GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.5514
TO BE ANSWERED ON 28.03.2018

RECYCLING NUCLEAR WASTE FOR POWER GENERATION

5514. SHRI DUSHYANT CHAUTALA:

Will the PRIME MINISTER be pleased to state:

(a) whether the Government has taken steps for upgrading technology to recycle and re-use nuclear waste for power generation;

(b) if so, the details thereof;

(c) whether the Government has conducted any study in this regard and if so, the details and the outcome thereof; and

(d) the total quantum of nuclear waste estimated to be involved in the recycling process and the follow up action proposed to be taken by the Government in this regard?

ANSWER

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

(a)to(c) Yes, Sir. Closed nuclear fuel cycle is being followed in India treating spent nuclear fuel as a material of resource instead of nuclear waste. The closed fuel cycle aims at recovery and recycle of fuel elements, separation of useful isotopes such as Cs (Caesium) and Sr (Strontium) for use in health care and industry. The spent fuel is reprocessed to recover the fuel elements like Uranium and Plutonium for recycling back in the reactor for generation of power in second stage of Indian nuclear power programme. This finally leads to a very small percentage of residual material present in spent nuclear fuel requiring their management as radioactive waste. Radioactive waste contains various useful radio-isotopes like Cs-137, Sr-90, Ru-106 (Ruthenium) etc having different societal applications. An in-house developed technology has been established and deployed for separating Cs-137, one of the prominent fission product, from waste and converting in to non-dispersive Cs glass pencil to be used for blood irradiators. Research and development has been carried out for reprocessing spent nuclear fuel and recycling back to reactors as fuel. Fast Breeder Test Reactor (FBTR), utilizing reprocessed spent fuel, is under operation since many decades.

(d) The quantity of waste will depend on the power generation. In general, only 1% of the fuel originally used becomes waste as rest is reused. Even this 1% comes down further when radioisotopes like Cs-137 are taken out and used in irradiators.

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