

GOVERNMENT OF INDIA  
DEPARTMENT OF ATOMIC ENERGY

**RAJYASABHA**  
**UNSTARRED QUESTION NO – 2089**  
ANSWERED ON 07/08/2025

**DEPLOYMENT OF COMPACT NUCLEAR REACTORS FOR REMOTE REGIONS**

2089. SHRI SANJAY RAUT

Will the PRIME MINISTER be pleased to state:-

- (a) whether Government is aware of Japan's successful deployment of the Yoroi compact nuclear reactor that generates 1 MW of clean energy using molten salt and low-enriched uranium;
- (b) if so, whether India is developing or planning to develop similar small modular reactors (SMRs) for remote, border, or island regions;
- (c) whether Government is exploring international collaborations or private sector participation in next-gen nuclear technology; and
- (d) whether the Atomic Energy Regulatory Board has initiated any regulatory framework for safe deployment of such reactors in India?

**ANSWER**

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

(a) &(b) The Department has obtained 'in-principle' approval to pursue development and establishment of indigenous small modular reactor SMR-55. This design is a 55 MWe pressurized water reactor which can be deployed as a captive power plant in the industrial sector and also in remote regions with poor or NIL connectivity with national grid.

The Nuclear Energy Mission announced in the Budget-2025 envisages deployment of 100 GWe of nuclear energy by 2047 with an outlay of ₹20,000 crore for research and development of Small Modular Reactors (SMRs).

(c) In view of the available in-house expertise, at present, no international collaboration is under consideration for developing SMR.

India has signed Inter Governmental Agreements with key partner countries for Cooperation in peaceful uses of Nuclear Energy including technology cooperation.

(d) India has a robust implementation provision of the Safety & Security in Nuclear Power Plants irrespective of whether the operator is from public or private sector.

Currently, the responsibility for ensuring the safety and security of civilian nuclear facilities in India lies solely with the Atomic Energy Regulatory Board (AERB). AERB is the designated authority empowered by the Government to regulate and oversee the operations of these facilities. To streamline regulation and promote uniform standards, AERB has developed a comprehensive set of safety codes, guide, and standards that all operators are required to follow. Facilities must obtain the necessary licenses from AERB to operate these nuclear installations legally. These licenses are contingent on strict adherence to the prescribed safety standards. AERB inspectors are authorized to conduct regular inspections of licensed facilities to verify compliance. In cases where non-compliance is identified, AERB provides corrective recommendations and technical guidance. In extreme situations of non-compliance, AERB holds the authority to suspend or revoke the operating license.

Similarly, in the domain of security, AERB adopts a prescriptive approach by issuing clearly defined security requirement documents. These documents outline specific measures and protocols that utilities must implement to secure their installation against threats and vulnerabilities. Compliance with these security requirements is mandatory, and utilities are expected to integrate the prescribed practices into their operational frameworks. This structured regulatory model ensures that both safety and security are consistently maintained across all units operating in India, thereby upholding public trust and operational integrity.

Different types / designs of Nuclear Power Plants (NPPs) in India are designed, constructed, commissioned & operated complying with the regulatory requirements of AERB. AERB Safety Code on 'Regulation of Nuclear and Radiation Facilities' (AERB/SC/G) and AERB Safety Guide on 'Consenting Process for Nuclear Power Plant and Research Reactor' (AERB/NPP&RR/ SG/G-1) provides the licensing process for all new nuclear power plants and research reactors, which would also be applicable for small modular reactors, whenever such requirement arise. AERB safety and regulatory requirements for licensing of NPPs are generally technology neutral. AERB participates in various international forums to keep itself abreast about the developments in regulation of SMRs and suitably adopt them when required.

In light of the evolving developments in the field of SMRs, AERB has conducted review of its existing regulatory requirements and concluded that the same regulatory framework can generally be applied for safety regulation of advanced reactors such as SMRs, except a few technology specific prescriptive requirements for which review has been initiated in AERB.

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