GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO. 654
ANSWERED ON 06.12.2023

Radioactive Wastes

654. DR. MOHAMMAD JAWED:
SHRI T.N. PRATHAPAN:
DR. A. CHELLAKUMAR:
ADV. DEAN KURIAKOSE:

Will the PRIME MINISTER be pleased to state:

(a) whether the Government has clearly classified the types of radioactive wastes in the country;
(b) if so, the details thereof and if not, the reasons therefor;
(c) the quantum of radioactive wastes generated by nuclear power plants during the last five years; and
(d) whether the Government has any concrete strategy to recycle radioactive wastes into useful isotopes?

ANSWER

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

(a) Yes Sir,

(b) The radioactive solid, liquid and gaseous wastes are classified into various categories as indicated by the safety guidelines issued by Atomic Energy Regulatory Board (AERB) and BARC Safety Council (BSC). The wastes generated at the nuclear power stations during their operation are of low and intermediate radioactivity level. The radioactive solid, liquid and gaseous wastes are presently classified into various categories based on the surface radiation dose rates for solid waste and radioactivity concentration for liquid and gaseous waste streams. These wastes are appropriately treated, concentrated and subjected to volume reduction. The concentrates are immobilized in inert materials like cement, bitumen, polymers etc. and stored in specially constructed structures (near surface disposal facilities) located at the site under monitoring. The treated liquids and gases are diluted and discharged under

continuous monitoring, ensuring that the discharges are well within the limits set by Atomic Energy Regulatory Board (AERB). The radioactivity level of the stored wastes reduces with time and by the end of the plant life, falls to very low levels.

(c) In the last five years (2018 to 2022), a total of about 4468 cubic meters of solid waste (low and intermediate level) was generated for storage.

(d) Yes Sir. High level radioactive waste contains many useful isotopes like Caesium-137, Stronium-90, Ruthenium-106 etc., which have many industrial as well as medical applications. More than 90% of radioactivity in high level radioactive waste is mainly due to Caesium-137, Stronium-90, Ruthenium-106, out of which, Caesium-137 is recovered and used for blood irradiators in non-dispersive sealed source form. Sr-90 is also recovered for milking of Yttrium Y-90 for medical applications. Ruthenium-106 is recovered and converted into Ru-plaque for treatment of eye-cancer. Recovery of all the above three radio-isotopes from nuclear waste has been demonstrated from high level radioactive waste for their societal applications.

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