GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYASABHA
UNSTARRED QUESTION NO-2083
ANSWERED ON 18/12/2025

NUCLEAR WASTE MANAGEMENT

2083. SHRI ABDUL WAHAB

Will the PRIME MINISTER be pleased to state:-

(a) the procedures followed for handling, storage and disposal of nuclear waste generated in the country;
(b) the current capacity of nuclear waste storage facilities;
(c) whether any new facilities or technologies are being developed for long-term nuclear waste management; and
(d) the international best practices being adopted 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) Nuclear wastes generated at the nuclear power stations during their operation and maintenance are low and intermediate activity level waste and are managed at the site itself. These wastes are treated, concentrated, compacted, immobilized in solid materials like cement and disposed/stored in specially constructed structures such as reinforced concrete trenches/tile holes, located at the site.

Further, nearly closed nuclear fuel cycle is being followed in India, where spent fuels from domestic sources are reprocessed to reduce the waste burden and recover the useful element for recycle/reuse. The fissile element recovered from reprocessing of spent fuel is recycled back as a fuel for future reactors. High-level radioactive waste generated during reprocessing is then immobilized into an inert glass matrix by vitrification and stored in Solid Storage Surveillance Facilities for interim storage at par with international practices as per the guidelines of International Atomic Energy Agency (IAEA).

(b) A well-established nuclear waste management system is in place at all the nuclear power plant sites. India has adopted "nearly closed fuel cycle", where spent nuclear fuel is regarded as a material of resource. The closed fuel cycle aims at reprocessing of spent fuel for recovery of fissile materials and utilization as fuel. This finally leads to a very small percentage of residual material present in spent nuclear fuel requiring their management as nuclear waste. The current capacities of Near Surface Disposal Facilities (NSDF) at existing sites are adequate to store the waste generated at Nuclear Power Plants.

(c)& (d) Research and development is being done for new technologies for waste management on partitioning technologies for segregation of long-lived radioactive constituents including actinides, and extraction of useful radioisotopes for societal application as well as waste volume reduction.

The practice of storage and disposal of radioactive waste is at par with international practices following the guidelines of International Atomic Energy Agency. Till date, the surveillance of the disposal areas at different sites has confirmed high degree of effectiveness of the disposal system for the containment of disposed wastes. There has been no incident of release of radioactivity from such disposed wastes. No effect of radiation from disposed wastes on the public or the environment has been observed.

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