GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO–1646
ANSWERED ON 10/12/2025

FAST BREEDER REACTOR PROJECT

1646. SHRI HASMUKHBHAI SOMABHAI PATEL
SHRI MITESH PATEL BAKABHAI
SHRI DEVUSINH CHAUHAN

Will the PRIME MINISTER be pleased to state:-

(a) the details of the achievements in the Fast Breeder Reactor (PFBR) project since the recent grant of fuel loading permission;

(b) the details of steps taken/being taken by the Government to strengthen the domestic supply chain of specialised nuclear components under Make in India;

(c) the manner by which the Government is scaling up domestic exploration and processing of uranium and other rare atomic minerals; and

(d) whether the Government is ensuring safe and long-term management of radioactive waste generated from the expanding reactor fleet and if so, the details thereof

ANSWER

THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (DR. JITENDRA SINGH)

(a) Atomic Energy Regulatory Board (AERB) issued permission for Initial Fuel Loading (IFL) into the reactor core, First Approach to Criticality (FAC) and Low Power Physics Experiments (LPPE) for PFBR on 16.10.2025. Loading of 37 sub-assemblies including 28 fuel sub-assembilies into the reactor is in progress. Once the loading of all fuel sub-assembilies into the reactor core is completed, the next milestone is First Approach to Criticality.

(b) The present ecosystem of the domestic nuclear industry comprises both government and private units. The Departmental enterprises are engaged in manufacturing of nuclear materials (nuclear fuel, neutron absorbers, heavy water, zirconium alloy products etc.), nuclear reactor fuel assemblies, components, nuclear detectors/sensors, etc.

Majority of nuclear equipment for 700 MWe PHWRs, 200 MWe Bharat Small Modular Reactor (BSMR-200), and 55 MWe Small Modular Reactor (SMR-55) are within the capability of Indian private industries. To meet the requirements of nuclear energy capacity expansion, the Department gives priority for development of new vendors with handholding by Bhabha Atomic Research Centre (BARC) to fulfil the mandate of "Make in India". Capacity augmentation of private players is likely to be stimulated by scale of orders.

(c) Atomic Minerals Directorate for Exploration and Research (AMD), a constituent unit of Department of Atomic Energy (DAE), has the mandate to identify and evaluate mineral resources of uranium, thorium, niobium, tantalum, beryllium, lithium, zirconium, titanium and Rare Earth Elements (REEs) to support Nuclear Power Programme of the country.

To identify and augment additional mineral resources of the aforesaid elements, AMD is carrying out integrated and multi-disciplinary exploration (including geophysical, geological, geochemical and radiometric surveys) in potential geological domains of the country.

Uranium Corporation of India Limited (UCIL), a Public Sector Undertaking under the DAE, is engaged in the mining and processing of uranium ore in the country. The company is operating seven uranium mines and two processing plants in the State of Jharkhand and one uranium mine and processing plant in the State of Andhra Pradesh.

(d) DAE has a comprehensive and internally aligned framework to ensure safe and long-term management of radioactive waste generated from the existing reactors and expanding reactor fleets including fleets of small modular reactors (SMRs). Nuclear waste arising from the nuclear power plants and fuel cycle facility will be safely managed/disposed under the provisions of "The Atomic Energy Act, 1962", subsequent amendments and the Atomic Energy (Safe Disposal of Radioactive Wastes) Rules, 1987.

As a waste management philosophy, no waste in any physical form is released/ disposed to the environment unless same is cleared, exempted or excluded from

regulations. Low and intermediate level waste generated from operation and maintenance of a nuclear power plants are managed at plant site itself. These wastes are treated, concentrated, compacted, immobilised in solid like cement and disposed in specially constructed structures such as reinforcement concrete trenches and tile holes located at the site. The disposal facility is kept under constant surveillance to confirm effective containment of radioactivity present in the disposed waste.

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