

**GOVERNMENT OF INDIA
ATOMIC ENERGY
LOK SABHA**

UNSTARRED QUESTION NO:469
ANSWERED ON:07.08.2013
NUCLEAR SPENT FUEL
Deo Shri Kalikesh Narayan Singh

Will the Minister of ATOMIC ENERGY be pleased to state:

- (a) the amount of spent fuel generated in the country from nuclear power generation;
- (b) the manner in which the spent fuel is being utilised and the quantum being reprocessed and disposed of;
- (c) the process of disposing of spent fuel in the country;
- (d) the environmental repercussions of the current method of spent fuel disposal along with environmental rules for disposal of spent fuel;
- (e) whether there is any contingency plans for a level-7 accident arising from spent fuel disposal; and
- (f) if so, the details thereof and if not, the reasons therefor?

Answer

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

- (a) About 640 tons of spent fuel was generated in the year 2012-13 from nuclear power generation.
 - (b) India has adopted a closed fuel cycle option, which involves reprocessing and recycling of the spent fuel. During reprocessing, 2-3% of the spent fuel becomes waste and the rest is recycled.
 - (c) Spent fuel is a valuable material for India and we have adopted closed fuel cycle involving reprocessing & recycling. During reprocessing, as mentioned earlier, 2-3% of radioactivity associated with the spent fuel is generated in the form of high level liquid waste.
- A three step strategy is adopted in India for management of High Level Liquid Waste. This involves:
- (i) Immobilising high level liquid waste into inert solid vitreous (glass) matrix. This process of converting high level liquid waste into solidified glass matrix is called "vitrification".
 - (ii) Interim storage & cooling of these vitrified waste products in specially designed storage vaults for a period of 40-50 years. This is to dissipate the heat generated on account of decay of fission products associated with these waste products, and
 - (iii) After 40-50 years of storage, these cooled vitrified waste are disposed of in geological disposal facility (GDF).
- (d) As mentioned above, in India no spent fuel is disposed off. Only 3% of the waste generated during reprocessing of the spent fuel is vitrified, cooled and will be eventually disposed off in Geological Disposal Facility. There are well defined rules and regulation given by Atomic Energy Regulatory Board for disposal of any nuclear waste. In any case, the impact on the environment is far far negligible compared to disposal of waste from non-nuclear power stations.
 - (e)&(f) The discharged spent fuel from reactors is stored in spent fuel storage bay either at reactor site or at reprocessing facilities. All the spent fuel storage bays are adequately designed and will not lead to any level-7 accidents.