GOVERNMENT OF INDIA
ATOMIC ENERGY
LOK SABHA

STARRED QUESTION NO:49
ANSWERED ON:03.08.2011
SAFETY OF NUCLEAR POWER PLANTS
Panda Shri Baijayant;Singh Shri Bhola

Will the Minister of ATOMIC ENERGY be pleased to state:

(a) whether the Government has reviewed the safety measures in atomic power plants of the country in the aftermath of tsunami which struck Japan and radiation from Japanese atomic plants;

(b) if so, the details and the findings thereof;

(c) whether the Indian atomic plants are safe against natural disasters including Tsunami;

(d) if so, the details thereof and the other measures taken/proposed to be taken to strengthen and ensure the safety in post Japanese scenario;

(e) whether it is proposed to set up a Nuclear Regulatory Authority to ensure fool-proof safety mechanism for all existing and upcoming nuclear power plants; and

(f) if so, the details thereof?

Answer

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

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

STATEMENT REFERRED TO IN REPLY TO LOK SABHA STARRED QUESTION NO. 49 FOR ANSWER ON 03.08.2011 BY SHRI BAIJAYANT 'JAY' PANDA AND DR. BHOLA SINGH REGARDING SAFETY OF NUCLEAR POWER PLANTS.

(a): Yes Sir.

(b): The recent incidents at Fukushima Daiichi in Japan occurred due to extreme natural events, a massive earthquake followed by high intensity Tsunami. There are thirteen nuclear power reactors in the affected zone, six reactors at Fukushima Daiichi, four at Fukushima Daini and three at Onagawa. These reactors are located in high seismic zone, close to tsunamigenic region. All the 13 reactors in the affected zone were shutdown on sensing of earthquake and the nuclear fission chain reaction was terminated. The external power supply was lost due to the earthquake. The cooling of fuel was started by on site emergency power supply systems at all the reactors in the affected zone including Fukushima Daiichi. However, at Fukushima Daiichi, the on-site emergency power supply systems were also lost due to the tsunami and the fuel cooling for removing the heat arising out of radioactive decay of fission products in the fuel was affected. This led to overheating of fuel, metal water reaction resulting in hydrogen production and explosion due to hydrogen fire. The progression of events led to release of radioactivity from Fukushima Daiichi. On a directive from Government of India, Nuclear Power Corporation of India Limited (NPCIL) constituted four task forces for each of the technology in operation and two task forces for the two types of reactors under construction. These task forces have revisited the safety of all the nuclear power plants and found that Indian nuclear power reactors have sufficient margins and features in the design to withstand high intensity earthquake and tsunami and thus are safe against extreme natural events. The reports of the task forces have been submitted and made public. The reports are also posted on website of Department of Atomic Energy (DAE) and Nuclear Power Corporation of India Limited (NPCIL). The Atomic Energy Regulatory Board (AERB) and Bhabha Atomic Research Centre (BARC) have also constituted committees whose reports are expected in the near future.

(c): Yes, Sir.

(d): The review of safety has shown that sufficient margins and features exist in designs of Indian nuclear power plants in operation and under construction to withstand extreme natural events including Tsunamis, cyclones, storm surges etc. at coastal sites and floods from rain, dam breaks etc. at inland sites. Safety is a moving target and its upgradation is an ongoing exercise. The features, systems and procedures are periodically reviewed in the context of operational feedback and continuously evolving safety standards around the world. In this direction and context of Fukushima events, the task forces have made the following salient recommendations to further enhance the safety in Indian nuclear power plants:
- Automatic reactor shutdown initiation sensing seismic activity.

- Augmentation of cooling water inventories and provisions for additional hook up arrangements through external sources and provision of mobile diesel driven pump sets.

- Increasing the duration of the passive power sources/battery operated devices for monitoring important parameters for a longer duration.

- Additional Shore protections measures at Tarapur Atomic Power Station and Madras Atomic Power Station.

- Revision of Emergency Operating Procedures (EOPs) and structured training programs to train plant personnel on modified EOPs.

- Inerting (filling up of the containment with nitrogen) of the TAPS-1&2 containment.

(e)&(f): The safety of nuclear facilities in the country including nuclear power plants is being regulated currently by the Atomic Energy Regulatory Board (AERB), an independent regulatory body, responsible to Atomic Energy Commission (AEC). For creation of a statutory nuclear safety authority which can operate in a transparent and independent manner, the Department is in the process of introducing in parliament "The Nuclear Safety Regulatory Authority Bill, 2011".