

**GOVERNMENT OF INDIA
ATOMIC ENERGY
LOK SABHA**

UNSTARRED QUESTION NO:3686
ANSWERED ON:20.03.2013
DISPOSAL OF NUCLEAR WASTE
Azad Shri Kirti (Jha)

Will the Minister of ATOMIC ENERGY be pleased to state:

- (a) the manner/method of nuclear waste disposal in the country;
- (b) whether private agencies are involved in this process; and
- (c) if so, the criteria fixed for selecting these agencies?

Answer

THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) Management of radioactive waste in Indian context includes all types of radioactive wastes generated from the entire nuclear fuel cycle and also from installations using radionuclides in medicine, industry and research. In the choice of processes and technologies adopted utmost emphasis is given to waste minimisation and volume reduction. The comprehensive radioactive waste management operations are carried out fulfilling all prescribed regulatory requirements.

Safe management of nuclear waste has been accorded a high priority right from the inception of our nuclear energy programme. Nuclear waste in gaseous, liquid and solid forms is generated during operation & maintenance activities of nuclear facilities. The processing technologies adopted for management of nuclear waste are summarised below:

(1) Gaseous waste is treated at the source of generation. The techniques used are adsorption on activated charcoal and filtration by high efficiency particulate air filter. The treated gases are then diluted with exhaust air and discharged through tall stack with monitoring.

(2) Liquid waste streams are treated by various techniques, such as filtration, adsorption, chemical treatment, evaporation, ion exchange, reverse osmosis etc. depending upon the nature, volume & radioactivity content. The emphasis is on volume reduction and the concentrate generated therefore is immobilised in inert materials like cement, etc.

(3) The radioactive solid waste generated during operation and maintenance of nuclear facilities are segregated and volume is reduced using various technologies like compaction and incineration. The solid/solidified waste is packaged in suitable containers to facilitate handling, transport and disposal. Disposal of waste is carried out in specially constructed structures such as stone lined trenches, reinforced concrete trenches and tile holes.

(4) India has adopted closed fuel cycle option, which involves reprocessing and recycling of the spent fuel. During reprocessing, only about two to three percent of the spent fuel becomes waste and the rest is recycled. This waste, called high level waste (HLW), is converted into glass through a process, called vitrification. The vitrified waste is stored in a Solid Storage Surveillance Facility for 30-40 years with natural cooling prior to its disposal in a deep geological repository. The need for a deep geological repository will arise only after three to four decades.

(b) No, sir.

(c) Not applicable in view of (b) above.