capacity; ` 300 crores for spent fuel reprocessing plants; ` 100 crores for reactors with less than 10 MW capacity and other fuel cycle facilities. Central Government may review the amount of operator's liability from time to time and specify, by notification, a higher amount.

Chapter VI of the Civil Liability for Nuclear Damage Act, 2010, deals with "Offences and Penalties". Section 39 of the Act states that "whoever - contravenes any rule made or any direction issued under this Act, or (b) fails to comply with the provisions of section 8; or (c) fails to deposit the amount under section 36, shall be punishable with imprisonment for a term which may extend to five years or with fine or with both". Section 42 of the Act states that "no court inferior to that of Metropolitan Magistrate or a Judicial Magistrate of the first class shall try any offence under this Act." Thus, the penalties to be imposed on anyone who contravenes the Civil Liability for Nuclear Damage Act, 2010 as under Section 39 will be determined by the court.

Section 46 of the CLND Act states that the provisions of this Act shall be in addition to, and not in derogation of, any other law for the time being in force. (f) Government wishes to reiterate that it attaches utmost importance to the safety of the people and reassure that a robust regulatory system is in place for ensuring the safety and periodic safety upgrades of our nuclear power plants. There has been a strong tradition of robust safety reviews right from the early days of our nuclear power programme and the safety record of nuclear power plants has been excellent as signified by the absence of any accidents involving radiological consequences in public domain. Immediately after the Fukushima incident, Hon'ble Prime Minster had underscored that safety of our nuclear plants was a matter of the highest priority and ordered safety audits of all Indian nuclear power plants. Specific task forces were constituted to review safety of various reactor designs by the Nuclear Power Corporation of India. Committees of specialists to review and recommend safety upgrades were constituted by the Atomic Energy Regulatory Board. India has submitted a detailed National Report on actions taken subsequent to the Fukushima nuclear accident to the Second Extraordinary meeting of the Convention on Nuclear Safety (CNS) held in August 2012 in Vienna, which was peer reviewed by the Contracting Parties of the CNS.

(http://dae.nic.in/writereaddata/rssq287.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.3196
TO BE ANSWERED ON 12.12.2012

RATIFICATION OF AMENDMENTS IN IAEA

3196. DR. MAHENDRASINH P. CHAUHAN:

Will the PRIME MINISTER be pleased to state:

(a) whether India is amongst the few countries which have ratified the amendments of 2005 IAEA convention on the physical protection of nuclear material;
(b) if so, the details of the amendments made in the convention; and
(c) the details of facilities and benefits accrued/likely to accrue on this account to the country?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) Yes Sir. India ratified Amendment to the Convention on the Physical Protection of Nuclear Material (CPPNM) on 19th September 2007. There are presently 140 States Party to CPPNM of which 60 have ratified the amended version. The Amendment will enter into force when it has been ratified by two-thirds of the States Party to the Convention.

(b) Obligations for physical protection under the CPPNM extend only to nuclear material during international transport. The Amendment to the CPPNM makes it binding for States Parties to protect nuclear facilities and material in peaceful domestic use, storage and transport. The Amendment also provides for greater cooperation between and among States regarding rapid measures to locate and recover stolen or smuggled nuclear material, mitigate any radiological consequences of sabotage, and prevent and combat related offences.

(c) The Amendment to the CPPNM constitutes an important landmark in international efforts to improve the physical protection of nuclear material and facilities. The Amendment is important for nuclear security and will have a major impact in reducing the vulnerability of States Parties to nuclear terrorism. This benefit will accrue to India, as a State Party to this convention.

(http://dae.nic.in/writereaddata/lsus3196.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.3194
TO BE ANSWERED ON 12.12.2012

CATCH THEM YOUNG PROGRAMME

3194. SHRI AHIR VIKRAMBHAI ARJANBHAI MAADAM:

Will the PRIME MINISTER be pleased to state:

(a) whether the research unit of the Department has a 'Catch Them Young' programme or any such
programme to attract the students with potential in the field of atomic energy;
(b) if so, the details thereof;
(c) if not, the reasons therefor; and
(d) the manner in which the Government proposes to engage with younger scientists and Non-Governmental
persons in developing advanced technology?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) Yes, Sir.
(b) There are several schemes operational to attract the students with potential to work in the field of atomic energy. The following are the entry channels available for the recruitment of young talented students to join the R&D units for taking up research careers in the field of atomic energy:
(i) Orientation Course in Engineering & Sciences (OCES).
(ii) DAE Graduate Fellowship Scheme (DGFS).
(iii) Dr. K.S. Krishnan Research Associate Scheme (KSKRAS).
(iv) Tie-up with Mumbai University to establish DAE – Mumbai University Centre for Excellence in
Basic Sciences (DAE-MU-CBS).
(v) National Institute for Science Education and Research (NISER) in Bhubaneswar.
(c) Not applicable.
(d) Fresh young science and engineering students undergo one year training in Bhabha Atomic Research Centre Training School and are recruited as Scientific Officers in DAE thereafter. After joining the Department, they are allowed to continue to do project work for fulfilling the requirements for the award of M.Tech. degree of Homi Bhabha National Institute (HBNI), a deemed to be university. The DAE Graduate Fellowship Scheme (DGFS) also provides fellowship to engineering graduates who have secured admission to M.Tech. programme to study in IIT/IISc. / other select premier engineering institutes. DGFS fellows are subsequently recruited as Scientific Officers in DAE. Similarly doctoral students are selected as KSKRA fellows who, after completion of one year of fellowship, are considered for absorption in DAE as Scientific Officers. All the Scientific Officers joining BARC are required to work on topics

related to departmental programme on nuclear science and technology and thus contribute towards development of advanced technologies.

The five year integrated M.Sc. programme conducted by the DAE-MU-CBS in Mumbai and National Institute for Science, Education and Research (NISER) in Bhubaneswar, offers academic programme which are useful in nurturing the students and provide them exposure to the DAE research facilities and programmes. These students are given opportunity to work on the advanced areas in nuclear science and technology and thus also contribute for the development of advanced technologies.

(http://dae.nic.in/writereaddata/lsus3194.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.3162
TO BE ANSWERED ON 12.12.2012

FAST BREEDER REACTORS

3162. DR. SANJAY JAISWAL:

Will the PRIME MINISTER be pleased to state:

(a) whether the development of Fast Breeder Reactors (FBRs) is essential for full utilization of indigenous nuclear fuel reserves and if so, the details thereof;
(b) whether FBRs pose certain challenges in terms of nuclear safety and cost of electricity generation;
(c) if so, the details thereof and the steps envisaged for overcoming the above challenges;
(d) whether the Government has fully integrated and operationalised these aspects in the FBRs designs in the country; and
(e) if so, the details thereof?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY):

(a) The Fast Breeder Reactor (FBR) programme represents the second stage of the three stage nuclear power programme of the Department of Atomic Energy and is intended to enhance the utilization of the existing uranium resources in our country. The FBRs have an electricity potential of 42,000 GWe year. FBRs provide an efficient method of producing Plutonium from U-238. In an appropriately designed Pu/U-238 fuelled FBR, it is possible to produce more fresh plutonium from U-238 than the plutonium consumed. The excess plutonium can be used to set up additional FBRs and thus, the full energy potential of Uranium is realized by FBRs. Also the nuclear power capacity can be expanded according to our needs. Thus, the FBR programme is essential to provide energy security to our country in the long run.

(b)&(c) The FBRs are designed with three levels of safety levels (viz.) (a) Design and construction of an inherently safe, stable system with negative feedback coefficients of reactivity (b) Incorporation of diverse and redundant protection systems to act in the event of off-normal events as initiated by coolant temperature and flow monitors, failed fuel monitors etc. and (c) design and construction of reactor vessel and containment vessel such that even if the first and second level safety measures fail, the
public is safe from any hazard.

Efforts have been made to reduce the cost considerably without compromising on the safety, by decreasing the number of components, adapting a compact plant layout and increase in fuel burn-up. By constructing more reactors at a given project site, where the infrastructure facilities already exist, the cost can be further reduced.

(d)&(e) Yes, Sir. Safety and economics have been given highest attention in the design of Indian FBRs. Safety has been well demonstrated through analytical and numerical analysis as well as through extensive experimental investigations under environments such as sodium and high temperatures prevailing in the reactor. These were executed through in-house expertise / facilities and collaborations. The design and safety aspects are reviewed thoroughly at all stages starting from design to component erection stage by well qualified experts in the country under Atomic Energy Regular Board (AERB).The safe operation of the FBTR at Kalpakkam for over 25 years has also provided confidence about the safety aspects of Fast Breeder Reactors.

(http://dae.nic.in/writereaddata/lsus3162.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.31
TO BE ANSWERED ON 12.12.2012

SETTING UP OF DESALINATION PLANTS

31. SHRI BAIJAYANT JAY PANDA:

Will the PRIME MINISTER be pleased to state:

(a) the details of sites identified by Bhabha Atomic Research Centre (BARC) so far for setting up desalination plants for conversion of sea water into potable water along with the criteria for such selection;
(b) whether the Government proposes to set up such desalination plants in other States including the State of Odisha; and
(c) if so, the details thereof, State-wise and the estimated cost of the project and the funding pattern for the same?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) Bhabha Atomic Research Centre (BARC) has set up Nuclear Desalination Demonstration Plant (NDDP) at Kalpakkam, Tamil Nadu based on hybrid technology consisting of Reverse Osmosis (RO) section of 18 lakh litres per day capacity and Multi State Flash (MSF) section of 45 lakh litres per day capacity. It is located adjacent to Madras Atomic Power Station (MAPS) and uses low pressure steam as energy input for MSF section. The hybrid MSF-RO plant produces distilled water for high end industrial requirements and potable water for drinking and other requirements. Kalpakkam site in Tamil Nadu was selected to demonstrate the technological capability of BARC for sea water desalination by co-locating with a power plant (nuclear power plant in this case). (b)&(c) Yes, Sir. BARC has planned to set up a seawater desalination plant of 5 million litres per day capacity at Orissa Sand Complex (OSCOM), Indian Rare Earths Limited (IREL), Chatrapur, Ganjam District, Odisha, at an estimated cost of `115 crores during the XII Five Year Plan period. The existing plant at Kalpakkam and the one proposed for construction at OSCOM Complex at Chatrapur have been intended primarily for meeting the industrial and potable drinking water requirements for associated units of DAE. The technology developed by the BARC however could be made available to the concerned agencies including State governments on need basis.

(http://dae.nic.in/writereaddata/lsus31.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.3128
TO BE ANSWERED ON 12.122012

PROCESS TO TURN NUCLEAR WASTE NON-RADIOACTIVE

3128. SHRI M.I. SHANAVAS:

Will the PRIME MINISTER be pleased to state:

(a) whether a process has been developed with which the nuclear waste becomes non-radioactive within 300 years;
(b) if so, the details thereof;
(c) whether the Government has initiated any pilot project in this regard and if so, the details thereof;
(d) whether this project is run under an international consortium or exclusively by the Government; and
(e) if so, the details thereof?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a)&(b) India is pursuing the Programme for development of a process for High Level Waste management where separation is carried out and thereby nearly 99% of the high level radioactive waste becomes, practically non-radioactive by natural decay within 300 years. To carry out accelerator driven transmutation of the balance 1% long-lived radionuclides, the management strategy for conversion to radionuclides with shorter half lives is at R&D stage.
(c) A pilot plant is planned to be commissioned to test this process at Tarapur, Maharashtra
(d) The project is planned exclusively by the Department of Atomic Energy and is under no international consortium.
(e) Not applicable in view of (d) above.

(http://dae.nic.in/writereaddata/lsus3128.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.3073
TO BE ANSWERED ON 12.122012

EXPORT OF RARE EARTH MINERALS

3073. SHRI ADHALRAO PATIL SHIVAJI:
SHRI GAJANAN D. BABAR:
SHRI MADHU GOUD YASKHI:
SHRI ANANDRAO ADSUL:
SHRI DHARMENDRA YADAV:

Will the PRIME MINISTER be pleased to state:

(a) whether the Government has signed an agreement with Japan to export rare earth minerals;
(b) if so, the details thereof; and
(c) the quantity of rare earth minerals exported/proposed to be exported to Japan under the aforesaid agreement?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a)&(b) No, Sir. However, Department of Atomic Energy, Government of India and the Ministry of Economy, Trade and Industry (METI) of Japan have signed a memorandum on 16.11.2012 on cooperation in the rare earths industry in India.
(c) Does not arise in view of reply to (a) & (b) above.

(http://dae.nic.in/writereaddata/lsus3073.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.3072
TO BE ANSWERED ON 12.12.2012

REVIVAL OF URANIUM MINE

3072. SHRI MADHUSUDAN YADAV:

Will the PRIME MINISTER be pleased to state:

(a) the present status of Bodal Uranium Mine in Rajnandgaon district in Chhattisgarh which was surveyed earlier;
(b) whether the Government had ever taken any decision regarding mining of uranium or started any work in the said mine;
(c) if so, the details thereof and the reasons for closing the Bodal mines;
(d) whether the Government proposes to revive the said mine in future; and
(e) if so, the details thereof?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a),(b)&(c) Atomic Minerals Directorate for Exploration and Research (AMD), a constituent unit of Department of Atomic Energy had carried out only limited exploratory mining at Bodal Mines, Rajnandgaon District in Chattisgarh as a part of its survey to assess its economic feasibility. The work, which was started in February 1976 was closed in May 1989 as it was found to be economically unviable due to low yield even at a depth upto 600 meters.
(d) No, Sir.
(e) Does not arise.

(http://dae.nic.in/writereaddata/lsus3072.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.3067
TO BE ANSWERED ON 12.12.2012

RADIOACTIVE MATERIAL IN VISAKHAPATNAM

3067. SHRI L. RAJA GOPAL:
Will the PRIME MINISTER be pleased to state:

(a) whether radioactive materials have been found in marine sediments of Visakhapatnam;
(b) if so, the details thereof;
(c) whether Bhabha Atomic Research Centre (BARC) has studied the affect of those materials on human beings;
(d) if so, the details thereof; and
(e) the extent to which the presence of industries in and around Visakhapatnam contributes to this situation?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a)&(b) Yes, Sir. However, level of naturally occurring radio-nuclides such as Uranium and Thorium and their daughter products found in marine sediment samples in Visakhapatnam are well within the range of concentrations generally found at other locations in the country. The typical concentrations of radio-nuclides found in marine sediment samples at Visakhapatnam are indicated below:

Radio-nuclides measured	**Observed radioactivityconcentrationrange (part per million)**	**Indian average radioactivityconcentration (part per million)**
^{238}U (Uranium-238)	1.5 – 3.8	1 – 5
^{226}Ra (Radium-226)	2.9×10^{-7} – 15×10^{-7}	8×10^{-7}– 16×10^{-7}
^{232}Th (Thorium-232)	7.7 – 36.3	6– 40

(c)&(d) No, Sir. The abundance of these radionuclides in marine sediments of Visakhapatnam is well within the national average. Hence, it has not been considered necessary to study their health effects.
(e) The industries located in and around Visakhapatnam are dealing with non-radioactive materials. The naturally occurring radioactivity levels in marine sediment of Visakhapatnam are within the national average. Hence, it could be concluded that the industries in and around Visakhapatnam do not contribute to such presence of naturally occurring radioactive materials.

(http://dae.nic.in/writereaddata/lsus3067.pdf

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.3064
TO BE ANSWERED ON 12.12.2012

NEUTRINO EXPERIMENT

3064. SHRI P. LINGAM:

Will the PRIME MINISTER be pleased to state:

(a) whether the Government has allowed the United States to conduct neutrino experiments deep inside the mountainous terrain of Idukki and Theni districts on the Kerala-Tamil Nadu border;
(b) if so, the details thereof;
(c) whether the Government has taken into consideration the environmental impact of such experiments in the proximity of the Mullaperiyar Dam in Idukki district; and
(d) if so, the details thereof?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a)&(b) No, Sir. However, Indian scientists are planning to setup a neutrino observatory under the Bodi West Hills in the Theni District of Tamil Nadu. It is a fully Indian effort supported by Department of Science & Technology and Department. of Atomic Energy, Govt. of India. Scientists from 25 research institutes, universities and IITs from India are involved in this basic science project.

(c) Yes, Sir.

(d) All statutory clearances for the project have been obtained from the Government of India after discussions at various levels starting from the state government agencies. The clearance from Ministry of Environment and Forests has been obtained. The project will not have any environmental impact on any dams including the Mullaperiyar Dam in Idukki District, Kerala which is located at about 50 km away from the project site.

(http://dae.nic.in/writereaddata/lsus3064.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
STARRED QUESTION NO. 280
TO BE ANSWERED ON 12.12.2012

SHORTAGE OF URANIUM

*280. SHRI KALIKESH N. SINGH DEO:
SHRI NIKHIL KUMAR CHOUDHARY:

Will the PRIME MINISTER be pleased to state:

(a) whether the nuclear power plants set up in the country are facing shortage of fuel/uranium;
(b) if so, the details thereof and the reasons therefor along with the action taken/ being taken by the Government in this regard;
(c) whether the Government proposes to explore an alternate fuel or technology for generation of nuclear power in the country;
(d) if so, the details thereof; and
(e) the steps taken/being taken by the Government in this regard?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY)

(a) to (e) A statement is laid on the Table of the House.

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STATEMENT REFERRED TO IN REPLY TO LOK SABHA STARRED QUESTION NO.280 FOR ANSWER ON 12.12.2012 BY SHRI KALIKESH N. SINGH DEO AND SHRI NIKHIL KUMAR CHOUDHRY REGARDING SHORTAGE OF URANIUM.

(a)&(b) Out of 19 operating nuclear power reactors in the country with installed capacity of 4680 MW, ten nuclear power reactors with a capacity of 2840 MW i.e Kaiga Generation Station Units 1 to 4 (4X220MW), Narora Atomic Power Station Units 1&2 (2X220 MW), Madras Atomic Power Station Units 1&2 (2X220 MW) and Tarapur Atomic Power Station Units 3&4 (2X540 MW) are fuelled with indigenous uranium, which is not available in the required quantity. These are accordingly operated at lower power levels matching the fuel supply. The remaining nine nuclear reactors with a capacity of 1840 MW are under International Atomic Energy Agency (IAEA) safeguards in accordance with the separation plan. These nine reactors use imported uranium, which is available in required quantity, and are operating at rated capacity. The government has made efforts to augment indigenous uranium supply by accelerating exploration efforts, opening new mines and processing facilities.

(c)to(e) The second stage of Fast Breeder Reactor (FBR) using Plutonium based fuel has been launched and a 500 MW Prototype Fast Breeder Reactor (PFBR) is at an advanced stage of

construction. In addition, more units of the same type are planned. The third stage of the Indian nuclear power programme based on utilisation of thorium will be launched after 3 to 4 decades when adequate nuclear installed capacity using fast breeder reactors has been achieved. The 300 MWe Advanced Heavy Water Reactor (AHWR) designed by Bhabha Atomic Research Centre (BARC) is specially meant to be a technology demonstrator for large scale commercial utilisation of thorium. The design of all nuclear systems of the reactor has been completed. Construction of AHWR is planned to be launched by the end of 12th Five Year Plan.

(http://dae.nic.in/writereaddata/lssq280.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
STARRED QUESTION NO. 279
TO BE ANSWERED ON 12.12.12

NUCLEAR POWER PLANTS

*279. DR. MURLI MANOHAR JOSHI:
SHRI DINESH CHANDRA YADAV:

Will the PRIME MINISTER be pleased to state:

(a) whether some of the countries including Japan have decided to phase out their nuclear power projects;
(b) if so, the details thereof and the reasons therefor;
(c) whether nuclear power generation is costlier than other means of power generation and if so, the comparative costs thereof;
(d) whether the Government proposes to discourage generation of nuclear energy in the country; and
(e) if so, the details thereof and if not, the reasons therefor?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY)

(a)to(e) A statement is laid on the Table of the House.

STATEMENT REFERRED TO IN REPLY TO LOK SABHA STARRED QUESTION NO.279 FOR ANSWER ON 12.12.2012 BY DR. MURLI MANOHAR JOSHI AND SHRI DINESH CHANDRA YADAV REGARDING NUCLEAR POWER PLANTS

(a)&(b) Most of the countries that currently operate nuclear power plants are continuing with the nuclear power programmes. Only Germany, Switzerland and Taiwan have announced gradual phase out of nuclear power. They, however, continue to operate existing nuclear power reactors which have not reached the end of their life. As per media reports, Japan has not announced any precise plan for phasing out nuclear power.

(c) No, Sir. The tariffs of nuclear power are comparable to those of contemporary thermal power plants located in the area.

(d)&(e) No, Sir. India's energy resources are limited and its energy demands are huge and rapidly growing. In the Indian scenario, all sources of electricity generation need to be deployed optimally. Given India's energy resource profile, nuclear power is an important clean energy option for long term energy security and sustainability.

(http://dae.nic.in/writereaddata/lssq279.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
STARRED QUESTION NO. 181
TO BE ANSWERED ON 06.12.2012

DECISIONS ON THE JAITAPUR ATOMIC POWER PLANT

*181. SHRI HUSAIN DALWAI:

Will the PRIME MINISTER be pleased to state:

(a) the details of decisions taken by Government on proposed Jaitapur Atomic Power Plant in Maharashtra;
(b) whether any detailed programme has been chalked out for the re-settlement of people likely to be displaced by the Jaitapur Plant;
(c) if so, the details thereof; and
(d) if not, the reasons therefor?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY)

(a) The Government has accorded "in principle" approval for locating six units of Light Water Reactors each of 1650 MW capacity at Jaitapur in technical cooperation with France. The start of work on the first set of twin units is envisaged in the XII Five Year Plan period.

(b)&(c) There are no habitation at the site proposed for project. Accordingly, there is no displacement of people at Jaitapur site and hence there is no requirement of resettlement of any person.

(d) Does not arise.

(http://dae.nic.in/writereaddata/parl/rssq181.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.1919
TO BE ANSWERED ON 05.12.2012

EXPORT OF HEAVY RARE EARTH MINERALS

1919. SHRI DHANANJAY SINGH:

Will the PRIME MINISTER be pleased to state:

(a) the details of mining companies holding licenses for mining heavy metals such as monazite and ilmenite, State-wise;
(b) the total exports of heavy rare earth minerals during 2011-2012, including thorium containing ilmenite and monazite;
(c) whether export of thorium or thorium containing ilmenite and monazite is permitted under the Atomic Energy Act;
(d) if so, the details thereof;
(e) whether illegal mining and export of thorium and other heavy minerals have been reported from the coasts of Tamil Nadu and Kerala; and
(f) if so, the details thereof including the action taken by the Government in this regard?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) The details of mining companies holding licenses for mining of heavy metals such as monazite and ilmenite are maintained by the Indian Bureau of Mines, of the Ministry of Mines. The information obtained from the Department of Mines in this regard is given in Annexure-I.

(b) There is no such commercially available material with a name, description or reference as "thorium containing ilmenite". Ilmenite is a mineral which occurs naturally in combination with, and as a part of beach sand minerals. Monazite also exists as a part of the same beach sand mineral raw material. Thorium does not exist in a natural form, and is one of the products obtained through processing of Monazite. However, ilmenite after completion of processing has a possibility of containing monazite as a "contaminant" to a small percentage, for the reason that both ilmenite and monazite are extracted from the same base raw material, i.e., beach-sand. Information on the total exports of any commodity from out of the country, including heavy minerals such as ilmenite, and rare earth minerals such as monazite etc. are maintained by the Department of Commerce. The information obtained from the Department of Commerce is given in Annexure-II.

(c)&(d) As stated earlier, there is no such commercially available material with a name, description or reference as "thorium containing ilmenite". Ilmenite is a mineral which occurs naturally. During the process of separation of ilmenite from beach-sand containing heavy minerals, there is a possibility that a small percentage of monazite gets retained with the ilmenite,

the main product being produced on a commercial scale. It may also not be technically and economically viable to produce ilmenite completely (100%) free of such monazite impurity.

As per the Atomic Energy Regulatory Board directive No. 01/2010 issued in respect of "Exclusion Exemption and Clearance of Radionuclide in Solid Materials" under Rule 3,5 and 6 of Radiation Protection Rules 2000, Monazite content in ilmenite is limited to a maximum of 0.25%. Further, monazite is a naturally occurring heavy mineral present in beach sand. Processing of Monazite yields thorium as one of the products. Monazite and thorium in the form of metal, alloy, chemical compound or concentrate or any substance is considered as a "prescribed substance" under schedule of prescribed substances under the Atomic Energy Act, 1962. Sections 14, 16 and 30 of the Atomic Energy Act, 1962 prohibit acquisition, production, possession, use, disposal, export or import of any of the prescribed substance except under a license issued by Government of India.

(e)&(f) Government has not received any official report or information in the matter of illegal mining and export of thorium and other heavy minerals from the coastal regions of Tamil Nadu and Kerala. However, in the recent past, certain press reports and other communications have been received in the matter. The official process in respect of grant of mining lease for any mineral and beach sand mineral in particular is as follows: applications for grant of mining leases for beach sand minerals are received from interested parties by the respective State Governments who forward them to Ministry of Mines, Government of India for their recommendations. The Ministry of Mines, Government of India seeks "No Objection Certificate" (NOC) from the Department of Atomic Energy if the mining lease application includes mining of atomic minerals such as ilmenite, rutile, zircon, leucoxene, garnet, silimanite and monazite. Upon the Department of Atomic Energy granting the NOC, the Ministry of Mines issues recommendations to the State Governments, who in turn grant or reject the mining lease to the applicants. The Directors, Mines and Geology of respective State Governments control the mining activities in each state and ensure the compliance with relevant laws by the mining lessees. Hence the responsibility of identifying illegal mining of any mineral in a State is with the State Government Authorities. Necessary regulatory inspections of beach sand mining facilities by Atomic Energy Regulatory Board are in place, and a decision has been taken to strengthen it further, including thorough involvement of Atomic Minerals Directorate for Exploration and Research (AMD). In respect of illegal exports of monazite and thorium, the Central Excise and Customs Department is the competent authority to check illegal exports of any material. Department of Atomic Energy has confirmed that with the installation of radiation detection equipment, now under manufacture by the Electronics Corporation of India Limited (ECIL) for installation at various sea-ports in the next year, the presence of unacceptable levels of monazite in beach sand mineral export consignments will be easily detected.

(http://dae.nic.in/writereaddata/parl/lsus1919.pdf)

Annexure-I

LIST OF MINING LEASES PRODUCING MINERAL SAND/MONAZITE/ILMENITE/RUTILE

SL.NO.	NAME OF LESSEE	VILLAGE	DISTRICT	AREA (Hect.)	DATE OF GRANT	DATE OF EXECUTION	Name of Minerals
Kerala							
1	Indian Rare Earths Ltd.	Chavara & Neendakara	Kollam	67	21/10/1998	19/04/1999	Monazite, Ilmenite & Rutile
2	Indian Rare Earths Ltd.	Chavara, Bhagam & Thekkum	Kollam	102.77	15/03/2006	11/5/2006	Mineral sand
3	Indian Rare Earths Ltd.	Panmana, Alapad & Ayanivelikkulangara	Kollam	180	8/6/2007	7/6/2011	Mineral sand
4	KERALA MINERALS & METALS LTD.	Panmana, Chavara	Kollam	203.8	11-Dec-72	9-Jul-85	Mineral sand
Odisha							
1	Indian Rare Earths Ltd.	Matikhal	Ganjam	2464.05	N.A.	27/10/2005	Ilmenite
Tamil Nadu							
1	Indian Rare Earths Ltd.	keezhmidalam	Kanniyakumari	29.78	21/09/1977	15/10/1979	Monazite, Ilmenite & Rutile
2	Indian Rare Earths Ltd.	Manavalakurichi, Lekshimipura & Colachel	Kanniyakumari	141.23	12/8/1981	27/06/1984	Monazite, Ilmenite & Rutile
3	Indian Rare Earths Ltd.	Manavalakurichi	Kanniyakumari	7.06	1/11/1968	25/05/2001(Renewal)	Monazite, Ilmenite & Rutile
4	V. V. Minerals	Azhagappapuram	Kanniyakumari	2.22	21/01/2004	21/02/2004	Garnet, Ilmenite & Rutile
5	V. V. Minerals	Azhagappapuram	Kanniyakumari	3.08	21/01/2004	21/02/2004	Garnet, Ilmenite & Rutile
6	V. V. Minerals	kanniyakumari	Kanniyakumari	3.07	21/01/2004	21/02/2004	Garnet, Ilmenite & Rutile
7	V. V. Minerals	keezhmidalam	Kanniyakumari	2.42	31/01/2006	17/03/2008	Garnet, Ilmenite & Rutile
8	V. V. Minerals	Midalam	Kanniyakumari	0.7	31/01/2006	17/03/2008	Garnet, Ilmenite & Rutile
9	V. V. Minerals	Midalam	Kanniyakumari	3.63	10/3/2004	18/03/2004	Garnet, Ilmenite & Rutile
10	V. V. Minerals	Vaipar	Thoothukudi	4.18	18/04/2006	3/5/2006	Garnet, Ilmenite & Rutile
11	Beach Mineral Sand Company (India) Ltd.	Manappadu	Thoothukudi	5	1/8/2001	6/2/2002	Garnet, Ilmenite & Rutile
12	Indian Garnet Sands Co. (P) ltd.	Padukkapathu	Thoothukudi	16.93	N.A.	7/2/1994	Garnet, Ilmenite & Rutile
13	Industrial Minerals India (P) ltd.	Vembar & Periyasamypuram	Thoothukudi	36.66	27/09/2011	4/10/2011	Garnet, Ilmenite & Rutile
14	V. V. MINERALS	CHETTIKULAM	Tirunelveli	2.19	20-Oct-05	15-Jul-06	Garnet, Ilmenite & Rutile
15	V. V. MINERALS	CHETTIKULAM	Tirunelveli	4	19-Jan-10	10-May-10	Garnet, Ilmenite & Rutile
16	V. V. MINERALS	IRUKKANTHURAI	Tirunelveli	9	10-May-95	22-Jun-95	Garnet, Ilmenite & Rutile
17	V. V. MINERALS	IRUKKANTHURAI (EAST)	Tirunelveli	5	17-Mar-04	11-Apr-05	Garnet, Ilmenite & Rutile
18	V. V. MINERALS	IRUKKANTHURAI (WEST)	Tirunelveli	5	5-Jun-02	11-Apr-05	Garnet, Ilmenite & Rutile
19	V. V. MINERALS	K. PUDUR	Tirunelveli	0.82	5-Jun-90	30-Jul-90	Garnet, Ilmenite & Rutile

20	M. RAMESH, TUTICORIN	KARAICHITHU PUDUR	Tirunelveli	1.13	22-Jan-90	17-Jul-90	Garnet, Ilmenite & Rutile
21	V. V. MINERALS	KARAICHITHU PUDUR	Tirunelveli	4.77	20-Oct-05	13-Jul-06	Garnet, Ilmenite & Rutile
22	V. V. MINERALS	KARAICHITHU PUDUR	Tirunelveli	3.01	14-Jan-03	13-Jul-06	Garnet, Ilmenite & Rutile
23	V. V. MINERALS	KARAICHITHU PUDUR	Tirunelveli	2.47	15-Jun-02	9-Apr-05	Garnet, Ilmenite & Rutile
24	V. V. MINERALS	KARAICHITHU PUDUR	Tirunelveli	3.47	20-Oct-05	12-Dec-05	Garnet, Ilmenite & Rutile
25	V. V. MINERALS	KARAICHITHU PUDUR	Tirunelveli	2.08	19-Jan-10	4-May-10	Garnet, Ilmenite & Rutile
26	K. THANGARAJ	KARAICHITHU PUDUR	Tirunelveli	1.91	24-May-01	11-Oct-01	Garnet, Ilmenite & Rutile
27	V. V. MINERALS	KARAICHITHU PUDUR	Tirunelveli	2.49	5-May-95	7-Jun-95	Garnet, Ilmenite & Rutile
28	V. V. MINERALS	KARAICHITHU PUDUR	Tirunelveli	2.29	5-Jun-02	12-Apr-05	Garnet, Ilmenite & Rutile
29	V. V. MINERALS	KARAICHITHU PUDUR	Tirunelveli	7.87	5-May-95	7-Jun-95	Garnet, Ilmenite & Rutile
30	V. V. MINERALS	KARAICHITHU PUDUR	Tirunelveli	36.34	19-Jul-94	12-Nov-94	Garnet, Ilmenite & Rutile
31	TRANSWORLD GARNET PVT. LTD., CHENNAI	KARAICHITHU UVARI	Tirunelveli	10.11	12-Dec-96	3-Apr-97	Garnet, Ilmenite & Rutile
32	TRANSWORLD GARNET PVT. LTD., CHENNAI	KARAICHITHU UVARI	Tirunelveli	2.38	9-Jul-01	23-Oct-01	Garnet, Ilmenite & Rutile
33	TRANSWORLD GARNET PVT. LTD., CHENNAI	KARAICHITHU UVARI	Tirunelveli	4.43	9-Jul-01	23-Oct-01	Garnet, Ilmenite & Rutile
34	TRANSWORLD GARNET PVT. LTD., CHENNAI	KARAICHITHU UVARI	Tirunelveli	2.53	30-Sep-97	22-Oct-97	Garnet, Ilmenite & Rutile
35	TRANSWORLD GARNET PVT. LTD., CHENNAI	KARAICHITHU UVARI	Tirunelveli	4.85	9-Jul-01	22-Oct-01	Garnet, Ilmenite & Rutile
36	TRANSWORLD GARNET PVT. LTD., CHENNAI	KARAICHITHU UVARI	Tirunelveli	1.01	17-Jul-01	23-Oct-01	Garnet, Ilmenite & Rutile
37	TRANSWORLD GARNET PVT. LTD., CHENNAI	KARAICHITHU UVARI	Tirunelveli	1.17	9-Jul-01	23-Oct-01	Garnet, Ilmenite & Rutile
38	TRANSWORLD GARNET PVT. LTD., CHENNAI	KARAICHITHU UVARI	Tirunelveli	0.88	9-Jul-01	23-Oct-01	Garnet, Ilmenite & Rutile
39	TRANSWORLD GARNET PVT. LTD., CHENNAI	KARAICHITHU UVARI	Tirunelveli	3.37	25-Sep-97	22-Oct-97	Garnet, Ilmenite & Rutile
40	TRANSWORLD GARNET PVT. LTD., CHENNAI	KARAICHITHU UVARI	Tirunelveli	0.36	9-Jul-01	22-Oct-01	Garnet, Ilmenite & Rutile
41	TRANSWORLD GARNET PVT. LTD., CHENNAI	KARAICHITHU UVARI	Tirunelveli	0.89	9-Jul-01	23-Oct-01	Garnet, Ilmenite & Rutile
42	TRANSWORLD GARNET PVT. LTD., CHENNAI	KARAICHITHU UVARI	Tirunelveli	0.51	9-Jul-01	23-Oct-01	Garnet, Ilmenite & Rutile
43	TRANSWORLD GARNET PVT. LTD., CHENNAI	KARAICHITHU UVARI	Tirunelveli	1.6	9-Jul-01	23-Oct-01	Garnet, Ilmenite & Rutile
44	TRANSWORLD GARNET PVT. LTD., CHENNAI	KARAICHITHU UVARI	Tirunelveli	1.03	9-Jul-01	23-Oct-01	Garnet, Ilmenite & Rutile

45	V. V. MINERALS	KUNDANKULAM	Tirunelveli	2.47	20-Oct-05	12-Dec-05	Garnet, Ilmenite & Rutile
46	BEACH MINERALS SAND CO.	KUTTAM	Tirunelveli	4.64	12-Jul-95	17-Mar-95	Garnet, Ilmenite & Rutile
47	BEACH MINERALS SAND CO.	KUTTAM	Tirunelveli	2.87	16-Feb-01	12-Sep-01	Garnet, Ilmenite & Rutile
48	BEACH MINERALS SAND CO.	KUTTAM	Tirunelveli	4.43	1-Mar-04	5-Aug-04	Garnet, Ilmenite & Rutile
49	BEACH MINERALS SAND CO.	KUTTAM	Tirunelveli	4.76	31-Jan-01	11-Sep-01	Garnet, Ilmenite & Rutile
50	BEACH MINERALS SAND CO.	KUTTAM	Tirunelveli	4.9	31-Jan-01	11-Sep-01	Garnet, Ilmenite & Rutile
51	BEACH MINERALS SAND CO.	KUTTAM	Tirunelveli	2.6	31-Jan-01	12-Sep-01	Garnet, Ilmenite & Rutile
52	BEACH MINERALS SAND CO.	KUTTAM	Tirunelveli	4.73	18-Jan-01	19-Feb-01	Garnet, Ilmenite & Rutile
53	BEACH MINERALS SAND CO.	KUTTAM	Tirunelveli	4.15	18-Jan-01	12-Sep-01	Garnet, Ilmenite & Rutile
54	TAMIL NADU MINERALS LTD.	KUTTAM	Tirunelveli	4.36	10-Jul-97	20-Jul-98	Garnet, Ilmenite & Rutile
55	BEACH MINERALS SAND CO.	KUTTAM	Tirunelveli	2.47	18-Jan-01	19-Feb-01	Garnet, Ilmenite & Rutile
56	V. V. MINERALS	LIVINJIPURAM	Tirunelveli	0.96	15-Sep-04	11-Apr-05	Garnet, Ilmenite & Rutile
57	V. V. MINERALS	LIVINJIPURAM	Tirunelveli	4.1	17-Mar-04	11-Apr-05	Garnet, Ilmenite & Rutile
58	V. V. MINERALS	LIVINJIPURAM	Tirunelveli	3.79	23-Aug-04	11-Apr-05	Garnet, Ilmenite & Rutile
59	V. V. MINERALS	LIVINJIPURAM	Tirunelveli	3.36	23-Aug-04	11-Apr-05	Garnet, Ilmenite & Rutile
60	V. V. MINERALS	THIRUVAMBALAPURAM	Tirunelveli	3.38	9-Mar-01	17-Aug-01	Garnet, Ilmenite & Rutile
61	V. V. MINERALS	THIRUVAMBALAPURAM	Tirunelveli	2.03	18-Apr-04	23-May-06	Garnet, Ilmenite & Rutile
62	V. V. MINERALS	THIRUVAMBALAPURAM	Tirunelveli	4.06	18-Apr-06	25-May-06	Garnet, Ilmenite & Rutile
63	V. V. MINERALS	VIJAYAPATHI	Tirunelveli	4.8	9-Mar-01	17-Aug-01	Garnet, Ilmenite & Rutile
64	V. V. MINERALS	VIJAYAPATHI	Tirunelveli	4.51	9-Mar-01	17-Aug-01	Garnet, Ilmenite & Rutile
65	V. V. MINERALS	VIJAYAPATHI	Tirunelveli	5.03	6-Sep-00	28-Sep-00	Garnet, Ilmenite & Rutile
66	INDIAN RARE EARTHS LTD.	MANAVALAKURICHI	Kanyakumari	13.24	28-Oct-78	28-Jan-79	Monazite, Ilmenite & Rutile
67	INDIAN RARE EARTHS LTD.	CHAVARA	Kanyakumari	67	21-Oct-98	19-Apr-99	Monazite, Ilmenite & Rutile
68	V. V. MINERALS	Gopalapuram	Madurai	3.16	31-Jan-06	28-Feb-06	Garnet, Ilmenite & Rutile
69	V. V. Minerals	Muruganeri	Madurai	3.46	31-Jan-06	28-Feb-06	Garnet, Ilmenite & Rutile

Annexure-II

India's Export of Rare-Earth Minerals for the year 2011-12

ITC HS	Item Description	Qty(KGS)
25085032	SILLIMANTE FINES (INCLDNG SILLIMANTE SAND)	8835484
25132030	NATURAL GARNET	428719479
25132090	OTHER NATURAL ABRASIVES	45891711
25309040	ORES & CNCRTS OF RARE ESRTHMTLS	24000
26122000	THORIUM ORES & CONCENTRATES (Source IREL)	4000
26140010	ILMENITE UN PROCESSED	824185630
	ILMENITE,UPGRADED(BENEFICIATED ILMENITE	
26140020	INCLUDING ILMENITE GROUND)	55337211
26140031	RARE EARTH OXIDES INCLUDING RUTILE SAND	6695931
26140039	OTHER RUTILE	4012
26140090	OTHER TITANIUM ORES & CONCENTRATES	26757940
26151000	ZIRCONIUM ORES & CONCENTRATES	43533383
26159010	VANADIUM ORES & CONCENTRATES	1250000
26159020	NIOBIUM OR TANTALUM ORES & CONCENTRARES	522657

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.2053
TO BE ANSWERED ON 05.12.2012

ATOMIC POWER PLANTS

2053. SHRI MAHESHWAR HAZARI: SHRI HARSH VARDHAN:
SHRIMATI USHA VERMA: SHRIMATI SEEMA UPADHYAY:

Will the PRIME MINISTER be pleased to state:

(a) the locations where Atomic Power Plants (APPs) are under construction in the country post Indo-US Nuclear Deal and the places where atomic power plants are proposed to be set up;
(b) the quantum of electricity estimated to be generated from these power plants, plant-wise and the time by which power generation is likely to start;
(c) the locations where protests are going on; and
(d) the details of the concerns raised by protesters, plant-wise?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a)&(b) Post International cooperation, construction has been started on two indigenous nuclear power projects in the year 2010 and 2011 viz. Kakrapar Atomic Power Project Units 3&4 (KAPP Units 3&4 - 2X700 MW) at Kakrapar in Gujarat and Rajasthan Atomic Power Project Units 7&8 (RAPP Units 7&8 - 2X700 MW) at Rawatbhata in Rajasthan. As per schedule power generation from these four units, amounting to 2800 MW, is planned to begin by end of XII Five Year Plan. In addition, the construction of six indigenous nuclear power projects are planned to commence during XII Five year Plan. The details thereof are as under:

The power generation from the proposed projects is planned to commence in the XIII/ early XIV Five Year Plan period based on their actual start date.

(c)&(d) There has been opposition by certain sections of the people at most of the new sites, mainly
on issues of compensation, Resettlement & Rehabilitation (R&R) and apprehensions about safety of nuclear power plants.

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Indigenous Reactors

Project	Location	Capacity (MW)
Gorakhpur, Units 1&2	Gorakhpur, Haryana	2X700
Chutka , Units 1&2	Chutka, Madhya Pradesh	2X700
Mahi Banswara, Units 1&2	Mahi Banswara, Rajasthan	2X700
Kaiga , Units 5&6	Kaiga, Karnataka	2X700

Fast Breeder Reactor Units 1&2	Kalpakkam, Tamil Nadu	2X500
Advanced Heavy Water Reactor	Site to be decided	300
Reactors with Foreign technical cooperation		
Project	Location	Capacity (MW)
Kudankulam Units 3&4	Kudankulam, Tamil Nadu	2X1000
Jaitapur Units 1&2	Jaitapur, Maharashtra	2X1650
Kovvadda Units 1&2	Kovvada, Andhra Pradesh	2X1500
Chhaya Mithi Virdi Units 1&2	Chhaya Mithi Virdi, Gujarat	2X1100

The power generation from the proposed projects is planned to commence in the XIII/ early

XIV Five Year Plan period based on their actual start date.

(c)&(d) There has been opposition by certain sections of the people at most of the new sites, mainly on issues of compensation, Resettlement & Rehabilitation (R&R) and apprehensions about safety of nuclear power plants.

(http://dae.nic.in/writereaddata/parl/lsus2053.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.20
TO BE ANSWERED ON 05.12.2012

NUCLEAR AND RADIATION SAFETY POLICY

20. SHRI O.S. MANIAN: SHRI DHANANJAY SINGH:
SHRI NEERAJ SHEKHAR: SHRI NISHIKANT DUBEY:
SHRI YASHVIR SINGH: SHRI P.L. PUNIA:

Will the PRIME MINISTER be pleased to state:

(a) the details of cases of radiation leakage from functioning and under shut down condition nuclear power plants reported during the last three years and the current year;
(b) the details of steps taken/proposed to be taken to prevent radiation leakage;
(c) whether there exists any national level nuclear and radiation safety policy;
(d) if so, the details thereof and if not, the reasons therefor;
(e) the details of penalties/fines that exist against offences and contraventions related to nuclear and radiation accidents;
(f) whether the Government proposes to increase these penalties/fines which serve as deterrents;
(g) if so, the details thereof and if not, the reasons therefor; and
(h) the details of the legal powers vested with the nuclear regulator of the country?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) There have been no instances of any release of radiation beyond stipulated limits, either in the environment or in public domain from any of the nuclear power reactors in operation and under shutdown in the last three years and current year.
(b) Question does not arise as the discharges have been within the stipulated limit and through designed routes.
(c)&(d) The policies concerning nuclear and radiation safety that are regulated by Atomic Energy Regulatory Board (AERB) are enshrined in the high level documents of AERB, namely the Atomic Energy (Radiation Protection) Rules, 2004, the mission statement and the 'Codes' of AERB. These documents include the policies, principles and/or safety objectives that apply to the relevant activity/field and the specific regulatory requirements that are to be followed for fulfilling the same. The above mission, principles and objectives form the broader policy of AERB for regulation of nuclear and radiation safety in the country.

(e) As per section 30 (3) of the Atomic Energy Act, 1962, "Rules made under this Act may provide that a contravention of the rules shall, save as otherwise expressly provided in the Act, be punishable with fine, which may extend up to five hundred rupees". However, as per Section 24 of the Act, contravention of any rules made under Section 17 (special provisions as to safety) shall be punishable with imprisonment for a term which may extend to five years, or with fine, or both.

(f)&(g) No, Sir. Provisions of penalties against the offences and contraventions in nuclear and radiation facilities that serve as deterrents, have been specified in Section 24 and Section 30(3) of Atomic Energy Act, 1962. There are different kinds of enforcement actions available with AERB. These enforcement actions are commensurate with the seriousness of the non-compliance and range from written warnings to withdrawal/suspension of the consent. Withdrawal of consent by itself is a very severe economic penalty and has the potential of seriously affecting the financial health of the stake holder.
(h) AERB has legal powers to carry out certain regulatory and safety functions envisaged under Sections 16, 17 and 23 of the Atomic Energy Act, 1962 and the following rules framed there under.

- Atomic Energy (Working of the Mines, Minerals and Handling of Prescribed Substance) Rules, 1984.
- Atomic Energy (Safe Disposal of Radioactive Wastes) Rules, 1987
- Atomic Energy (Factories) Rules, 1996
- Atomic Energy (Control of Food Irradiation) Rules, 1996
- Atomic Energy (Radiation Protection) Rules, 2004

AERB is also empowered to perform the functions under Section 10(1) (powers of entry) and 11(1) (powers to take samples) of Environmental Protection Act, 1986 and Rule 12 (agency to which information on excess discharge of pollutants to be given) of the Environmental Protection (Amendment) Rules, 1987 with respect to radioactive substances.

(http://dae.nic.in/writereaddata/parl/lsus20.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.1962
TO BE ANSWERED ON 05.12.2012

NUCLEAR ENERGY GENERATION

DR. THOKCHOM MEINYA: SHRI N. CHALUVARAYA SWAMY:
SHRI PREM DAS RAI: DR. KIRODI LAL MEENA:
SHRI NISHIKANT DUBEY: SHRI JITENDER SINGH MALIK:
SHRI HAMDULLAH SAYEED: SHRI JAI PRAKASH AGARWAL:

Will the PRIME MINISTER be pleased to state:

(a) the location of nuclear power plants in the country with respect to seismic zones, plantwise;
(b) the details of funds allocated/spent on various atomic power plants during the last three years and the current year, plant and year-wise;
(c) the quantum of nuclear energy generated during the last three years and the current year, plant and year-wise;
(d) the ranking of the country in terms of generation of nuclear power among the Asian, developing and developed countries;
(e) whether the Government proposes to promote private participation in nuclear power generation; and
(f) if so, the details thereof and if not, the reasons therefor?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND
PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) Rawatbhata in Rajasthan as well as Kalpakkam & Kudankulam in Tamil Nadu are located in seismic zone II. Tarapur in Maharashtra, Kakrapar in Gujarat & Kaiga in Karnataka are located in seismic zone III. Narora in Uttar Pradesh comes under seismic zone IV.
(b) The details of allocation/expenditure on various nuclear power plants and schemes during the last three years and current year are as under:-
(`Rs. in crore)

2009-10		2010-11		2011-12		1012-13 (Upto Oct 2012)	
Allocated	Expenditure	Allocated	Expenditure	Allocated	Expenditure	Allocated	Expenditure
2912.70	2710.86	3675	2470.32	4901	3406.33	5756	2313.93

(c) The details are as under :-

Location & State	Units	Capacity (MW)	Gross generation in Million Units (MUs)			
			2009-10	2010-11	2011-12	2012-13

						(upto Oct 2012)
Light Water Reactors (LWRs)						
Tarapur, Maharashtra	TAPS-1	160	1199	1142	1371	392
	TAPS-2	160	1251	1273`	1337	794
Pressurised Heavy Water Reactors (PHWRs)						
Tarapur, Maharashtra	TAPS-3	540	2787	3582	4325	2441
	TAPS-4	540	2754	3124	2781	2214
Rawatbhata, Rajasthan	RAPS-1	100	0	0	0	0
	RAPS-2	200	950	1720	1821	802
	RAPS-3	220	1277	1564	1938	1123
	RAPS-4	220	1143	1807	1645	1081
	RAPS-5	220	301	1753	1974	908
	RAPS-6	220	3	1060	1764	1088
Kalpakkam, Tamil Nadu	MAPS-1	220	938	1260	1240	864
	MAPS-2	220	1108	980	1276	776
Narora, Uttar Pradesh	NAPS-1	220	818	1228	1047	753
	NAPS-2	220	0	658	937	726
Kakrapar, Gujrat	KAPS-1	220	0	370	1919	1104
	KAPS-2	220	1068	1077	1868	875
Kaiga, Karnataka	Kaiga-1	220	1011	1259	1270	859
	Kaiga-2	220	1111	988	1381	690
	Kaiga-3	220	1112	1334	1231	866
	Kaiga-4	220	Nil	295	1330	804

Legend**:**
TAPS - Tarapur Atomic Power Station
RAPS - Rajasthan Atomic Power Station
MAPS - Madras Atomic Power Station
NAPS - Narora Atomic Power Station
KAPS - Kakrapar atomic Power Station
KAIGA - Kaiga Atomic Power Station

(d) In terms of nuclear power generation, India is fifth among Asian countries after Japan, Korea, China & Taiwan. Among developing countries with nuclear power programmes, India ranks second after China. Among all countries, both developed and developing, India is at fifteenth position.
(e)&(f) Private Industries are participating in supply of nuclear components and equipment, execution of works contracts and provision of services. However, there is no proposal for private participation in nuclear power generation.
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(http://dae.nic.in/writereaddata/parl/lsus1962.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.1863
TO BE ANSWERED ON 05.12.2012

NEUTRINO OBSERVATORY PROJECT

1863. SHRI ABDUL RAHMAN:
SHRI SAUGATA ROY:

Will the PRIME MINISTER be pleased to state:

(a) the present status and the broad features of the proposed India based Neutrino Observatory (INO) project;
(b) whether Steel Authority of India Limited (SAIL) proposes to supply 50,000 tonnes special steel for building INO; and
(c) if so, the details thereof?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) The India Based Neutrino Observatory (INO) project is being set up in the Bodi West Hills at the Pottipuram village in Theni district of Tamil Nadu. The land for this project has been acquired. The project aims at carrying out research to study the properties of neutrinos which are the second most abundant particles in the Universe. Neutrinos are neutral particles and weakly interactive particles which are very difficult to detect. Therefore they need a massive detector. INO detector will be a multi layer stack of magnetised iron plates. A large number of such plates will be needed to build the INO detector and with back up of electronics, these detectors are expected to detect neutrinos passing through them. The INO will ultimately help in understanding the evolution of universe. The detectors developed for the INO project will also have societal applications such as in medical imaging.

(b) Yes, Sir. A proposal has been received from Steal Authority of India Limited (SAIL) for the supply of special steel for building INO detector.

(c) No purchase order has been placed on SAIL or any other agency for supply of steel.

(http://dae.nic.in/writereaddata/parl/lsus1863.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
STARRED QUESTION NO. 173
TO BE ANSWERED ON 05.12.2012

COMMISSIONING OF KUDANKULAM POWER PROJECT

*173. SHRI BHUDEO CHOUDHARY:
SHRI SYED SHAHNAWAZ HUSSAIN:

Will the PRIME MINISTER be pleased to state:

(a) whether the technical formalities to enable the commissioning of Unit-I of Kudankulam Nuclear Power Project (NPP) have been completed;
(b) if so, the tentative date of commissioning of the unit and the details of the expenditure incurred so far in the said unit;
(c) whether some local people continue to protest against the plant;
(d) if so, the details thereof along with the details of the demands made by these people in this regard; and
(e) the action taken/being taken by the Government to redress their grievances?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND
PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY)
(a) to (e) A statement is laid on the Table of the House.

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STATEMENT REFERRED TO IN REPLY TO LOK SABHA STARRED QUESTION NO.173 FOR ANSWER ON
05.12.2012 BY SHRI BHUDEO CHOUDHARY AND SHRI SYED SHAHNAWAZ HUSSAIN REGARDING
COMMISSIONING OF KUDANKULAM POWER PROJECT.

(a) The fuel has been loaded in the Unit-1 and the Unit has been made ready for approach to first criticality (start of nuclear fission chain reaction for the first time). The process of criticality in Unit-1 would start after the stage wise clearance from Atomic Energy Regulatory Board (AERB).

(b) The Unit-1 is likely to be commissioned by the end of December, 2012. The expenditure incurred on the project (Kudankulam Nuclear Power Plant Units 1&2) upto October 2012 is `15161 crore.

(c)to(e) Yes, Sir. Some sections of the population from Idinthakarai village and some pockets in the surrounding areas are protesting against the start up of the plant raising issues of safety & livelihood. The apprehensions about safety and livelihood have been addressed by the expert

group of eminent persons constituted by the Central Government and through public outreach programme using a multipronged approach.

(http://dae.nic.in/writereaddata/parl/lssq173.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
STARRED QUESTION NO. 169
TO BE ANSWERED ON 05.12.2012

SAFETY REVIEW OF ATOMIC STATIONS

*169. SHRI ASHOK TANWAR:
SHRI S.R. JEYADURAI:

Will the PRIME MINISTER be pleased to state:

(a) whether a safety review of the atomic power stations including Rawatbhata in Rajasthan has been done recently by the International Atomic Energy Agency (IAEA) or by other agencies;

(b) if so, the details thereof and the steps the Government proposes to take to address the concerns expressed during such reviews;

(c) whether the Government proposes to conduct periodic safety review of all the atomic power stations in the country; and

(d) if so, the details thereof?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY)

(a) to (d) A statement is laid on the Table of the House.

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STATEMENT REFERRED TO IN REPLY TO LOK SABHA STARRED QUESTION NO.169 FOR ANSWER ON
05.12.2012 BY SHRI ASHOK TANWAR AND SHRI S.R. JAYADURAI REGARDING SAFETY REVIEW OF ATOMIC
STATIONS.

(a) Yes, Sir. The safety review of Rajasthan Atomic Power Station (RAPS) Units 3&4 at Rawatbhata was carried out by the Operational Safety Review Team (OSART) of the International Atomic Energy Agency (IAEA) at the request of the Government of India during October 29 to November 14, 2012.

(b) The OSART identified a series of good practices at the station, to be shared by IAEA with the global nuclear industry as well as made suggestions where operations in the units could be further improved. The final report of the OSART has not been received.

The recommendations/suggestions of the OSART are reviewed for systemic change.

(c)&(d) The safety reviews of the Indian nuclear power plants are carried out periodically by the regulatory authority, the Atomic Energy Regulatory Board (AERB). In addition, international peer reviews are also carried out by experts of the World Association of Nuclear Operators (WANO). Post Fukushima, Government decided to get the safety of RAPS Units 3 & 4 reviewed by the OSART of IAEA also.

(http://dae.nic.in/writereaddata/parl/lssq169.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO. 628
TO BE ANSWERED ON 29.11.2012

CRITICISM OF AERB BY CAG ON RADIATION SAFETY POLICY

628. SHRI A. ELAVARASAN:

Will the PRIME MINISTER be pleased to state:

(a) whether the Comptroller and Auditor General (CAG) has criticised the Atomic Energy Regulatory Board (AERB) for not being truly independent, not having a radiation safety policy and being lax in monitoring the proliferation of unregistered medical X-ray facilities in the country;
(b) if so, the details thereof;
(c) whether the move follows criticism of the safety of nuclear plant both in India and abroad;
(d) whether the CAG report could alert AERB and trigged some action; and
(e) if so, the details thereof?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND
PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a)&(b) Comptroller and Auditor General of India (CAG) has issued its report on the performance audit of the activities of Atomic Energy Regulatory Board (AERB) wherein certain observations and recommendations pertaining to the independence of AERB, radiation safety policy and regulation of medical X-ray facilities have been made. The Public Accounts Committee (PAC) has conducted oral examination of officials of both AERB and DAE on 26.10.2012 and the point-wise response against each recommendation in CAG report has been submitted to PAC.

(c) The performance audit of the activities of AERB by CAG started in June 2010, predating the Fukushima accident in Japan in March 2011 that generated worldwide concerns about the safety of nuclear power plants. The report of the CAG notes compliance with the procedures in respect of regulation of nuclear power plants.

(d)&(e) Government introduced the Nuclear Safety Regulatory Authority Bill, 2011 in Lok Sabha on 7 September 2011 with a view to converting functional independence of AERB to de jure independence. In accordance with the Presidential orders dated 15 November 1983, constituting the AERB, the functions of AERB includes, as per clause 2 (i), development of safety policies in both radiation and industrial safety areas, and further, as per clause 2(vi),evolving major safety policies based on safety criteria, recommended by IAEA and other international bodies, adopted to suit Indian conditions. Accordingly, the safety policies concerning the activities regulated by AERB are enshrined in the high level documents of AERB, namely the Atomic Energy (Radiation Protection) Rules, 2004, the mission statement and the various 'Codes' of AERB.

These documents include the policies, principles and/or safety objectives that apply to the relevant activity/field and the specific regulatory requirements that are to be followed for fulfilling the same. The above principles and objectives form the broader policy of AERB for regulation of nuclear and radiation safety in the country. AERB has so far not felt the need for a single and separate 'Safety Policy' document, as these are well defined in the existing documents as explained above.

Nevertheless AERB has agreed to the suggestion of CAG, to the extent of consolidating the existing policy objectives and higher level principles as brought out in various codes and other document into a separate 'Safety Policy' document. In order to enhance regulatory control over the large number of medical X-Ray units operating in the country, AERB has been pursuing the establishment of state-level Directorates of Radiation Safety with the State Governments. Additional initiatives taken by AERB recently include rationalisation and simplification of the existing regulations for users in diagnostic X-ray practice by way of amendments of AERB Safety Code; enhancing regulatory control on manufacturers/suppliers of X-ray equipment over the user; development of an easy and approachable interface for the user to facilitate easy registration using a new web based system; and, public awareness programmes.

(http://dae.nic.in/writereaddata/parl/rsus628.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.627
TO BE ANSWERED ON 29.11.2012

ALLOTMENT OF FUNDS TO FAST BREEDER REACTORS OF KALPAKKAM

627. DR. V. MAITREYAN:

Will the PRIME MINISTER be pleased to state:

(a) whether Government has allocated funds for Indira Gandhi Centre for Atomic Research at Kalpakkam to commission two fast breeder reactors producing nuclear energy;
(b) if so, the details thereof in the last five years, year-wise;
(c) the current status of the reactor built by the Bharatiya Nabhikiya Vidyut Nigam Limited (BHAVINI), envisaged to produce 500 MW; and
(d) the steps taken by Government to produce more electricity from all three units at Kalpakkam?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY):

(a)&(b) In June, 2010, Government accorded approval for locating Fast Breeder Reactors (FBRs) 1&2 (500 MWe each) at Kalpakkam, Tamil Nadu and for taking up pre-project activities including advance procurement of select materials for these FBRs. During the XI Five Year Plan period, provision of ` 250 crore was made for the purpose.
(c)&(d) The Prototype Fast Breeder Reactor being built by Bharatiya Nabhikiya Vidyut Nigam Limited (BHAVINI) has achieved physical progress of 90.50% as on 31.10.2012. Bathymetry survey of sea near the site and external layout of plant site of FBRs have been completed.

(http://dae.nic.in/writereaddata/parl/rsus627.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.626
TO BE ANSWERED ON 29.11.2012

PROBLEMS IN INSTALLATION OF AREVAS REACTORS

626. SHRI P. RAJEEVE:

Will the PRIME MINISTER be pleased to state:

(a) whether Government has decided to import AREVAS Reactors for Jaitapur Nuclear Plant;
(b) if so, the details thereof;
(c) whether these reactors are fully built and commissioned anywhere in the world;
(d) whether safety and design problems have been reported in other countries like Finland at the time of its installation;
(e) if so, the details thereof; and
(f) the steps taken by the Ministry to address this issue?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a)&(b) An Inter-Governmental Agreement (IGA) for civil Nuclear co-operation was signed between India and France on September 30, 2008. Pursuant to the IGA, a Memorandum of Understanding (MoU) was signed between Nuclear Power Corporation of India Limited (NPCIL) and AREVA on February 4, 2009, which provides for engaging both the sides into discussions for supply of two 1650 MWe EPR Units to be built at Jaitapur Site, Maharashtra together with supply of associated fuel, fuel services and other services which are part of six EPR Units at Jaitapur site. NPCIL has commenced discussions with M/s AREVA on techno-commercial aspects of setting up two EPR Units at Jaitapur Site.
(c) One EPR each in Finland and France and two in China are at advanced stage of construction.
(d)&(e) A few difficulties were experienced during construction of the reactor in Finland and overcome by design modifications.
(f) A technical review of the EPRs was conducted by the Indian side considering the feedback from Finland, France and China. The suggestions made in the review have been incorporated in the EPRs proposed to be set up at Jaitapur site.

(http://dae.nic.in/writereaddata/parl/rsus626.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.624
TO BE ANSWERED ON 29.11.2012

MANAGEMENT OF THE NUCLEAR WASTE

624. SHRI C.P. NARAYANAN:

Will the PRIME MINISTER be pleased to state:

(a) whether Government has any concrete plan to take out, transport or handle the nuclear waste/spent fuel after the Kudankulam plant in Tamil Nadu becomes operational; and
(b) if so, the details thereof?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY):

(a)&(b) Yes, Sir. Currently spent fuel from our operating unsafeguarded reactors are transported to our operating reprocessing facilities, located within the country. Consistent with this approach, spent fuel generated from the operation of the Kudankulam power plant after taking out from the reactor, is planned to be stored temporarily in storage pools which are water-filled concrete vaults with stainless steel lining, having the arrangement for storing spent fuel in racks. Such pools are designed, constructed and operated as per the guidelines prescribed by Atomic Energy Regulatory Board (AERB).

Each unit of Kudankulam plant has a spent fuel storage capacity inside the reactor containment to cater to 7 years of full power operation. In case of a necessity arising at a later stage, additional storage, away from the reactor (AFR), could also be constructed for further enhancing the temporary storage capacity after taking due regulatory clearances.

The spent fuel from Kudankulam Plant is to be transported from the power reactor site to the reprocessing facility for safeguarded fuels. This transportation will be in conformity with the regulation specified by AERB in "Safety code for the transport of radioactive materials – AERB/SC/TR-1" and international requirements as stipulated by International Atomic Energy Agency (IAEA).

As a policy, spent fuel from all nuclear power plants is to be reprocessed and the same is to be followed for the spent fuel of Kudankulam. The spent fuel from Kudankulam is planned to be reprocessed at a national facility, the location of which is to be finalised.

(http://dae.nic.in/writereaddata/parl/rsus624.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.623
TO BE ANSWERED ON 29.11.2012

URANIUM RESOURCES ESTABLISHED IN ANDHRA PRADESH

623. SHRI PALVAI GOVARDHAN REDDY:

Will the PRIME MINISTER be pleased to state:

(a) whether it is a fact that the maximum tonnes of Uranium resources have been established in Andhra Pradesh;
(b) if so, the details thereof and the amount so far extracted and in the process of extraction; and
(c) what efforts Uranium Corporation of India is making to explore the Uranium resources?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) Yes Sir
(b) Atomic Minerals Directorate for Exploration and Research (AMD), a constituent unit of Department of Atomic Energy, has so far identified 93,492 tonnes of in situ uranium oxide (U_3O_8) in different deposits like Lambapur, Peddagattu and Chitrial in Nalgonda District, Tummalapalle – Rachakuntapalle in Kadapa District and Koppunuru in Guntur District of Andhra Pradesh. This figure of uranium ore includes 59,006 tonnes of U_3O_8 identified during XI Five Year Plan period and 6616 tonnes of U_3O_8 identified during 2012-13The mining/processing of these minerals is continuous process which is done in phased manner.
(c) Exploration for presence of Uranium ore in the entire country is done by AMD. Uranium Corporation of India Limited (UCIL), a public sector undertaking under the Department of Atomic Energy, does not engage in exploration of Uranium.

(http://dae.nic.in/writereaddata/parl/rsus623.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.622
TO BE ANSWERED ON 29.11.2012

OPPOSITION ON COMMENCEMENT OF KUDANKULAM NUCLEAR PLANT

622. SHRI PIYUSH GOYAL:

Will the PRIME MINISTER be pleased to state:

(a) whether it is a fact that senior retired bureaucrats and other Government officials have written against the go-ahead of the Kudankulam nuclear plant;
(b) if so, the details thereof;
(c) whether Government has conducted an assessment of the impact of the nuclear plant;
(d) if so, the details thereof; and
(e) if not, the reasons therefor?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a)&(b) Some senior retired bureaucrats and other government officials have written against going ahead with Kudankulam Nuclear Power Plant as well as other new nuclear power projects. They have also raised issues related to nuclear power safety, independence of regulatory body, review of statutes like civil liability for nuclear damage act etc.
(c)&(d) Yes, Sir. A rapid Environmental Impact Assessment (EIA) of the Kudankulam Nuclear Power Project (KKNPP Units 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, Units 3 to 6 environmental clearance processes.
(e) Does not arise.

(http://dae.nic.in/writereaddata/parl/rsus622.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.621
TO BE ANSWERED ON 29.11.2012

GENERATION CAPACITY BY ATOMIC ENERGY PLANTS

621. SHRI AMBETH RAJAN:

Will the PRIME MINISTER be pleased to state:

(a) whether all the Atomic Energy Plants installed in the country are generating energy as per their installed capacity;
(b) if so, the details of energy generated during the last three years; and
(c) if not, the reasons therefor?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) No, Sir.
(b) The electricity generation from nuclear power plants during the last three years 2009-10, 2010-11 and 2011-12 has been 18831, 26473 and 32455 Million Units respectively.
(c) Out of twenty nuclear power reactors with an installed capacity of 4780 MW, one reactor at Rajasthan Atomic Power Station (RAPS Unit-1, 100 MW) is under extended shut down. Of the nineteen reactors in operation, ten reactors with a capacity of 2840 MW are fuelled by indigenous uranium, which is not available in the required quantity. Some of these are accordingly being operated at lower power levels matching the fuel supply. However, there has been a progressive improvement in supply of indigenous uranium, with corresponding improvement in the capacity factors of these reactors. The remaining nine reactors with a capacity of 1840 MW are under International Atomic Energy agency (IAEA) safeguards and use imported fuel which is available in the required quantity. These reactors are operating at rated capacity.

(http://dae.nic.in/writereaddata/parl/rsus621.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
STARRED QUESTION NO. 97
TO BE ANSWERED ON 29.11.2012

BAN ON THE EXPORT OF MONAZITE

*97. DR. CHANDAN MITRA:

Will the PRIME MINISTER be pleased to state:

(a) whether Government has imposed a ban on the export of Monazite from the country;
(b) if so, the immediate steps taken by Government to check extraction and export of Monazite from the country by a large number of private companies; and
(c) if not, the details of private companies involved in export of this mineral?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY)

(a) to (c) A statement is laid on the Table of the House.

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STATEMENT REFERRED TO IN REPLY TO RAJYA SABHA STARRED QUESTION NO.97 FOR ANSWER ON
29.11.2012 BY DR. CHANDAN MITRA REGARDING BAN ON THE EXPORT OF MONAZITE.

(a) No Sir. Export of Monazite has not been banned by the Government. Since Monazite is a prescribed substance, the export of Monazite is regulated under the provisions of Atomic Energy Act, 1962 and the rules framed thereunder.
(b) Since Monazite is a "Prescribed Substance", no Company or entity can extract, process, export or otherwise handle monazite without obtaining licence from the Department of Atomic Energy.
(c) For export of monazite, which is a prescribed substance, licence from the Department of Atomic Energy under the Atomic Energy Act is required. Indian Rare Earths Ltd. (IREL), a Public Sector Undertaking under the Department of Atomic Energy is the only entity which has been authorised for export of monazite.

(http://dae.nic.in/writereaddata/parl/rssq97.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.15
TO BE ANSWERED ON 22.11.2012

FUNDS FOR SCSP AND TSP

15. SHRI AMBETH RAJAN :

Will the PRIME MINISTER be pleased to state:

(a) the details of the funds earmarked for Scheduled Castes Sub Plan (SCSP) and Tribal Sub Plan (TSP) during last five financial years as per the guidelines issued by Planning commission vide its letter dated 26 December, 2006;
(b) if no, such funds were earmarked during the last five years, the reasons therefor;
(c) whether separate Budget Head has been opened for SCSP and TSP for financial year 2011-2012 as mandated by the Department of Expenditure; and
(d) if so, the details thereof ?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a)&(b) Nil.

The Department of Atomic Energy being engaged in basic scientific research is exempted from an obligation for earmarking Plan funds under SCSP and TSP. However, the Department implements the schemes and guidelines dealing with recruitment and promotion of SCs & STs.

(c)&(d) Do not arise.

(http://dae.nic.in/writereaddata/rsus15.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
STARRED QUESTION NO. 15
TO BE ANSWERED ON 22.11.2012

TARGET OF ATOMIC ENERGY

*15 SHRI RAMA CHANDRA KHUNTIA :

Will the PRIME MINISTER be pleased to state:

(a) whether the target of Atomic Energy for the Eleventh Plan period has been achieved;
(b) if not, the reasons therefor;
(c) whether the Kudankulam Atomic Energy Plant has started power generation; and
(d) if so, the installed capacity of the plant and the actual generation till today?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY)

(a) to (d) A statement is laid on the Table of the House.

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STATEMENT REFERRED TO IN REPLY TO RAJYA SABHA STARRED QUESTION NO.15 FOR ANSWER
ON 22.11.2012 BY SHRI RAMA CHANDRA KHUNTIA REGARDING TARGET OF ATOMIC ENERGY

(a) No, Sir.

(b) The target of nuclear energy generation in the XI Five Year Plan was 163,395 Million Units (MUs), which was revised to 124,608 MUs at Mid-Term Appraisal (MTA) stage. The actual generation in the XI Five Year Plan was 109,642 MUs. The reasons for shortfall in generation were non availability of indigenous uranium in the required quantity, delay in fruition of international cooperation resulting in delay in availability of imported uranium and shifting of completion of the Kudankulam and Prototype Fast Breeder Reactor (PFBR) projects to XII five Year Plan.

(c) No, Sir.

(d) Kudankulam Nuclear Power Project comprises two units of 1000 MWe each, from which no power generation has taken place till now.

(http://dae.nic.in/writereaddata/rssq15.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.14
TO BE ANSWERED ON 22.11.2012

THORIUM EXPORT BY PRIVATE COMPANIES

14. SHRI PRAKASH JAVADEKAR :

Will the PRIME MINISTER be pleased to state:

(a) whether it is a fact that thorium is handled and exported by private companies from Odisha, Tamil Nadu and Kerala;
(b) if so, the details thereof;
(c) whether it is also a fact that some private companies are exporting and handling monazite;
(d) if so, the details and actions thereof; and
(e) the action Government proposes to take to stop the exports by private companies?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) No, Sir.
(b) Does not arise.
(c) No, Sir. Department of Atomic Energy has not issued any licence for handling and export of either Monazite or Thorium to any private company.
(d)&(e) Do not arise.

(http://dae.nic.in/writereaddata/rsus14.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.13
TO BE ANSWERED ON 22.11.2012

SAFETY AND CAPACITY OF NUCLEAR POWER PLANT

13. SHRI HUSAIN DALWAI :

Will the Prime Minister be pleased to state:

(a) the total installed nuclear power generating capacity at present;
(b) the number of new nuclear power reactors with capacity and location, under construction;
(c) whether the highest levels of nuclear safety has been ensured; and
(d) if so, details thereof?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) The current installed nuclear power capacity in the country is 4780 MW comprising twenty nuclear power reactors.
(b) There are seven nuclear power reactors, with a capacity of 5300 MW, under construction. The details are as follows:-

Project	**Location & State**	**Capacity (MW)**
Kudankulam Nuclear Power Project Units 1&2	Kudankulam, Tamil Nadu	2X 1000
Prototype Fast Breeder Reactor	Kalpakkam, Tamil Nadu	500
Kakrapar Atomic Power Project Units 3&4	Kakrapar, Gujarat	2X700
Rajasthan Atomic Power Project Units 7&8	Rawatbhata, Rajasthan	2X700

(c)&(d) Yes, Sir. Safety is accorded utmost importance in all phases of nuclear power plants from siting, design, construction, commissioning, operation & maintenance and eventual decommissioning. The standards of safety followed in India are consistent with the best practices followed in the world. The nuclear power plant sites are evaluated in accordance with the criteria as laid down in the regulatory codes. The nuclear power plants are designed using defence-in-depth approach based on well defined principles of redundancy and diversity. The construction is carried out to meet the highest safety and quality standards. The operation of nuclear power plants is carried out in accordance with laid down procedures approved by the regulatory authority by trained personnel duly licensed by the Atomic Energy Regulatory Board (AERB).

There is a robust regulatory mechanism in place for enforcement of safety in all activities right from initial siting to decommissioning of nuclear power plants.

(http://dae.nic.in/writereaddata/rsus13.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.12
TO BE ANSWERED ON 22.11.2012

DAMAGE OF PIPELINE OF HAZIRA PROJECT BY EXPANSION OF NH-6

12. SHRI MANSUKH L. MANDAVIYA :
SHRI PARSHOTTAM KHODABHAI RUPALA :

Will the PRIME MINISTER be pleased to state:

(a) whether Department is aware about the fact that their main water pipe line of Heavy Water Producing unit of Hazira came in alignment of expansion project of NH-6, due to which, this main water pipeline will be damaged and cannot be repaired;
(b) whether it is not relocated urgently it will be resulting in interrupt of supplying of water and this may lead to stop production by DAE resulting in unwanted National losses;
(c) whether DAE is taking up this important matter with Ministry of Road Transport & Highways urgently; and
(d) the details thereof?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) & (b) Yes Sir.

(c) Yes Sir.

(d) The matter has been taken up with Chairman, National Highway Authority of India (NHAI) and also with Ministry of Surface Transport through M/s. Krishak Bharati Co-operative Ltd. (KRIBHCO) who is operating and maintaining the Heavy Water plant at KRIBHCO, Hazira. The NHAI and Ministry of Surface Transport have been requested to make necessary changes in widening of road NH-6, so that shifting of water supply line is avoided or minimized to avoid the water supply line coming under the National Highway. DAE has also requested NHAI to take required remedial actions so that the production of heavy water is not adversely affected.

(http://dae.nic.in/writereaddata/rsus12.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.11
TO BE ANSWERED ON 22.11.2012

SAFETY NORMS IN EXISTING NUCLEAR POWER PLANT

11. SHRI K.N. BALAGOPAL :

Will the PRIME MINISTER be pleased to state:

(a) the number and details of unexpected incidents with Nuclear Power Plants in the country that could have led to dangers but managed by rescue
management team; and
(b) whether all the safety norms are met by Kudankulam Plant?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) There has been no incident in the Indian nuclear power plants in the country having potential dangerous consequences requiring invoking of either site or off-site emergency measures including activation of a rescue teams in public domain.
(b) Yes Sir.

(http://dae.nic.in/writereaddata/rsus11.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.10
TO BE ANSWERED ON 22.11.2012

ATOMIC POWER GENERATION AGREEMENT FOR ESTABLISHMENT OF NEW ATOMIC POWER PLANTS

10. SHRI MOHAN SINGH :

Will the PRIME MINISTER be pleased to state:

(a) the number of countries which have expressed their interest to install atomic power plants in the country after signing the atomic power generation agreement with America;
(b) whether Government plans to establish atomic power plants in the other States of the country apart from Tamil Nadu, if so, the name of such States along with the date by when generation of power would start; and
(c) whether Australia has also promised to provide Uranium to India, if not, the reasons therefor?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) Following the conclusion of International Agreement on Civil Nuclear Cooperation in four countries namely USA, France, Russian Federation and South Korea have expressed interest to install nuclear power reactors in the country.
(b) Yes, Sir. The XII Five Year Plan proposals envisage start of work on new nuclear power plants in Andhra Pradesh, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra and Rajasthan apart from Tamil Nadu. These nuclear power plants are expected to start generation of electricity in the XIII Five Year Plan/ early XIV Five Year Plan.
(c) No formal communication has been received in this regard.

(http://dae.nic.in/writereaddata/rsus10.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.9
TO BE ANSWERED ON 22.11.2012

SAFE DISPOSAL OF VITRIFIED HIGH LEVEL RADIO-ACTIVE WASTE

9. SHRI C.M. RAMESH :
Will the PRIME MINISTER be pleased to state:
(a) whether Government has conceived any safe disposal of vitrified high level radioactive waste in the country; and
(b) if so, the details thereof?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a)&(b) Yes, sir. Under the existing practice, a three step approach is followed in our country consistent with the practice followed world over for management of high level radioactive liquid waste. These are: Waste is first vitrified and converted into an inert solid matrix in the form of sodium borosilicate glass. The vitrified waste is taken in a stainless steel canister which in turn, is placed in a stainless steel over-pack. The over-pack is again encased in another stainless steel casing and stored in an engineered facility.

As a second step, such solidified waste package is stored under surveillance in a natural circulation driven air-cooled engineered facility for a period of about 50 years.
The final step, comprises sending this cooled vitrified waste package to a deep geological repository at a depth of about 600-800 meters to isolate the radioactivity from the environment.

(http://dae.nic.in/writereaddata/rsus09.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.8
TO BE ANSWERED ON 22.11.2012

SAFETY STANDARDS IN PROPOSED NUCLEAR POWER PLANTS

8. SHRI PARIMAL NATHWANI :

Will the PRIME MINISTER be pleased to state:

(a) how many new nuclear power stations are under construction/or under planning in the country other than Kudankulam, the details thereof;
(b) how do we compare safety standards of our installations with those of International nuclear power plants, the details thereof; and
(c) how far these plants take into consideration the local environmental issues?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) There are five nuclear power reactors under construction apart from Kudankulam Units 1&2. the details are:

Project	**Location & State**	**Capacity (MW)**
Prototype	Kalpakkam, Tamil Nadu	500
Kakrapar Atomic Power Plant Units 3&4	Kakrapar, Gujrat	2 X 700
Rajasthan Atomic Power Plant Units 7&8	Ravatbhata, Rajasthan	2 X 700

The XII Five Year Plan proposals envisage start of work on 19 nuclear power reactors with a capacity of 17400 MW. The details are :-

Project	**Location**	**Reactor Type**	**Capacity (MW)**
Indigenous Reactors			
Gorakhpur, Units 1&2	Gorakhpur, Haryana	PHWR	2 X 700
Chutka, Units 1&2	Chutka, Madhya Pradesh	PHWR	2 X 700
Kaiga, Units 5&6	Kaiga, Karnataka	PHWR	2 X 700
Mahi Banswara, Units 1&2	Mahi Banswara, Rajasthan	PHWR	2 X 700
Fast Breeder Reactor Units 1&2	Kalpakkam, Tamil Nadu	FBR	2 X 500
Advanced Heavy Water Reactor	Site to be decided	AHWR	300

LWRS with International Cooperation			
Kudankulam Units 3&4	Kudankulam, Tamil Nadu	LWR	2 X 1000
Jaitpur, Units 1&2	Jaitpur, Maharashtra	LWR	2 X 1650
Chhaya Mithi Virdi, Units 1&2	Chhaya Mithi Virdi, Gujrat	LWR	2 X 1100
Kovvadda, Units 1&2	Kovvada, Andhra Pradesh	LWR	2 X 1500

(b) The Safety standards of our reactors are comparable to the best in the world and in line with the International Atomic Energy Agency standards.
(c) The nuclear power plants are set up only after obtaining environmental clearance fromthe Ministry of Environment and Forests (MoEF), the process for which involvescomprehensive Environmental Impact Assessment Studies in line with the Terms ofReference finalised by the Expert Appraisal Committee of the MoEF.

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(http://dae.nic.in/writereaddata/rsus08.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.7
TO BE ANSWERED ON 22.11.2012

ESTABLISHMENT OF ATOMIC POWER PLANTS IN THE MIDDLE OF TOWNS

7. SHRI ISHWARLAL SHANKARLAL JAIN :

Will the PRIME MINISTER be pleased to state:

(a) whether Technical Director and Scientists of Nuclear Power Corporation of India Limited have proposed to establish atomic energy plant in the middle of towns;
(b) if so, the details thereof;
(c) whether there is any expectation of construction/establishment of these atomic energy plants during Twelfth Five Year Plan; and
(d) the security features of these atomic energy plants to be established in the middle of towns?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) No, Sir.
(b)to(d) Do Not arise.

(http://dae.nic.in/writereaddata/rsus07.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.6
TO BE ANSWERED ON 22.11.2012

NEW NUCLEAR POWER PLANTS IN THE COUNTRY

6. SHRI PALVAI GOVARDHAN REDDY :

Will the PRIME MINISTER be pleased to state:

(a) whether it is a fact that the Ministry proposed to start work on 19 new nuclear power plants in the country;
(b) if so, details of the new nuclear plant;
(c) whether any resistance from the local people faced by the Ministry;
(d) if so, details of sites where Ministry received resistance and how is it planning to address the same;
(e) whether NPCIL has finalized raw-material and inputs for these plants; and
(f) if so, the details thereon?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a)&(b) Yes, Sir. The XII Plan proposals envisage start of work on 19 new nuclear power reactors in the XII Plan. The details are:

Project	**Location**	**Reactor Type**	**Capacity MW)**
Indigenous Reactors			
Gorakhpur, Units 1&2	Gorakhpur, Haryana	PHWR	2X700
Chutka , Units 1&2	Chutka, Madhya Pradesh	PHWR	2X700
Kaiga , Units 5&6	Kaiga, Karnataka	PHWR	2X700
Mahi Banswara, Units 1&2	Mahi Banswara, Rajasthan	PHWR	2X700
Fast Breeder Reactor Unit 1&2	Kalpakkam, Tamil Nadu	FBR	2X500
Advanced Heavy Water Reactor	Site to be decided	AHWR	300
LWRs with International cooperation			
Kudankulam Units 3&4	Kudankulam, Tamil Nadu	LWR	2X1000
Jaitapur Units 1&2	Jaitapur, Maharashtra	LWR	2X1650
Chhaya Mithi Virdi Units 1&2	Chhaya Mithi Virdi, Gujarat	LWR	2X1100
Kovvadda Units 1&2	Kovvada, Andhra Pradesh	LWR	2X1500

(c) There has been opposition by a section of people at some of the sites, mainly on issues of compensation, Resettlement & Rehabilitation (R&R) and apprehensions about safety of nuclear power plants.
(d) There have been sporadic instances of resistance by some sections of people at most of the new sites. Issues related to compensation and R&R are addressed and coordinated with the respective State governments. Upfront neighbourhood development activities have also been taken up at new sites. The apprehensions about safety of the plant, loss of livelihood etc. are addressed through a massive public outreach programme using multipronged approach.
(e)&(f) The fuel linkages for the proposed plants have been finalised. Fuel for reactors placed under IAEA safeguards is imported and reactors not under IAEA safeguards are fuelled by indigenous uranium.

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(http://dae.nic.in/writereaddata/rsus06.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.5
TO BE ANSWERED ON 22.11.2012

DELAY IN NUCLEAR SAFETY POLICY

5. DR. PRADEEP KUMAR BALMUCHU :

Will the PRIME MINISTER be pleased to state:

(a) whether it is a fact that Atomic Energy Regulatory Board (AERB) has been pointed out by Comptroller and Auditor General (CAG), the inordinate delay in preparing the nuclear safety policy;
(b) if so, the details thereof, and the reasons for such delay;
(c) whether it is also a fact that the AERB was given directions long before twice *vide* two panels in the year 1987 and 1997 for preparation of suitable policy expeditiously;
(d) the reasons for the delay; and
(e) the steps being taken by the Government for its early preparation?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY):

(a) Yes, Sir.
(b) Comptroller and Auditor General of India published its report on the performance audit of the activities of Atomic Energy Regulatory Board (AERB), wherein an observation has been made on the delay in preparation of the safety policy. In accordance with the Presidential orders dated 15 November 1983, constituting the AERB, the functions of AERB includes, as per clause 2(i), development of safety policies in both radiation and industrial safety areas, and further, as per clause 2(vi), evolving major safety policies based on safety criteria, recommended by IAEA and other international bodies, adopted to suit Indian conditions. Accordingly, the safety policies concerning the activities regulated by AERB are enshrined in the high level documents of AERB, namely the Atomic Energy (Radiation Protection) Rules, 2004, the mission statement and the various 'Codes' of AERB. These documents include the policies, principles and/or safety objectives that apply to the relevant activity/field and the specific regulatory requirements that are to be followed for fulfilling the same. The above principles and objectives form the broader policy of AERB for regulation of nuclear and radiation safety in the country. AERB has so far not felt the need for a single and separate 'Safety Policy' document, as these are well defined in the existing documents as explained above. Nevertheless AERB has agreed to the suggestion of CAG, to the extent of consolidating the existing policy objectives and higher level principles as brought out in various codes and other document into a separate 'Safety Policy' document.
(c) No, Sir.
(d) Does not arise in view of (c) above
(e) Indicated in (b) above.

(http://dae.nic.in/writereaddata/rsus05.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.4
TO BE ANSWERED ON 22.11.2012

SAFETY OF NUCLEAR POWER PLANT

4. SHRI A. ELAVARASAN :

Will the PRIME MINISTER be pleased to state:

(a) whether the Atomic Energy Regulatory Board (AERB) had reviewed the safety of all nuclear power plants in the country after the disaster at the nuclear plant in Fukushima, Japan and recommended various factors to be considered before loading fuel into the Kudankulam plant;
(b) if so, the details thereof;
(c) whether the AERB has faced criticism for agreeing to load the fuel without heeding the recommendations; and
(d) if so, the details thereof?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a)&(b) Yes Sir. The safety of Indian NPPs against external events was reviewed by the Atomic Energy Regulatory Board (AERB). AERB has also reviewed the plant specific assessments for establishing capabilities and margins for coping with severe natural events, such as earthquakes and floods and their possible effects, which inter alia include extended Station Black Out and non-availability of normal cooling water sources. AERB carried out special inspections of all the NPPs to assess the existing provisions and the preparedness of these plants to deal with such events. Accordingly, in the case of Kudankulam 1 & 2 plants, seventeen recommendations were made for implementation in different time frames. The implementation of these recommendations was not a precondition for initial fuel loading.

(c)&(d) Following its established process of regulatory review, AERB had granted clearance for initial fuel loading to unit-1 of Kudankulam Nuclear Power Plant (KKNPP) on August 10, 2012. This clearance was challenged in the Writ Petition 22253/2012 filed in the Hon'ble Madras High Court. The contention of the petitioner was that unless all the 17 post Fukushima safety enhancements recommended by Atomic Energy Regulatory Board for KKNPP are implemented, AERB should not have granted the clearance for initial fuel loading. In its counter affidavit, AERB submitted that the detailed safety review carried out for KKNPP indicated that KKNPP already has adequate safety measures and additional safety enhancements were recommended by way of abundant caution, and were agreed for implementation in a phased time-bound manner. Thus, the review and resolution of safety issues were completed before granting clearance for initial fuel loading. The Hon'ble

Madras High Court has dismissed the writ petition.

The judgment of the Hon'ble Madras High Court has been challenged in a Special Leave Petition (SLP No.27335/2012) filed in the Hon'ble Supreme Court of India. The matter is subjudice.

(http://dae.nic.in/writereaddata/rsus04.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.3
TO BE ANSWERED ON 22.11.2012

NUCLEAR REGULATORY PROCESS

3. SHRI NAND KUMAR SAI :
Will the PRIME MINISTER be pleased to state:

(a) whether nuclear regulatory process in the country has come under severe criticism from the Government auditor and activities in the recent past;
(b) if so, the details thereof;
(c) whether Government proposes to approach the global atomic watchdog IAEA to review its nuclear regulatory process;
(d) if so, the details in this regard;
(e) the details of the status of commissioning of first 1000 MW unit of the Kudankulam Nuclear Power Project; and
(f) the details of the expenditure so far incurred in the said unit?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a)&(b) The Comptroller and Auditor General of India issued its report on the performance audit of the activities of Atomic Energy Regulatory Board (AERB), wherein some observations and recommendations have been made. The report of CAG tabled in the Parliament has not made any allegation of impropriety on AERB; in fact it notes compliance with the procedures in respect of regulation of nuclear power plants and nuclear fuel cycle facilities. It has made recommendations for strengthening of regulatory control of radiation facilities. Currently, PAC is seized of the report and the point-wise response against each recommendation in CAG report has been submitted to PAC.

(c)&(d) Yes Sir. AERB has committed to get its regulatory process peer reviewed by the Integrated Regulatory Review Service (IRRS) mission of IAEA. As a first step, AERB decided to assess the readiness of AERB for IRRS mission by undergoing the detailed internal review of all the requirements of IRRS. In this regard, a committee was constituted in AERB with several working groups to meticulously review the existing system vis-à-vis the IAEA regulatory safety standards.

(e) Currently, fuel loading is completed in KKNPP-1 and preparation to first approach of criticality has reached its advanced stage. This reactor would attain criticality (start of the fission reaction for the first time) after AERB grants stage wise clearances by December 2012.

(f) Total expenditure incurred for KKNPP 1 & 2 upto October 2012 is ` 15,161 crore.

(http://dae.nic.in/writereaddata/rsus03.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.2
TO BE ANSWERED ON 22.11.2012

CIVIL LIABILITY UNDER NUCLEAR DAMAGES ACT, 2010

2. SHRI P. RAJEEVE:

Will the PRIME MINISTER be pleased to state:

(a) whether the 3rd and 4th units of Kudankulam Nuclear Power Plant will be covered under the Civil Liability for Nuclear Damages Act, 2010;
(b) if so, the details of the decision taken in this regard;
(c) whether any specific liability mechanism is framed by the Ministry for the damages of 1st and 2nd units; and
(d) if so, the details therefor?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) to (d) The matter is under consideration of the Government.

(http://dae.nic.in/writereaddata/rsus02.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO.1
TO BE ANSWERED ON 22.11.2012

POWERS OF THE ATOMIC REGULATORY BOARD

1. SHRIMATI VASANTHI STANLEY:

Will the PRIME MINISTER be pleased to state:

(a) whether the Ministry is planning to give more powers to the India's Atomic Energy Regulatory Board;
(b) if so, the details thereof; and
(c) if not, the reasons therefor?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a)&(b) Yes, Sir. The Government has introduced the Nuclear Safety Regulatory Authority (NSRA) Bill, 2011 in the Lok Sabha on 7 September 2011. Atomic Energy Regulatory Board (AERB) has functional independence and reports to the Atomic Energy Commission. By enacting the NSRA Act, the functional independence of AERB will be converted into de jure independence thereby addressing any public apprehensions about regulation of nuclear and radiation safety in India.
(c) Does not arise.

(http://dae.nic.in/writereaddata/rsus01.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
STARRED QUESTION NO. 346
TO BE ANSWERED ON 05.09.2012

ATOMIC POWER PLANTS

*346. SHRI JAGADANAND SINGH:

Will the PRIME MINISTER be pleased to state:

(a) the details of the atomic minerals mined/processed for production of nuclear energy, location-wise and State-wise;
(b) whether the Government is facing any difficulties/obstacles in setting up atomic power plants in various parts of the country including Nawada, Bihar; and
(c) if so, the details thereof and the reasons therefor along with the action taken/ being taken to remove such obstacles?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY)

(a) to (c) A statement is laid on the Table of the House.

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STATEMENT REFERRED TO IN REPLY TO LOK SABHA STARRED QUESTION NO.346 FOR ANSWER ON 05.09.2012 BY SHRI JAGADANAND SINGH REGARDING ATOMIC POWER PLANTS.

(a) Atomic Minerals Directorate for Exploration and Research (AMD), a constituent unit of Department of Atomic Energy, is engaged in survey and exploration activities of uranium and has established 1,84,446t *in-situ* uranium (U_3O_8) resources as on June, 2012.

The details of *in-situ* uranium resources established by AMD are as follows:

(tonnes U_3O_8)

AREA	**2009-10**	**2010-11**	**2011-12**	**2012-13 (As on June 2012)**	**Desposit Status (as on June 2012)**
RAJASTHAN					
Rohil Central	795	615	55		5, 185
Rhil North		381			381
MEGHALAYA					
Lostoin	7				771

Wahkut		573	588	619	1,780
Umthongkut		753	572	100	1,425
ANDHRA PRADESH					
Koppunuru	293				2,761
Peddagattu Extension	854		324		7,585
Chitrial	440	2,233	718	324	9,515
Tummalapalle-Rachakuntapalle	14,131	18,073	5,608	6292	72,181
KARNATAKA					
Gogi					4,267
JHARKHAND					
Singridungri-Banadungri			1,764	1977	3,741
Bangurdh			1,140	124	1,264
Turamdh (E)			265		3,750
Kanyaluka					1,970
Nimdih					815
Rajgoan					1,200
Total	16,520	22,628	11,034	9,436	

The mining/processing of these minerals is continuous process which is done in phased manner. Presently, the Uranium Corporation of India Ltd.(UCIL), a Public Sector Undertaking of Department of Atomic Energy is operating seven underground mines viz. Jaduguda, Bhatin, Narwapahar, Turamdih, Bagjata, Mohuldih, Tummalapalle and one opencast mine at Banduhurang; and two processing plants at Jaduguda and Turamdih, East Singhbhum Kharswan District, Jharkhand State and one at Tummalapalle in Andhra Pradesh.

(b)&(c) Difficulties have been faced in land acquisition and obtaining various clearances at new sites accorded 'in principle' approval by the Central Government. There have also been public protests on issues of rehabilitation, livelihood and apprehensions about safety of nuclear power etc. These were heightened by groups ideologically opposed to nuclear power. In this regard, Nuclear Power Corporation of India Limited (NPCIL) is working closely with the respective state governments to ensure attractive rehabilitation packages. A massive public outreach programme using a multi-pronged approach to address the apprehensions about loss of livelihood and safety of nuclear power in a credible manner has been launched. As far as the Rajauli site in Nawada, Bihar is concerned, the Bihar State Electricity Board has informed the Site Selection Committee (SSC) that cooling water in the required quantity cannot be provided for the proposed nuclear power plant.

(http://dae.nic.in/writereaddata/parl/lssq346.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO. 2987
TO BE ANSWERED ON 29.08.2012

Q. 2987 NUCLEAR POWER PLANTS

SHRI SATPAL MAHARAJ: SHRI JITENDER SINGH MALIK: SHRI RAMSINH RATHWA: DR. THOKCHOM MEINYA:	SHRI JAGADANAND SINGH: SHRI A.T. NANA PATIL: SHRI SURENDRA SINGH NAGAR:

Will the PRIME MINISTER be pleased to state:

(a) the details of the nuclear power plants in the country with installed capacity and funds spent in installation of these plants, State-wise and Plant-wise and the names of the companies, Indian and foreign, who have assisted in construction or otherwise of these plants;
(b) whether some of the State Governments have requested to set up nuclear power plants in their States;
(c) if so, the details thereof, State-wise and the reaction of the Government thereto;
(d) whether the Government proposes to open new nuclear power plants in the country in the years to come;
(e) if so, the details thereof, location wise, estimated cost and capacity of these plants and names of companies, Indian and foreign, helping in installation and other works of these plants;
(f) the steps taken/proposed to be taken by the Government for timely completion of the said plants; and
(g) whether the Government proposes to additional safety arrangements for Nuclear power plants in view of Fukushima incident and if so, the details thereof?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) There are 20 nuclear power reactors with a capacity of 4780 MW at six sites. The details are as under:

State	Location	Units	Capacity (MW)	Year of Commercial Operation	Completion Cost in crore	Companies & Countries involved
Maharashtra	Tarapur	TAPS-1&2	2 X 160	1969	92.99	GE, USA
		TAPS-3&4	2 X 540	2005 / 2006	5667.84	Indigenous
Rajasthan	Rawatbhata	RAPS 1&2	100 + 200	1973 / 1981	175.81	AECL, Canada**
		RAPS 3&4	2 X 220	2000	2511	Indigenous

		RAPS 5&6	2 X 220	2010	2362 *	
Gujarat	Kakrapar	KAPS 1&2	2 X 220	1993 / 1995	1366.68	
Uttar Pradesh	Narora	NAPS 1&2	2 X 220	1991 / 1992	723.62	
Karnataka	Kaiga	Kaiga 1&2	2 X 220	2000	2896	
Tamil Nadu	Kalpakkam	MAPS 1&2	2 X 220	1984 / 1986	245.87	

* Provisional, final cost is under certification

**RAPS-2 was set up partly in cooperation with AECL, Canada till 1974, when cooperation was abruptly withdrawn. The unit was completed with indigenous effort.

Legend: TAPS (Tarapur Atomic Power Station)
RAPS (Rajasthan Atomic Power Station)
KAPS (Kakrapar Atomic Power Station)
NAPS (Narora Atomic Power Station)
MAPS (Madras Atomic Power Station)

In addition, there are seven nuclear power reactors under construction at four sites. The details are as under:

State	**Location**	**Project**	**Capacity (MW)**	**Expected Start of Generation**	**Approved Cost (Crore)**	**Companies & Countries involved**
Tamil Nadu	Kudankulam,	KKNPP 1&2	2 X 1000	October 2012 & June 2013	13171 *	ASE, Russian Federation
	Kalpakkam,	PFBR	500	2015-16	5677	Indigenous
Gujarat	Kakrapar,	KAPP 3&4	2 X 700	2015-16	11459	
Rajasthan	Rawatbhata	RAPP 7&8	2 X 700	2016-17	12320	

* Cost is under revision to 17270 crore

Legend: KKNPP (Kudankulam Nuclear Power Project)
PFBR(Prototype Fast Breeder Reactor)
KAPP (Kakrapar Atomic Power Project)
RAPP (Rajasthan Atomic Power Project)

The indigenous reactors have been designed by Department of Atomic Energy (DAE) / Nuclear Power Corporation of India Limited (NPCIL). Several Indian companies both in the public and private sector have supplied various components/ equipment and executed works in setting up of these units. Some of the major companies (not an exhaustive list) are BHEL, ECIL, MIDHANI, DLW, BPCL, L&T, HCC, WIL, Godrej, MTAR, KBL, KSB, Dodsal and Gammon India.

(b) Yes, Sir.

(c) Many states had offered sites for setting up of nuclear power plants. These include Andhra Pradesh, Bihar, Gujarat, Haryana, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Odisha,

Rajasthan, Tamil Nadu, Uttarakhand and West Bengal. The sites offered by respective State Governments were evaluated by the Site Selection Committee (SSC) of the Government, in accordance to the criteria laid down in the code of siting by Atomic Energy Regulatory Board (AERB). Those sites which met the criteria and found suitable were recommended by the SSC, and were accorded in-principle approval by the Government in October 2009 and July 2011. The details in this regard are as under:

State	Site	Capacity (MW)
Andhra Pradesh	Kovvada	6 X 1000 *
Gujarat	Chhaya Mithi Virdi	6 X 1000 *
Haryana	Gorakhpur	4 X 700
Karnataka	Kaiga (Kaiga 5&6)	2 X 700
Madhya Pradesh	Chutka	2 X 700
	Bhimpur	4 X 700
Maharashtra	Jaitapur	6 X 1650
Rajasthan	Mahi Banswara	4 X 700
Tamil Nadu	Kudankulam (KK 3 to 6)	4 X 1000
West Bengal	Haripur	6 X 1000

*Nominal Capacity

In the recent past, Haryana has offered additional new sites for setting up of nuclear power plants, which are being evaluated by the SSC.

(d) Yes, Sir.
(e) The XII Five Year Plan proposals envisage start of work on 19 new nuclear power reactors in the XII Five Year Plan. The details are:

Project	Location & State	Capacity (MW)	Companies Assisting in setting up
Indigenous Reactors			
Gorakhpur 1&2	Gorakhpur, Haryana	2 x 700	Designed by NPCIL, Indian Companies
Chutka, 1&2	Chutka, Madhya Pradesh	2 x 700	
Mahi Banswara, 1&2	Mahi Banswara, Rajasthan	2 x 700	
Kaiga, 5&6	Kaiga, Karnataka	2 x 700	
FBR 1&2	Kalpakkam, Tamil Nadu	2 x 500	BHAVINI, Indian Companies
AHWR	Location to be decided	300	BARC, Indian Companies
Reactors with International Cooperation			
Kudankulam, 3&4	Kudankulam, Tamil Nadu	2 x 1000	ASE, Russia
Jaitapur, 1&2	Jaitapur, Maharashtra	2 x 1650	Areva, France
Kovvada, 1&2	Kovvada, Andhra Pradesh	2 x 1500	GEH, USA
Chhaya Mithi Virdi, 1&2	Chhaya Mithi Virdi, Gujarat	2 x 1100	WEC, USA

Several Indian Companies participate in the setting up of Indigenous reactors as well as reactors planned to be set up with international cooperation. The cost estimates of these reactors will emerge on finalisation of the project proposals.
(f) Pre-project activities like land acquisition, Environmental Impact Assessment (EIA) for obtaining environmental clearance and other studies for site evaluation, public outreach activities etc. have been taken up at these sites. Multi-tier monitoring mechanisms at NPCIL and Government level, with periodic reviews, are in place to ensure effective monitoring of schedules.

(g) The post Fukushima safety reviews of Indian nuclear power plants by the task forces of NPCIL and a committee of AERB have found that the Indian nuclear power plants have sufficient margins and features in design to withstand extreme natural events like earthquakes and Tsunamis. Recommendations of these reviews have been made to enhance the safety in Indian nuclear power plants to a higher level. The recommendations include augmentation of cooling water inventories and provisions for additional hook up arrangements through external sources, increasing the duration of the passive power sources/battery operated devices for monitoring important parameters for a longer duration, automatic reactor shutdown, sensing seismic activity, inerting (filling up of the containment with nitrogen) of the TAPS-1&2 containment and revision of Emergency Operating Procedures (EOPs) and structured training programs to plant personnel on modified EOPs.

(http://dae.nic.in/writereaddata/lsus2987.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.2932
TO BE ANSWERED ON 29.08.2012

NUCLEAR LIABILITY ACT

2932. SHRI MANISH TEWARI:

Will the PRIME MINISTER be pleased to state:

(a) whether the Indian Civil Nuclear Liability Act conform to the 5 guiding principles of the Convention on Supplementary Compensation (CSC) for nuclear damage, (i) channelling all legal liability for nuclear damage exclusively to the operator; (ii) imposing liability on the operator without need to demonstrate fault, negligence or intent; (iii) granting exclusive jurisdiction to the counts of the country where a nuclear incident occurs; (iv) permitting liability to be limited in amount and time; and (v) compensating damage without any dissemination based upon nationality, domicile or residence and if so, the details thereof;
(b) whether it is a pre-requisite for signing and then ratifying the CSC that Indian domestic law must be in conformity with the CSC and whether there is a perceived divergence who would arbitrate to determine the differences;
(c) if so, the details thereof;
(d) whether these differences perceived or real are likely to impact civil nuclear commerce with supplier nations especially the USA and if so, the details thereof;
(e) whether India intend to ratify the CSC it signed on 27.10.2011; and
(f) if so, the details thereof?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) The Civil Liability for Nuclear Damage Act, 2010 takes into account the guiding principles of the Convention on Supplementary Compensation for Nuclear Damage (CSC).
(b)&(c) Article XVIII of the CSC states that an instrument of ratification, acceptance or approval shall be accepted only from a State which is a Party to either the Vienna Convention or the Paris Convention, or a State which declares that its national law complies with the provisions of the CSC provided that, in the case of a State having on its territory a nuclear installation as defined in the Convention on Nuclear Safety of 17 June 1994, it is Contracting State to that Convention.
(d) Since the Civil Liability for Nuclear Damage Act, 2010 takes into account the guiding principles of the CSC, the question does not arise.
(e)&(f) Ratification would be possible after completion of necessary procedures.

(http://dae.nic.in/writereaddata/lsus2932.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.2929
TO BE ANSWERED ON 29.08.2012

PROTEST OVER NPP

2929. SHRI NARAHARI MAHATO:
SHRI MANOHAR TIRKEY:
SHRI NRIPENDRA NATH ROY:

Will the PRIME MINISTER be pleased to state:

(a) whether the Government proposes to establish a nuclear plant in Gorakhpur village of Fatehabad district in Haryana;
(b) if so, the details thereof;
(c) whether land owners of the proposed site have refused to accept compensation of Rs. 46 lakh per acre; and
(d) if so, the details thereof and the reasons therefor along with the steps taken/being taken by the Government in this regard?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) Yes, Sir.
(b) The site at Gorakhpur, District Fatehabad, in Haryana was accorded 'in principle' approval by the Central Government in October, 2009 for locating four nuclear power reactors, each of 700 MW capacity. The land acquisition for the project (4X700 MW) has already started.
(c) No, Sir. As of August 22, 2012, 539 of the 853 landowners, whose land is being acquired, have accepted the compensation cheques.
(d) Does not arise.

(http://dae.nic.in/writereaddata/lsus2929.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.2791
TO BE ANSWERED ON 29.08.2012

FUNDS TO INSTITUTIONS

2791. SHRI AHIR VIKRAMBHAI ARJANBHAI MAADAM:

Will the PRIME MINISTER be pleased to state:

(a) the details of the institutions funded by the department of Atomic Energy and the amount of plan and non-plan funds allocated to them during the last three years and the current year, year-wise;
(b) the details of achievements made by each of such institutions during the said period, institution-wise and year-wise;
(c) whether such achievements are of international repute; and
(d) if so, the details thereof?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) Details are given in Annexure-1
(b) Details are given in Annexure-2
(c) Yes, Sir. The achievements of all DAE aided scientific institutions are of international repute.
(d) Details included in Annexure-2.
*****
Annexure-1
The Aided Institutions under DAE are:
1. Tata Institute of Fundamental Research (TIFR), Mumbai
2. Tata Memorial Centre (TMC), Mumbai
3. Saha Institute of Nuclear Physics (SINP), Kolkata
4. Institute of Physics (IoP), Bhubaneswar
5. Institute of Mathematical Sciences (IMSc), Chennai
6. Harish Chandra Research Institute (HRI), Allahabad
7. Institute for Plasma Research (IPR), Gandhinagar
8. National Institute of Science, Education and Research (NISER), Bhubaneswar
9. Atomic Energy Education Society (AEES), Mumbai

Details of Grants given to Aided Institutions under DAE
for the period 2009-10 to 2012-13 under Plan and Non-Plan

(Rs in crores)

		Aided Institutions								
Sr. No.	Years	TIFR	TMC	SINP	IOP	IMS	HRI	IPR	NISER	AEES
1	2009-10									
	Plan	168.32	56.25	81.50	14.00	3.62	9.00	250.00	32.00	12.90
	Non Plan	198.05	140.79	52.67	14.54	21.18	14.32	.30	0.00	34.64
	Total	366.37	197.04	134.17	28.54	24.80	23.32	298.30	32.00	47.54
2	2010-11									
	Plan	196.11	77.17	70.00	5.49	2.50	6.00	338.00	23.00	10.00
	Non Plan	195.00	217.60	46.90	12.47	25.00	14.43	44.63	0.00	32.74
	Total	391.11	294.77	116.90	17.96	27.50	20.43	382.63	23.00	42.74
3	2011-12									
	Plan	150.50	74.00	51.42	12.70	1.39	5.34	401.00	210.00	2.25
	Non Plan	208.58	205.99	58.77	16.19	26.00	15.85	50.64	0.00	41.05
	Total	359.08	279.99	110.19	28.89	27.39	21.19	451.64	210.00	43.30
4	2012-13 (In progress) *									
	Plan	193.19	77.95	92.80	4.35	2.90	20.10	606.04	220.00	17.50
	Non Plan	210.49	170.19	60.70	17.35	28.51	17.11	55.18	0.00	44.44
	Total	403.68	2.14	153.50	21.70	31.41	37.21	661.22	220.00	61.94

* Budget Estimates

Annexure -2

The Department of Atomic Energy has been funding nine Aided Institutions which are primarily research and education institutions. These Institutions are an integral part of the Department in as much as there is a growing synergy between these institutions and the Research and Development Units of the Department. Several joint projects have been undertaken between the Units and Aided Institutions and there is frequent interaction between the academicians of the aided institutions and the scientists of the R&D Units. These institutions are dedicated to fundamental / basic research and academic activities and have been fountainhead of knowledge and its applications in disciplines of interest to the Indian Atomic Energy Programme. They have excelled themselves at International level. The R&D works carried out by these institutions get published in reputed National and International Journals regularly and are well acclaimed. They are also cited as reference materials.

Some important achievements of the nine Institutions during the last three years, institution wise, are given hereunder:

Tata Institute of Fundamental Research (TIFR), Mumbai

- Publication of around 1500 scientific papers in journals, 500 papers in proceedings, and 100 in books/chapters during the last three years.
- The number of students and postdoctoral fellows increased significantly to approximately 500 and 100 respectively.

- Homi Bhabha Centre for Science Education (HBCSE) is the nodal institute for the International Science Olympiads and Indian students trained at the HBCSE orientation camps have won 39 gold medals between 2009 and 2012.
- Foundation of a new campus of TIFR and a new Centre for Interdisciplinary Sciences (TCIS) in Hyderabad.
- Participation of TIFR, as host Institute, in the large multi-institutional project to establish the India-based Neutrino Observatory (INO) in Tamilnadu.
- Setting up of the International Centre for Theoretical Sciences (ICTS) at Bengaluru.
- Three high end instruments Large Area Xenon Proportional Counter (LAXPC), Cadmium Zinc Telluride Imager (CZTI) and Soft X-ray Telescope (SXT) for the Indian Astronomy satellite ASTROSAT are undergoing final tests.
- A five teraflop IBM blue-gene supercomputer facility was set up and reliable estimates of the crossover temperature and critical point in quantum chromo-dynamics were computed to provide important guides to the design of experiments worldwide.
- A novel optical design allowed Bose-Einstein condensates of cold atoms to form, and optical lattices to hold very large numbers of atoms.

- In the biological sciences, exquisitely sensitive light microscopy was used to show how domains of proteins are organized on the membrane of the cell, leading to long-range signalling capability.
- In mathematics, work done on the geometry of moduli spaces was a substantial advance in the field. The existence and qualitative properties of solutions of partial differential equations were established in a number of cases in Euclidean and other geometries
- In Computer and Systems Science, secure wireless communication capacity in the presence of wire trapped erasures with malicious adversaries was characterised.
- In theoretical physics, a profound connection was established between the classical theory of gravity and the Navier-Stokes equations of fluid dynamics.

Tata Memorial Centre (TMC), Mumbai

- Internationally well recognized cancer treatment institution, having received awards from several international/national fora
  - CFBP Jamnalal Bajaj Uchit Vyavahar Puraskar, 2009.
  - Gloden Peacock Innovation Award for the year 2010 for Tata Memorial Centre - 2010
  - The Zee News Swastha Bharat Samman was conferred upon Tata Memorial Hospital in the special category 'healing with human touch'. – 2010.
  - International Peer Review 2010
  - In a year on an average TMC handles 50000 new cases and 3,50,000 follow-up cases
- Investments in clinical research has resulted in path breaking outcome that has the capability of saving thousands of lives in India and globally at a minuscule cost of 100/- (presented at the prestigious San Antonio meeting held in 2009-10 and published in the leading publication, Journal of Clinical Oncology 2011).
- Using indigenous Telecobalt machine "Bhabhatron-II" manufactured in conjunction with BARC, treated more than 16000 patients. This machine has been donated to Vietnam, Srilanka and other developing countries through IAEA.

- Contributing to more than 60% of national oncology human resources and presently have more than 100 students annually trained in Oncology and allied specialties.
- Running the world's largest single screening trial testing low cost implementable technology for early detection of Breast and Cervical cancers in women supported by NCI, USA as a model intervention for developing world.
- Developing affordable stainless steel implant TMH-NICE, designed for Indian anthropometric parameters in collaboration with a local implant manufacturer, which is available at one tenth of the cost of the imported prosthesis (USD 10,000 – 30,000).
- The largest number of bone-marrow transplants for oncology being performed for poor and middle class patients.

- Department of Cytopathology developed an innovative, easy rapid and inexpensive alternative technology DAM that is at par with Liquid Base Cytology (LBC) and costs only 2/- per test.
- TMH ran a study to understand causes of death in India and contribution of cancer in such cases. This is the land mark Million Death Study published in the Lancet in March 2012 and has given insight for change in public health policy to look after Tobacco, infection (personal hygiene) and obesity.
- TMC District Cancer Control Programme has been featured in the UICC International Union Against Cancer Manual to become a bench mark model Cancer Control Programme
- The institute has around 350 on going research projects and more than 1200 publications

Saha Institute of Nuclear Physics (SINP), Kolkata

- Scientists of SINP, about 130 in numbers, publishes about 250 papers every year in top ranking international journals with average citation of around 4 per paper. During 2011-12, 285 papers have been published with >35 of them in journal with impact factor > 5.0

- SINP scientists have taken active initiative in structural genomics and proteomics research in hematological and neurodegenerative diseases. Gene therapy of chronic myeloid leukemia and structural elucidation of two important hemoglobin variants, implicated in thalassemia have been done

- SINP has taken responsibility of developing two beamlines for x-ray scattering research, one in Photon Factory synchrotron, Japan and other in INDUS-2 synchrotron, Indore. SINP is also the nodal institute for Indian access to PETRA-III synchrotron at DESY, Germany

- Scientists from SINP have been a part of the International collaboration ALICE for the Study of Quark Gluon Plasma at Large Hadron Collider (LHC) in CERN, Geneva in building of the second tracking station of the Dimuon spectrometer project for this experiment.

  Dark matter search experiment in PICASSO at SNOLab, Canada.

- SINP has also joined now the CMS collaboration of CERN and made significant contribution in Higgs Boson search

- SINP have recently taken an initiative to work in the new area of Econophysics that deals with application of natural science techniques to understand economics and social phenomena

- MoU between SINP and Department of Physics, Cavendish Laboratory, University of Cambridge and Cambridge Commonwealth Trust for joint Ph.D. programme

Institute of Physics (IoP), Bhubaneshwar

- Carrying out research work on the effect of random force on a double-stranded DNA in unzipping its two strands attracting a lot of attention in the International community.

- Several new theoretical models have been proposed to enhance the efficiency of nanomachines and engines at nanoscale. Some of them were experimentally verified in international laboratories.

- Several important studies were performed on interacting many body systems such as traffic flows, data transmission over a network, and granular materials.

- IoP is a hub of energetic ion beam induced materials research in the country

- A new ion beam analysis end station has been established for depth profiling of hydrogen to uranium which is unique in the country.

- Establishing state-of-the-art facilities for pursuing cutting edge materials research, catering to the needs of several institutions and universities across India.

- Prediction of a new model of fission decay, viz., multi fragmentation fission which will have enormous applications in future nuclear energy production

- Publication of around 242 research papers, which is very significant.

Institute of Mathematical Sciences (IMSc), Chennai

- Internationally recognized Mathematical Research Institute, doing research in the areas of Mathematics, spanning number theory, algebraic geometry, mathematical physics, non-commutative geometry and topology – attracting a significant number of bright Ph.D. students to its programmes

- Continued research and education programmes in the field of Theoretical Physics, Mathematics and Theoretical Computer Science, scientific subjects covering a wide range of fields from understanding the structure of the universe to understanding how small organisms such as bacteria swim.

- Publication of around 174 scientific papers, mainly in the international journals

- Recognition received by IMSc faculty includes Bhatnagar Award, Fellowships of National Science Academy, Plenary Lecture at the International Congress of Mathematicians (ICM 2010), the award of the Chevalier de l'order of Merit of the French Government

Institute for Plasma Research (IPR), Gandhinagar

- Undertakes research in fundamental plasma science, its applications and fusion research, contributed immensely as demonstrated through publications in peer-reviewed, reputed journals and doctoral theses.

- India's joining of International Thermonuclear Experimental Reactor (ITER) programme at Cadarache, France

- India's joining a select club of nations who will carry out a unique experiment on ITER to prove fusion-blanket technology, which will help accelerate the indigenous development of fusion based power plants.

- Indigenous development of Reduced Activation Ferritic Martensitic Steel (RAFMS)

- Indigenous development of superconducting cable-in-conduit conductor for building large size, high field magnets

- Essential components for a large capacity (50000 lps) Cryo pump have been indigenously developed

- Published 449 papers, filed for about 10 patents and generated 15 Ph.D. dissertations.

- Conducting several international collaborative programmes and exchange programmes.

Harish Chandra Research Institute (HRI), Allahabad

- HRI carries out research in the fields of Mathematics, especially in the areas of algebra, theory group and group rings, representation theory and infinite dimensional Lie algebra. In the field of physics research work is carried out on astrophysics, condensed matter physics, quantum information and computing, high energy phenomenology and string theory.

- The research papers published from the Institute are well recognized and a good number of researchers/scientists are recipients of SS Bhatnagar Awards and are Members of the National Science Academies. The publications of this Institute have high impact factor with high average citation for the publications are very high. The total number of publications in Mathematics is 64 and 196 in physics in the last three years.

Atomic Energy Education Society (AEES), Mumbai

- Under AEES there are 30 Schools/Jr.College imparting education to the children/wards of DAE employees at different DAE/NPCIL sites.

- The results of AEES for 10th standard CBSE Board are best in the country for last three years and every year on an average about 500 students get admission in professional institutes of high repute.

- AEES also has international collaboration for student exchange programme in Singapore Schools and teachers exchange programme with a few schools in UK.

- AEES provides academic support for Indian students at Monasque, France under ITER programme.

- Introduction of innovative schemes and providing facilities to impart high quality education and holistic development of students like, (i) Computer education for all ; (ii) Libraries with digital facilities; (iii) Play grounds and sports complex; (iv) High quality science education and well equipped laboratories; (v) Programmes for co-curricular development of students (vi) Satellite based education (vii) Inclusive education for all children.

(viii) Talent Nurture Programme for rural and tribal children by providing free education up to 12th standard (ix) Utilization of information technology for world class education (x) creation of science parks, adventure parks and botanical gardens in all schools (xi) obtaining ISO certification for Junior College, Mumbai (xii) Financial support for community education and creation of community radio station.
• Academic excellence is ensured including participation of students in the various Olympiads.

National Institute of Science Education and Research, Bhubaneswar

• Established in 2007, on the lines of IISERs, NISER's objective is to conduct five year integrated M.Sc. programme for students after 10+2 higher secondary schooling.
• The objective of this programme is to integrate these further into Ph.D. programme on the one hand and providing high quality research scientists through various R&D organizations.
• Conducting five year integrated M.Sc. programmes in the emerging core branches of basic sciences, viz., Physics, Chemistry, Mathematics and Biology.
• From 2007 to 2012, 284 students admitted for the five year integrated programme and 89 students are carrying out research towards Ph.D programme.
• The first batch of 35 students has graduated in the year 2012. Out of this 11 are going abroad to pursue PhD programmes with fellowships from esteemed places like Stanford, Carnegie Mellon, Pennsylvania, Chicago, Stony Brook etc. 15 students have opted for premier Indian institutions [Tata Institute of Fundamental Research (TIFR), Mumbai, Indian Institute of Science (IISc), Bangalore, National Institute of Immunology, Delhi and various IITs] for pursuing Ph.D. programmes.
• The faculty members of NISER have published around 100 academic papers in high impact journals (both National and International). Students have published thirteen publications in the peer reviewed journals.
• A patent entitled 'Novel Porphyrin Derivates for Photodynamic Therapy (PDT): A process for the preparation thereof and their use as PDT agents and fluorescence probes for biological applications' by Prof. T.K.Chandrasekhar, Director, NISER and Dr.A.Srinivasan, Associate Professor, NISER etc., 2011 submitted to CSIR for filing in India and abroad.
• Admission to the programmes through common national entrance tests
• Providing excellent academic facility to the students temporarily in the IoP campus at Bhubaneswar. The new campus is coming up in an area of 300 acres, at Jatni near Bhubaneswar

(http://dae.nic.in/writereaddata/lsus2791.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.2765
TO BE ANSWERED ON 29.08.2012

PROCUREMENTS BY NUCLEAR PLANTS

2765. SHRI HARISHCHANDRA CHAVAN:

Will the PRIME MINISTER be pleased to state:

(a) whether the Comptroller and Auditor General (CAG) has recently found that most of the procurements made by nuclear plants were given out to a single or limited vendors;
(b) if so, the details thereof and the reasons therefor;
(c) whether the CAG has asked the Department of Atomic Energy to stop such secretive purchases; and
(d) if so, the steps that are being taken to make the procurement process more fair and transparent in the nuclear energy sector?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) The Comptroller and Auditor General of India (CAG) conducted Performance Audit of procurement of stores and inventory management of the units of Department of Atomic Energy and has submitted a report (No.13 of 2010-11). The report does not cover procurement relating to nuclear power plants. The report has, inter-alia, pointed out that 94% of procurements made by the Department were based on restrictive mode of tendering (single / limited tenders) and as such could achieve only limited competition.

(b) The research organisations of the Department of Atomic Energy (DAE) like Bhabha Atomic Research Centre (BARC), Indira Gandhi Centre for Atomic Research (IGCAR), Raja Ramanna Centre for Advanced Technology (RRCAT), etc. have many small projects for carrying out research and development work. The value of indents raised for such small projects is quite often less than 25 lakhs and to give statistics around 94% to 97% indents raised from such organisations are of value less than 25 lakhs. Therefore, in line with the provisions of Rule 151 of General Financial Rules, 2005 (GFR 2005) they are processed by way of limited tenders. The indents with estimated value of above 25 lakhs are regularly processed through public tenders except in some specific cases wherein sensitivity of data in the specifications for the indents for secret and sensitive projects are involved or in case of urgency which are duly approved by the Competent Authority. Although the number of indents processed through public tender is 3 to 6%, the total value of indents processed by public tender was about 60% during the period from 2002-03 to 2007-08 from Central Purchase Unit (Mumbai) of DPS

(c) No, Sir.

(d) The procurements of nuclear energy sector are handled by Nuclear Power Corporation of India Limited (NPCIL). For the procurements by the Department, instructions have been issued to Directorate of Purchase & Stores to review all related issues to reduce number of single / limited tenders. Instructions have also been issued to expedite e-procurement wherever feasible to ensure transparency, competitiveness and efficiency in procurements.

Consequently, Directorate of Purchase and Stores has stopped granting of public tender dispensation based on urgency and all tenders above Rs. 25 lakhs are issued as public tenders except those for sensitive and secretive items. DPS puts all its public tenders on the DPS website. DPS website is linked to Central Public Procurement Portal (CPP Portal) through DAE website. DPS commenced e-tendering from one of its units (Madras Regional Purchase Unit, Chennai) from January 2010 and expanded it to other regional units and Head Quarters. As of now more than 11,000 tenders have been floated by way of e-tendering from DPS Head Quarters and its Regional Units.

(http://dae.nic.in/writereaddata/lsus%202765.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
STARRED QUESTION NO. 259
TO BE ANSWERED ON 29.08.2012

COMPENSATION IN ATOMIC ACCIDENTS

* 259. DR. MURLI MANOHAR JOSHI:
SHRI DINESH CHANDRA YADAV:

Will the PRIME MINISTER be pleased to state:

(a) the details of the guidelines/rules which govern the amount of compensation in the event of an atomic mishap/accident;
(b) the details of atomic power generating projects functioning in the country as on 31 July, 2012 along with the names of the countries with whose assistance, financial/technical, these projects were set up;
(c) whether the said foreign countries owe responsibility and have agreed to compensate in case of accidents; and
(d) if so, the details thereof and the steps taken/being taken by the Government in this regard?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY)

(a) to (d) A statement is laid on the Table of the House.

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STATEMENT REFERRED TO IN REPLY TO LOK SABHA STARRED QUESTION NO.259 FOR ANSWER ON 29.08.2012 BY DR. MURLI MANOHAR JOSHI AND SHRI DINESH CHANDRA YADAV REGARDING COMPENSATION IN ATOMIC ACCIDENTS.
(a) The compensation in case of any nuclear incident will be decided as per provisions of Civil Liability for Nuclear Damage Act, 2010 and Rules framed thereunder.

(b) The details of nuclear power stations functioning at the end of July 2012 are as follows:-

Site	**Units**	**Capacity (MW)**	**Set up in cooperation with (Country)**
Tarapur, Maharashtra	Tarapur Atomic Power Station (TAPS), Units 1&2	2X160	USA
	Tarapur Atomic Power Station	2X540	Completely Indigenous

	(TAPS), Units 3&4		
Rawatbhata, Rajasthan	Rajasthan Atomic Power Station (RAPS), Units 1&2	100+200	Canada*
	Rajasthan Atomic Power Station (RAPS), Units 3 to 6	4X220	Completely Indigenous
Kalpakkam, Tamil Nadu	Madras Atomic Power Station (MAPS), Units 1&2	2X220	
Narora, Uttar Pradesh	Narora Atomic Power Station (NAPS), Units 1&2	2X220	
Kakrapar, Gujarat	Kakrapar Atomic Power Station (KAPS), Units 1&2	2X220	
Kaiga, Karnataka	Kaiga generating Station (KGS), Units 1to 4	4X220	

*RAPS Unit-1 is under extended shutdown since October 2004 for techno-economic assessment for continuation of operations.
RAPS Unit-2 was set up partly in cooperation with AECL, Canada till 1974, when cooperation was abruptly withdrawn. The unit was completed with indigenous effort.

(c)&(d) TAPS Units 1&2 started commercial operation in 1969 and RAPS Units 1&2 in 1973 and 1981 respectively. The Civil Liability for Nuclear Damage Act 2010 came into force on November 11, 2011. Therefore, the provisions of the Act related to the operator's Right to Recourse are not applicable in case of these units.

(http://dae.nic.in/writereaddata/lssq259.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.1797
TO BE ANSWERED ON 22.08.2012

CAPACITY OF ATOMIC PLANTS

1797. SHRI CHANDU LAL SAHU:
KUMARI SAROJ PANDEY:

Will the PRIME MINISTER be pleased to state:

(a) whether a number of atomic power plants are not working to their optimum capacity;
(b) if so, the details thereof and reasons therefor, plant-wise;
(c) the capacity utilization factor of each of the plant during the last three years and the current year, year-wise, plant-wise and the loss of power generation in terms of million units in these plants;
(d) the effective steps taken/being taken by the Government in this regard;
(e) whether some of the under construction Nuclear Power Plants are running behind the schedule and there is a possibility of time overrun in completion of these Nuclear Power Plants; and
(f) if so, the details thereof and the reasons therefor along with the steps taken/ being taken by the Government in this regard?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) Yes, Sir.
(b) Out of 20 nuclear power reactors with an installed capacity of 4780 MW, presently one reactor (Rajasthan Atomic Power Station (RAPS), Unit-1- 100 MW) is under extended shut down since October 2004 for techno-economic assessment for continued operation. Of the 19 reactors in operation, ten reactors with a capacity of 2840 MW comprising Kaiga Generating Station (KGS), Units 1 to 4 (4x220MW), Narora Atomic Power Station (NAPS), Units 1&2 (2x 220 MW), Madras Atomic Power Station (MAPS), Unit 1&2 (2x 220 MW) and Tarapur Atomic Power Station (TAPS), Unit 3&4 (2x540 MW) are fuelled by indigenous uranium, which is not available in the required quantity.
These are accordingly operated at comparatively lower power levels matching the fuel supply. The remaining 9 reactors which are under International Atomic Energy Agency (IAEA) safeguards use imported fuel and are operating at rated capacity.
(c) The details of Capacity factors (%) of each of the Units using domestic fuel during the last three years and the current year are as follows:-

Units	**Capacity MW**	**2009-10**	**2010-11**	**2011-12**	**2012-13 upto July**
TAPS-3	540	59	76	91	93
TAPS-4	540	58	66	59	85

MAPS-1	220	49	65	64	75
MAPS-2	220	58	51	66	67
NAPS-1	220	42	64	54	65
NAPS-2	220	-	61		61
KAIGA-1	220	52	65	66	77
KAIGA-2	220	58	51	71	61
KAIGA-3	220	58	69	64	77
KAIGA-4	220	-	78	69	72

Notes: NAPS-2 was shut down for Renovation & Modernization from 18.12.2007 to 06.09.2010. Kaiga-4 commenced commercial operation on 20.01.2011.

In addition to the above units, Rajasthan Atomic Power Station(RAPS), Units 3&4 and Kakrapar Atomic power Station (KAPS), Unit 1&2 which are presently under IAEA safeguards, were also fuelled by indigenous uranium prior to their placement under IAEA safeguards in 2010-11. The notional loss of generation, considering a possible capacity factor of 85% has been 7658, 67, 4329 and 680 Million Units in 2009-10, 2010-11, 2011-12 and 2012-13 (upto July), respectively, as a result of mismatch in demand-supply of indigenous fuel.

(d) The Central Government has taken steps to augment supply of domestic uranium by opening of new mines and processing facilities. This has resulted in improvement in domestic uranium supply, which is evident in the increasing capacity factors of the units using domestic fuel supplies.

(e) Kudankulam Nuclear Power Plants, Units 1&2 (2x1000 MW) project was initially scheduled to be completed in Decemebr 2008. This however, got delayed because of various reasons including public unrest at the site. The first unit of this project is now scheduled to be operational by October 2012 and second unit is also closely following. Completion of the Prototype Fast Breeder Reactor (PFBR) has been rescheduled to September 2014.

(f) The Kudankulam project is being set up in technical cooperation with the Russian Federation. The project was initially delayed due to non sequential receipt of equipment from the Russian Federation and subsequently due to local protests impeding the work during September 2011 to March 19, 2012. The Government has taken steps to allay the legitimate apprehensions of the local people. The work has resumed round the clock since March 20, 2012.

(http://dae.nic.in/writereaddata/lsus1797.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.1762
TO BE ANSWERED ON 22.08.2012

USE OF DEUTERIUM

1762. SHRI K. SUDHAKARAN:

Will the PRIME MINISTER be pleased to state:

(a) whether there is any proposal with the Heavy Water Board to collaborate with academic institutions for research and commercial activities due to the emerging potential of use of deuterium in various non-nuclear applications;
(b) if so, the institutions and the Research and Development centres identified for the same including those in Kerala; and
(c) the financial involvement under such scheme?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) No, Sir.
(b)&(c) Do not arise.

(http://dae.nic.in/writereaddata/lsus1762.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.1721
TO BE ANSWERED ON 22.08.2012

THORIUM RESERVE

1721. SHRI L. RAJA GOPAL:

Will the PRIME MINISTER be pleased to state:

(a) whether Andhra Pradesh has the highest Monazite mineral reserves in the country;
(b) if so, the details thereof and the quantum of thorium that can be extracted from the above reserves;
(c) the steps taken/being taken by the Government to exploit these reserves; and
(d) the projects requirement of thorium by 2020?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) Yes Sir.

(b) Exploration activities carried out by Atomic Minerals Directorate for Exploration and Research (AMD), a constituent unit of the Department of Atomic Energy (DAE), has resulted in establishing 3.74 million tonnes of Monazite in Andhra Pradesh which contains about 3,36,600 tonnes of thorium oxide equivalent to 2,96,000 tonnes of thorium metal.
(
c) The said reserves are explored and established.

(d) Indian three stage nuclear power programme is aimed at long term energy independence including use of thorium resources in the third stage. In order to realise this goal, presently, the first stage of the programme is accomplished through the nuclear reactors based on natural uranium fuel. The second stage envisages setting up of Fast Breeder Reactors. A Prototype Fast Breeder Reactor is planned at Kalpakkam. The utilisation of thorium would be technically possible only in the third stage. Since the country is still in the first stage of the nuclear power programme, the requirement of Thorium by 2020, is quite modest.

(http://dae.nic.in/writereaddata/lsus1721.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.1709
TO BE ANSWERED ON 22.08.2012

STRENGTHENING OF OVERSIGHT PROCESS

1709. SHRI MANISH TEWARI:

Will the PRIME MINISTER be pleased to state:

(a) the steps taken by the Government as a follow up to the Seoul Communiqué adopted at the 2012 Nuclear Security Summit to further strengthen the oversight processes over nuclear material in India;

(b) whether the Government subscribes to the Convention on the Physical Protection of Nuclear Material (CPPNM) and the International Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT);

(c) if so, the details thereof;

(d) whether the Government is equipped with Nuclear Forensics to track the origin in illicit nuclear devices or other radioactive materials which could be used for terrorist purposes;

(e) if so, whether the Government envisages any international cooperation in this field and if so, the details thereof; and

(f) the steps the Government has taken to promote a nuclear security culture in the country in pursuance of Point 11 of the Seoul Communiqué?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) India has been following principles of physical security of nuclear materials and associated facilities right from the inception of its nuclear programme. India is a party to all the major international instruments related to nuclear security. The Atomic Energy Regulatory Board (AERB) has updated the document on "Nuclear Security Requirements for Nuclear Power Plants".
(
b)&(c) India is a State Party to the Convention on the Physical Protection of Nuclear Material (CPPNM) and the Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT). The instrument of ratification on the CPPNM was deposited with IAEA on 19 September 2007. India has already ratified the ICSANT.

(d) The available technical expertise in Nuclear Forensics, employed for Nuclear Material Control and Accounting as well as for detection and characterisation of radioactive materials is also used

to identify the material and its origin. For material out of regulatory control (illicit material), indigenously developed radioactive and nuclear material detectors are in regular use and are deployed at airports, seaports and border posts.

(e) Since 2002, India has piloted a resolution at the United Nations General Assembly on measures to prevent terrorists gaining access to Weapons of Mass Destruction. India fully supports the implementation of United Nations Security Council Resolution 1540, its extension resolution 1977, and the United Nations Global Counter Terrorism Strategy. India participates in the Working Groups on nuclear detection, nuclear forensics and response and mitigation of the Global Initiative to Combat Nuclear Terrorism (GICNT). India also cooperates with Interpol's Radiological and Nuclear Terrorism Prevention Unit, and is a participant in the IAEA's Illicit Trafficking Database (ITDB). India has actively contributed to IAEA's Action Plans on Nuclear Security and announced a contribution of US $ 1 million to IAEA's Nuclear Security Fund. Cooperation MoUs/Practical Arrangements have been concluded with the USA, Russia, France and IAEA in respect of Global Centre for Nuclear Energy Partnership (GCNEP).

(f) Personnel working in Department of Atomic Energy have been attending nuclear security-related programmes. India has also been organising international and regional courses on the subject. GCNEP hosted an off-campus training course on Physical Protection in November, 2011.

(http://dae.nic.in/writereaddata/lsus1709.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO. 1691
TO BE ANSWERED ON 22.08.2012

LOCATION OF REACTORS

1691. DR. RAM CHANDRA DOME:
SHRI P. KARUNAKARAN:

Will the PRIME MINISTER be pleased to state:

(a) whether the environmental clearance granted to the Jaitapur Project in November 2010 are being flouted and if so, the details thereof;
(b) whether the National Committee on Solidarity with Jaitapur struggle pointed out that the location of six reactors in Jaitapur raises the risk of an accident substantially;
(c) if so, the reaction of the Government thereto;
(d) the details of other objections raised/ suggestions made by the said Committee;
(e) whether the reactors which are to be purchased from Areva company of France are untested technology and are exorbitantly expensive; and
(f) if so, the details thereof along with details of the agreements signed between Areva and NPCIL?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) No, Sir.

(b) There are press reports to the effect.

(c) In India, nuclear power reactors are set up and operated on twin unit concept with dedicated safety and process systems, operating personnel and the management for operating these units. Each reactor has independent safety and process systems. At the same site, additional twin units module with independent safety and security of operating island are considered to reduce requirement of land for exclusion zone. This also helps in meeting the objective of minimising the displacement of population.

(d) The press reports indicate that the said Committee has also raised the issue of spent fuel storage.

(e) The nuclear reactors planned to be set up at Jaitapur are the Evolutionary Pressurised Water Reactors (EPRs). The EPR design has been based on the proven design, safety principles and manufacturing technologies employed in "N4" reactors in France and "KONVOI" reactors in operation in Germany. N4 & KONVOI reactors are under successful and safe operation for the last many years. The EPRs planned at Jaitapur incorporate the operational feedback from "N4" & "KONVOI" reactors. Currently, EPRs are under construction in Finland, France and China.

The operational experience from these reactors will also be available before the commissioning of Jaitapur nuclear power project. As regards the cost, the discussions on the techno-commercial offer of AREVA, France are focused on arriving at mutually acceptable capital cost and tariff levels.

(f) Following the Inter-Governmental Agreement between India & France in 2008, Nuclear Power Corporation of India Limited (NPCIL) and AREVA, France signed a Memorandum of Understanding (MoU) to set up Nuclear Power Reactors at Jaitapur on February 4, 2009. A General Framework Agreement (GFA) and Early Works Agreement (EWA) were signed between NPCIL and AREVA on December 6, 2010. The GFA covers installation of the initial set of 2x 1650 MW EPR including scope of work, division of responsibility, design, materials, technology, services and life time fuel supplies. The EWA relates to preliminary works related to design, engineering and regulatory aspects.

(http://dae.nic.in/writereaddata/lsus1691.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.1674
TO BE ANSWERED ON 22.08.2012

RADIATION DETECTION

1674. SHRI P. KUMAR:

Will the PRIME MINISTER be pleased to state:

(a) the progress made by the Government in installation of mobile radiation detection system and special radiation detection vehicles in various cities of the country;
(b) whether the Government has held discussions with the manufacturers of these equipments; and
(c) if so, the details thereof?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a)to(c) The Central Government has decided to install mobile radiation detection systems in Police vehicles of selected police stations of major cities (more than 800 police stations in the country) with the technical support from Bhabha Atomic Research Centre (BARC). Specifications of radiation detection system have been given by BARC to National Disaster Management Authority (NDMA) along with details of suppliers.

(http://dae.nic.in/writereaddata/lssq1674.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
STARRED QUESTION NO. 153
TO BE ANSWERED ON 22.08.2012

NUCLEAR LIABILITY ACT

*153. SHRI ABDUL RAHMAN:
SHRI P.K. BIJU:

Will the PRIME MINISTER be pleased to state:

(a) whether the Nuclear Power Corporation of India Limited (NPCIL) and Russia have requested the Government for exemption of Kudankulam Plant from the Nuclear Liability Act;
(b) if so, the details thereof and the reasons for such request;
(c) whether the Government proposes to consider the above request; and
(d) if so, the details thereof and the names of the entities that will pay in case any accident happens?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY)

(a) to (d) A statement is laid on the Table of the House.

STATEMENT REFERRED TO IN REPLY TO LOK SABHA STARRED QUESTION NO.153 FOR ANSWER ON 22.08.2012 BY SHRI ABDUL RAHMAN AND SHRI P.K. BIJU REGARDING NUCLEAR LIABILITY ACT

(a) & (b) Atomstroyexport (ASE), the authorised organisation of Russian Federation, in their commercial offer to Nuclear Power Corporation of India Limited (NPCIL) in respect of Units 3&4 has stated that NPCIL being operator is fully responsible for any damage caused to any person and property as a result of a nuclear incident occurring at nuclear power plant. ASE has mentioned that their plea is based on the principle of continuity of cooperation in construction of Kudankulam Nuclear Power Project (KKNPP) in accordance with the agreement between the USSR and Republic of India dated 20th November 1988, supplement thereto dated 21st June, 1998 and in line with the provisions of Inter-Governmental Agreement dated 5th December, 2008.
(c) & (d) The matter is under examination of the Government.

(http://dae.nic.in/writereaddata/lssq153.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
STARRED QUESTION NO. 145
TO BE ANSWERED ON 22.08.2012

RADIATION AROUND NUCLEAR POWER PROJECTS

*145. SHRI M. I. SHANAVAS:

Will the PRIME MINISTER be pleased to state:

(a) the salient features of the studies conducted by the Nuclear Power Corporation of India Limited (NPCIL) on the ill effects of radiation on the villages in the vicinity of nuclear power plants and employees working in these plants along with the time period of such studies;

(b) the number of nuclear power plants covered under the said studies;

(c) whether the studies have established any linkage between existence of nuclear power units and high incidence of cancer in villages around nuclear power plants and employees working in these plants; and

(d) if so, the details thereof and the corrective follow up action taken/being taken by the Government in this regard?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY)

(a) to (d) A statement is laid on the Table of the House.

STATEMENT REFERRED TO IN REPLY TO LOK SABHA STARRED QUESTION NO.145 FOR ANSWER ON 22.08.2012 BY SHRI M.I. SHANAVAS REGARDING RADIATION AROUND NUCLEAR POWER PROJECTS

(a)&(b) Radiation dose levels around nuclear power plants are negligibly higher than those arising out of natural background radiation. The average radiation dose received by an individual from natural background is 2400 micro-Sievert per year. The radiation levels at Indian nuclear power plant sites are higher from the average natural background level yielding an additional radiation dose of 1 to 25 micro-Sievert per year at a plant boundary. Therefore, there are no ill effects of radiation around nuclear power plants. Epidemiological surveys for health assessment in respect of employees working in close proximity to radiation and their families at each of the operating nuclear power plants have been carried out. Nearby villages have been covered in the studies to the extent of employees and their families residing there. The studies were carried out by reputed local medical colleges in association with Tata Memorial Centre (TMC), Mumbai, a premier cancer research centre in the country. These studies comprised filling a questionnaire with respect to demographic, medical data and other relevant details, and carrying out a medical examination. The primary emphasis of these studies was on prevalence of cancer and congenital anomalies

(birth defects) among the employees and their families. The studies have been conducted at all the operating nuclear power plants located at the six sites across the country as per the following details:-

Site	Year of study
Tarapur, Maharashtra	1992 to 1994
Rawatbhata, Rajasthan	1995
Narora, Uttar Pradesh	1997
Kakrapar, Gujarat	1995
Kalpakkam, Tamil Nadu	1997 to 1998 & 2006
Kaiga, Karnataka	1998

Epidemiological studies were also conducted for the villagers living in the vicinity of the nuclear power plant sites at Kaiga, Kakrapar and Kudankulam before start of operation of these plants. These form the baseline for comparison with studies at a later date.

(c) No Sir. The studies have established that there has not been any rise in cancer morbidity, birth defects or any other ailments among the employees, who are at work or live in close proximity of nuclear power plants, in comparison to the national average. In addition, the medical examination of occupational workers at each of the operating nuclear power plant is carried out every year in accordance with regulatory requirement prescribed by Atomic Energy Regulatory Board (AERB). The scientific data of these annual medical examinations collated and analysed by Nuclear Power Corporation of India Limited (NPCIL), during 1995 to 2010 (16 years) has found that the cancer prevalence among the employees is lower, at 54.05 per lakh, compared to national prevalence of 98.05 per lakh.

(d) Does not arise.

(http://dae.nic.in/writereaddata/lssq145.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.214
TO BE ANSWERED ON 08.08.2012

RADIATION EXPOSURE

214. SHRI ANAND PRAKASH PARANJPE:
SHRI SANJAY BHOI:
DR. BHOLA SINGH:
SHRI B.B. PATIL:
SHRI EKNATH M. GAIKWAD:
SHRI R. THAMARAISELVAN:

Will the PRIME MINISTER be pleased to state:

(a) whether workers of the Rajasthan Atomic Power Station (RAPS), Rawatbhata were allegedly exposed to radiation recently;
(b) if so, the details thereof and the number of workers affected by the radiation;
(c) whether the Government has conducted any inquiry in this regard;
(d) if so, the outcome thereof; and
(e) the steps taken/being taken by the Government to avoid such incidents in future?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) An incident of tritium uptake of above Investigation Level occurred in the Unit-5 of Rajasthan Atomic Power Station (RAPS unit 5) on June 23, 2012. The Investigation Level of the tritium uptake is defined conservatively at about 1/10th of the authorized annual limit specified by the regulatory body (Atomic Energy Regulatory Board).
(b) The incidence took place during the maintenance activities in planned biennial shutdown of the unit. Only one contract worker received higher than the annual dose limit for contract workers prescribed by the Atomic Energy Regulatory Board. In India, the annual dose limit for regular occupational workers is 20 milliSievert per year, but for contract workers the limit is 15 milliSievert per year. One worker received a dose of about 20.4 milliSievert per year. The permissible limits are based on scientific studies which have established that there are no ill effects on health of humans at this level of radiation dose.

(c)&(d) The incident has been investigated by the Exposure Investigation Committee of the station and also by the AERB. It was found that the adherence to Personal Protective Equipment needed to be strengthened.
(e) Adherence to Personal Protection Equipment and periodic training for radiation workers have been reinforced in order to prevent recurrence of such incidents.

(http://dae.nic.in/writereaddata/lsus214.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.181
TO BE ANSWERED ON 08.08.2012

EPR REACTORS FROM FRANCE

181. SHRI RAYAPATI SAMBASIVA RAO:

Will the PRIME MINISTER be pleased to state:

(a) whether the Government has postponed its decision to buy EPR reactors from France; and
(b) if so, the details thereof and the reasons therefor?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) No, Sir.
(b) Does not arise.

(http://dae.nic.in/writereaddata/lsus181.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.129
TO BE ANSWERED ON 08.08.2012

COMMISSIONING OF KUDANKULAM NUCLEAR POWER PLANT

129. SHRI P. LINGAM:
SHRI R.THAMARAISELVAN:
DR. P. VENUGOPAL:

Will the PRIME MINISTER be pleased to state:

(a) whether some of the units of Kudankulam nuclear power plant are expected to be commissioned very soon;

(b) if so, the details thereof;

(c) whether all the formalities such as obtaining clearance, removal of dummy fuel and loading of real fuel etc. and final inspection have been completed;

(d) if so, the details thereof along with the defects noticed during the final inspection and if not, the reasons therefor and the time by which all these formalities are likely to be completed;

(e) whether a team of scientists had also carried out study of Kudankulam nuclear power plant, if so, the details thereof; and

(f) whether the concerns expressed by the local population and others on the project have been resolved and if so, the details thereof?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) Yes, Sir.

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

(c)&(d) 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.

(e) 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.
(f) Yes, Sir. 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.

(http://dae.nic.in/writereaddata/lsus129.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.63
TO BE ANSWERED ON 08.08.2012

INDIGENOUS NUCLEAR REACTORS

63. SHRI S.S. RAMASUBBU:

Will the PRIME MINISTER be pleased to state:

(a) the number of nuclear reactors so far built in the country indigenously;
(b) whether the Government proposes to build more nuclear reactors with Russian assistance;
(c) if so, whether Russia has agreed to the proposal of the Government;
(d) if so, the details and its estimated capacity and the present status of those which are on the verge of completion; and
(e) the time by which the new reactors are likely to be built up?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) Seventeen of the twenty nuclear power reactors in the country are built indigenously. Five indigenous nuclear power reactors are presently under construction.

(b)&(c) Yes, Sir. An Inter-governmental Agreement (IGA) in this regard has been signed between India and Russian Federation on December 5, 2008.
(d) 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.

(e) 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.
(http://dae.nic.in/writereaddata/lsus63.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.47
TO BE ANSWERED ON 08.08.2012

PROTEST OVER NUCLEAR POWER PLANTS

47. SHRI R. THAMARAISELVAN:

Will the PRIME MINISTER be pleased to state:

(a) the details of those nuclear power plants along with their location which are facing protest from local people and other organizations;
(b) the reasons for such protest, plant-wise and the steps taken/being taken by the Government in this regard;
(c) whether there were protests outside the Indian High Commission in London by the coalition of anti-nuclear and human rights groups recently and if so, the details thereof;
(d) whether the coalition of anti-nuclear and human rights groups have alleged that the Kudankulam project violated the International Atomic Energy Agency's safety guidelines as it was a tsunami and earthquake prone region;
(e) if so, whether the said right's groups have also alleged that the project was in violation of the mandatory requirement for construction of fresh water reservoirs; and
(f) if so, the details thereof and the steps taken by the Government to convince the said rights groups?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) There were protests at Kudankulam site by local people, led by organizations ideologically opposed to nuclear power.
(b) The reasons for protests at Kudankulam were apprehensions about safety of nuclear power plants post Fukushima incident, heightened by misinformation spread by groups ideologically opposed to nuclear power. The Central Government constituted an Expert Group of eminent persons who interacted with the representatives of the local people and comprehensively addressed all the apprehensions. The Central Government has also undertaken an enhanced public outreach programme using multi-pronged approach to allay the apprehensions of the people.

(c)to(e) On 18 May 2012, 18 to 20 persons held demonstration in front of the High Commission of India, London from 1600 hrs to 1830 hrs. They belonged to South Asia Solidarity Group and protested over the issue of the Kudankulam Nuclear Power Plant. They did not submit any memorandum after their demonstration. However, in their press release, they claimed that the plant violates the mandatory requirement for construction of fresh water reservoirs which are essential in case of a nuclear accident.
(f) The allegations made by the anti-nuclear groups are not based on facts. The Kudankulam nuclear power plant meets International Atomic Energy Agency (IAEA) safety requirements.

Kudankulam reactors are Generation III+ reactors and have advanced safety features. The safety of the reactors has been reviewed by the Russian Regulatory authorities and the Atomic Energy Regulatory Board (AERB). Post Fukushima, safety review of the Kudankulam plant has been carried out by the Task Force of Nuclear Power Corporation of India Limited (NPCIL) and expert committee of the AERB, which have found that the plant is safe from extreme natural events. Kudankulam is located in the lowest seismic zone in India, and at a higher elevation. The site is safe from earthquakes and Tsunamis. Apart from being located at a higher elevation, an 8 m high shore protection wall is also provided. There are also adequate provisions in the plant for meeting the fresh water requirements. The facts in this regard have been explained to the representatives of the protesting people by the Expert Group constituted by the Central Government. The Expert Group has also put their reports in the public domain. Department of Atomic Energy (DAE) and NPCIL have also got a dedicated wing to make public outreach efforts to allay such misplaced apprehensions.

(http://dae.nic.in/writereaddata/lsus47.pdf)

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.35
TO BE ANSWERED ON 08.08.2012

NUCLEAR POWER TARGET

35. SHRIMATI ANNU TANDON:

Will the PRIME MINISTER be pleased to state:

(a) whether the Government has set up any target for nuclear power generation for the upcoming 20 years *i.e.* upto 2032; and
(b) if so, the details thereof and the manner in which the Government proposes to achieve the said target?

ANSWER
THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) Yes, Sir.
(b) 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 270 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 the future to achieve the target.

(http://dae.nic.in/writereaddata/lsus35.pdf)