

**GOVERNMENT OF INDIA
ATOMIC ENERGY
LOK SABHA**

UNSTARRED QUESTION NO:1379

ANSWERED ON:22.08.2007

USE OF THORIUM AS FUEL

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Will the Minister of ATOMIC ENERGY be pleased to state:

[a] whether the Government has explored the possibility of the use of thorium as a fuel for nuclear reactors in view of its advantages over other existing fuel;

[b] if so, the details thereof along with steps taken to develop appropriate technology for allowing its use in the nuclear reactors in the country; and

[c] the time by which the said technology is likely to be made available to the reactors in the country?

Answer

THE MINISTER OF STATE IN THE PRIME MINISTER'S OFFICE (SHRI PRITHVIRAJ CHAVAN)

(a) Yes Sir,

(b) The Government has taken steps to develop appropriate technology for the utilization of thorium. Some of the steps are:

The research reactor 'Kamini' at Kalpakkam uses uranium-233 fuel obtained from irradiated thorium. The reactor has been operating since 1997. The fuel for this reactor was bred, reprocessed and fabricated indigenously

Irradiation of thorium based fuel has been carried out in 'Cirus' research reactor at Trombay and in Pressurised Heavy Water Reactors

Design and development of Advanced Heavy Water Reactor (AHWR) using thorium based fuel has been in advanced stage. Pre-licensing safety review of AHWR has been completed by the Atomic Energy Regulatory Board (AERB)

Construction of AHWR critical facility at BARC, which uses thorium based fuel has been completed

BARC has been developing technologies to reprocess irradiated thorium fuel, and in fabricating Uranium-233 based fuel.

(c) The third stage of the ongoing three-stage Indian nuclear power programme envisages deployment of nuclear reactors based on Uranium-233 obtained by irradiating thorium. The Advanced Heavy Water Reactor critical facility for Validating the physics design of AHWR is ready for commissioning. A prelicensing safety approval of AHWR has been completed by the Atomic Energy Regulatory Board (AERB). Its implementation as a power project is envisaged to start in XI Plan period.