## GOVERNMENT OF INDIA ATOMIC ENERGY LOK SABHA

UNSTARRED QUESTION NO:3463 ANSWERED ON:12.02.2014 FAST BREEDER REACTORS Panda Shri Baijayant

## Will the Minister of ATOMIC ENERGY be pleased to state:

(a) whether fast breeder reactors represent the second stage of India's three stage nuclear programme;

(b) if so, the details thereof including the technological challenges and concerns in this regard;

(c) whether the development of the prototype fast breeder reactor would enable the country harness its vast thorium reserves and if so, the details thereof; and

(d) the kind of safety measures that have been designed for the fast breeder reactors?

## Answer

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

(a)&(b) Yes, Sir. At present Bharatiya Nabhikiya Vidyut Nigam Limited (BHAVINI), a public sector undertaking under Department of Atomic Energy (DAE) is constructing one 500 MW Prototype Fast Breeder Reactor (PFBR) at Kalpakkam, Tamil Nadu. Being first of its kind reactor in the country, several technological challenges are being encountered during the equipment manufacture and construction; and BHAVINI has been successfully overcoming these challenges through indigenous research efforts. The PFBR is scheduled to attain criticality in September 2014.

(c) The Prototype Fast Breeder Reactor will use uranium in its blanket to help produce the plutonium based fuel needed for its own operation. Thorium is to be used in Fast Breeder Reactors (FBRs) after the installed capacity of nuclear power in the country has reached a sufficiently high level based on use of uranium in the blankets of FBRs. Thorium in FBRs will get converted into Uranium-233 which will be obtained by reprocessing of irradiated Thorium. FBRs with the reactors dedicated to use of thorium based fuel containing Uranium-233 would enable the country to harness the vast resources of Thorium in the country.

(d) The safety standards followed in PFBR are at par with the international standards. The 'defence-in-depth' approach has been adopted for safety of the reactor. Many inherent and engineered safety features ensure adequate safety of the reactor during unlikely events.