



## I N P A R L I A M E N T

### **Setting up of Desalination plant** (Lok Sabha, Q.No.: 1338 )

#### **Question**

- (a) whether the Bhabha Atomic Research Centre has worked on desalination technologies and has experience in erecting large scale desalination plants;
- (b) if so, the details of plants erected by them to help drinking water problem;
- (c) whether they would participate in the proposed desalination plants to be set up in Chennai that would produce 300 million litres of potable water a day; and
- (d) If not, the reasons therefor?

#### **Answer**

- (a) Yes, Sir.
- (b) The Bhabha Atomic Research Centre (BARC) has set up a Reverse Osmosis (RO) Desalination Plant with a capacity of 18 (eighteen) lakh litres per day as a part of Nuclear Desalination Demonstration Project (NDDP), Kalpakkam, Tamil Nadu for sea water desalination which is operating satisfactorily. Another plant of the project is being set up by using Multi-Stage Flash (MSF) technology with a capacity of 45 lakh litres/day at Madras Atomic Power Station (MAPS), Kalpakkam. It is now proposed to set up a sea water desalination plant with a capacity of 6 (six)

- lakh litres per day at Lakshadweep. BARC has set up Desalination Plants at Sheelgaon village in Barmer district (Rajasthan) [30,000 litres/day capacity] and Satlana village in Jodhpur district (30,000 litres/day capacity) in cooperation with Defence Laboratory, Jodhpur (Rajasthan) for providing drinking water from bore well/brackish water sources.
- (c) BARC may provide technical support in the proposed desalination plants to be set up in Chennai, if required.
- (d) Does not arise.

### **Atomic Power project at Kudankulam**

(Lok Sabha, Q.No.: 2363)

#### **Question**

- (a) whether the atomic power project at Kudankulam, Tamil Nadu is progressing to the original scheduled time ;
- (b) if so, by when the project will be ready for commissioning;
- (c) the cost of the project; and
- (d) whether any escalation in cost is anticipated; and
- (e) if so, the details thereof and the reasons therefor ?

#### **Answer**

- (a) Yes, Sir.
- (b) The first Unit (1000 MWe) is expected to be ready to commence

commercial operations by December 2007 and the second Unit (1000 MWe) by December 2008.

- (c) The cost of the project is Rs.13,171 crore.
- (d) No, Sir.
- (e) Not applicable in view of (d) above.

### **2487 Emission of Radioactive particles by Nuclear Power Stations**

(Lok Sabha, Q.No.: 2487)

#### **Question**

- (a) the names of nuclear power stations likely to outlive their life span in the near future;
- (b) the steps taken/likely to be taken to check the radioactivity particles being emitted from these power stations;
- (c) the names of the atomic power plants which emitted the radioactivity substances during the last three years;
- (d) whether any study has been conducted or being conducted to assess the effects of these particles on the families living around the plants;
- (e) if so, the finding thereof; and
- (f) the action taken or proposed to be taken in this regard ?

#### **Answer**

(a) Nil. Internationally, the economic life of nuclear power stations is 30-40 years. Based on the systematic life assessment studies and life extension measures, the nuclear power plants can be safely operated for another 20-25 years. In India also our experience has been similar. Operation of all plants are subject to licensing by the Atomic Energy Regulatory Board (AERB) and are reviewed of operation from time to time. At the moment there is no proposal before AERB for life extension.

- (b) Not Applicable.
- (c) During the last three years, emissions from none of the plants have exceeded the limits stipulated by AERB.
- (d) Epidemiological surveys to assess the effects of radiation among the employees and their family members who reside near the nuclear power plants have been completed by the Tata Memorial Centre, a premier research institute in India.
- (e) The above surveys have indicated that the operations of nuclear power plants have no ill effects on health.
- (f) Not applicable in view (e) above.

### **Technical Viability of Nuclear Fusion**

(Rajya Sabha, Q.No.: 76)

#### **Question**

- (a) whether India is thinking of joining the highly ambitious project promoted by a select band of advanced countries to build a plant to demonstrate technical viability of nuclear fusion as a source of energy;
- (b) if so, the details of the project and the countries that are involved in the project; and
- (c) the financial commitment required to become a member of the programme?

#### **Answer**

- (a) India has expressed its interest to join the development of the International Thermonuclear Experimental Reactor (ITER).
- (b) ITER is an ambitious collaborative international project to develop fusion energy technology further with European Union, USA, Japan and Russia as partners. China and South Korea have also joined the project recently.

- (c) It is premature at this stage to decide the financial implications of India joining the project.

### **Preservation of Fruits and Vegetables**

(Rajya Sabha, Q.No.: 1437)

#### **Question**

- (a) whether it is a fact that Bhabha Atomic Research Centre has developed a technique of long lasting preservation of fruits, vegetables and cereals; and
- (b) if so, the details thereof ?

#### **Answer**

(a) & (b) Yes, Sir. The Bhabha Atomic Research Centre (BARC) has developed and installed a plant using the irradiation technique for the preservation of fruits, vegetables and cereals.

The technological benefits that can be achieved by the radiation processing of food are as follows :

- (i) Disinfestations of insect pests in stored products.
- (ii) Inhibition of sprouting in tubers, bulbs and rhizomes.
- (iii) Delay in ripening and ageing in fruits and vegetables.
- (iv) Destruction of microbes responsible for food spoilage.
- (v) Elimination of parasites and pathogens of public health importance in food.

### **Selection criteria of BARC Training School, Mumbai**

(Rajya Sabha, Q.No.: 2217)

#### **Question**

- (a) whether Engineering Graduates and Science Postgraduates have been interviewed this year for selection to training of OCES and DGFS at BARC Training School, Mumbai,

for appointment of Scientific Officer 'C';

(b) if so, whether merit performance in written test and GATE Score has been ignored for selected persons;

(c) if so, whether there is resentment amongst meritorious candidates against this selection criteria has demanded removal of favoritism through selection written test by UPSC instead of interview by BARC; and

(d) if so, reaction of Government thereto ?

#### **Answer**

(a) Yes, Sir. Engineering Graduates and Science postgraduates have been interviewed this year for selection to Orientation Course for Engineering Graduates & Science Post Graduates (OCES) and DAE Graduate Fellowship Scheme (DGFS) for training at BARC Training School, Mumbai, eventually leading to their absorption as Scientific Officer/Engineer 'C' on successful completion of the training programme.

(b) Written test / GATE score is used for screening the candidates. Selection is based on the final interview being conducted at Bhabha Atomic Research Centre (BARC).

(c) No, Sir. There is no resentment amongst meritorious candidates against the selection criteria.

(d) The existing selection procedure for selecting engineering graduates and science post graduates has worked well over the last 48 years and it will be continued.