

reactors at Jaitapur, Maharashtra and separation of work between AREVA & NPCIL has been agreed. Other details are being worked out. While NPCIL has signed MoUs with GE Hitachi Nuclear Energy (GEH) and Westinghouse Electric Company (WEC) of the USA, establishment of legislative framework in India and the USA is awaited to proceed further. The planning is to start work on light water reactors based on international co-operation with Russia, France and the USA in the year 2012. The completion period for first set of reactors is about 6 years from the start of construction.

#### **Missing of Nuclear Scientist**

2919. SHRI BHARATKUMAR RAUT: Will the PRIME MINISTER be pleased to state:

(a) whether it is a fact that a nuclear scientist is missing from second week of February 2010 who was working in the Indira Gandhi Centre for Atomic Research in Kalpakkam of Tamil Nadu State;

(b) whether it is a fact that a scientist employed at Kaiga Atomic Power Station in Karnataka had also gone missing in June, 2009 and was later found dead;

(c) whether it is a suspected threat to our security that the nuclear scientists are being reported missing in suspicious manner; and

(d) the steps Government proposes to take to prevent such cases in the country?

THE MINISTER OF STATE IN THE PRIME MINISTER'S OFFICE (SHRI PRITHVIRAJ CHAVAN):

(a) Shri S. Ananthanarayanan, Scientific Officer/E of Indira Gandhi Centre for Atomic Research was initially reported missing and later found dead as a result of being run over by a train near Guduvancherry Railway Station in Chennai on 15th February, 2010.

(b) Yes, Sir.

(c) No, Sir.

(d) In view of (c) above, does not arise.

#### **Underground Neutrino Observatory**

2920. SHRI B. S. GNANADESIKAN: Will the PRIME MINISTER be pleased to state:

(a) whether Government proposed to set up underground neutrino observatory through Department of Atomic Energy in the mountains of Western Ghats of Tamil Nadu;

(b) if so, the details thereof and whether Government has analyzed about the possibilities of radiation in the dense forest areas; and

(c) if so, the details thereof and steps taken by Government in this regard?

THE MINISTER OF STATE IN THE PRIME MINISTER'S OFFICE (SHRI PRITHVIRAJ CHAVAN):

(a) Yes, Sir. The India based Neutrino Observatory (INO) is proposed to be set up through the Department of Atomic Energy and Department of Science and Technology. Presently a site in Bodi West Hills near T. Pudukottai village of Theni District, Tamil Nadu has been identified as a suitable location.

(b) and (c) The project includes construction of a world class underground laboratory under a rock cover of at least 1200 m from all directions. This underground laboratory will be accessed by 7.5 metre wide tunnel of approximately 2 km in length. The primary goal of INO is to study neutrino properties. Determination of neutrino properties is one of the most significant open problems in Physics today.

Such studies will help us in understanding the interactions among subatomic particles at a very small scale. In this underground laboratory a massive 50 kton particle detector will be installed to study the cosmic ray produced neutrinos. The project will put India back on the world-map of underground science, a position that was held by India during the 2nd half of the 20th century.

There is no radiation involved in this experiment. Neutrinos have been around us from the beginning of the universe. In fact the experiment is required to be carried out underground only to avoid the cosmic ray particles. This is a very passive detector where the neutrinos already existing in nature will be detected. Scientists involved in this project are clarifying this to the local population by organizing interaction meetings with the local people as well as through public outreach programmes. A meeting was also organized by the District Collector of Theni District, Tamil Nadu in his office on 25th January 2010, where the INO scientists explained the salient features of this project to the local MLA, Panchayat Presidents, representatives of farmers etc.

#### **Compulsory use of BSNL landlines**

2921. SHRIMATI JAYANTHI NATARAJAN: Will the Minister of COMMUNICATIONS AND INFORMATION TECHNOLOGY be pleased to state:

(a) whether it is a fact that BSNL has demanded from Government to make it compulsory for all Government establishments to use only BSNL landline telephones;