

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO. 2353
TO BE ANSWERED ON 01/08/2018

Research work by INO

2353. Adv. Joice George:

Will the PRIME MINISTER be pleased to state:

- (a) the list of research works planned to be conducted in the proposed India based Neutrino Observatory (INO);
- (b) whether the INO will only involve in Neutrino experiments and if so, the details thereof;
- (c) whether any threat of radiation or atomic waste deposition is expected at INO site and if so, the details thereof and the response of the Government thereto;
- (d) whether the Government has considered the said proposal seriously and judiciously considering stakeholder's inputs too; and
- (e) if so, the details thereof and if not, the reasons therefor?

ANSWER

THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES AND PENSIONS AND IN THE PMO (DR. JITENDRA SINGH)

- (a) The India-based Neutrino Observatory (INO) project is an ambitious basic sciences research project aimed at studying the properties and interactions of the elusive elementary particles called *neutrinos*. It aims to build an underground laboratory at Bodi West Hills (BWH) in Theni District, Tamil Nadu, setting up the 51,000 ton Iron Calorimeter (ICAL) detector there, and establishing the Inter-Institutional Centre for High Energy Physics (IICHEP) at Madurai.
- (b) In addition to studying of neutrinos, the other experiments planned are as under:-

- (1) Search for 0-neutrino-2-beta decay in the heaviest naturally occurring isotope of tin viz. ^{124}Sn using a bolometer operating at milli-Kelvin temperature and
 - (2) Search for Dark Matter using a scintillator such as CsI(Tl) operating at cryogenic temperature.
- (c) All these experiments require a low radiation background. There will only be naturally occurring radiation background which, though low, will be minimised further by shielding the cryogenic detectors.
- (d)&(e) Yes, the site at Pottipuram in Theni Dist., Tamil Nadu is a good site for locating INO from the point of view of seismicity, minimum environmental impact and geographical location. A public meeting was held, following a strong outreach programme, in 2010 where there was overwhelming support for the project. Presently large outreach programme has been undertaken involving;
- (1) Interactions in schools and colleges in Madurai, Theni and a few other districts;
 - (2) Meetings with the press and TV channels; and
 - (3) Arranging visits to the transit IICHEP campus at Madurai to see the recently commissioned 85 ton, $1/200^{\text{th}}$ scale prototype mini-ICAL detector.
