

**GOVERNMENT OF INDIA  
ATOMIC ENERGY  
LOK SABHA**

UNSTARRED QUESTION NO:3696  
ANSWERED ON:20.03.2013  
RESEARCH IN NUCLEAR SCIENCE .  
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**Will the Minister of ATOMIC ENERGY be pleased to state:**

- (a) the steps taken by the Government during the last three years to boost research in nuclear science in the country;
- (b) whether there is any proposal to set up research reactors in future;
- (c) if so, the details thereof; and
- (d) the details of the nuclear science research programmes proposed in the 12th Five Year Plan?

**Answer**

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

(a) The Department of Atomic Energy (DAE) has been pursuing R&D in nuclear science, engineering and advanced mathematics. The R&D activities are carried out through Research Centres, Aided Institutions under the administrative control of the Department and also through extra mural support through Board of Research in Nuclear Sciences (BRNS). The Department has formulated projects under the XII Five Year Plan with emphasis on Research in Nuclear Science. The outlay provided under XII Five Year Plan (2012-17) R&D Sector is ` 19,740 crore. During the last three years, the Department has provided adequate financial support under R&D Sector as detailed below, for pursuing research in nuclear science:

2010-11: 1817.07 crore (actual expenditure)

2011-12: 2512.63 crore (actual expenditure)

2012-13: 2940.90 crore (approved outlay)

Some of the other important steps taken by the Department towards boosting the research in nuclear sciences and allied disciplines are the following:

- i) Setting up of Global Centre for Nuclear Energy Partnership (GCNEP) in Haryana.
- ii) Participation of Indian scientists in international collaboration programmes such as Large Hadron Collider at CERN, International Thermo Nuclear Experimental Reactor (ITER) Project/Jules Horowitz Reactor Project (France) etc.
- iii) Strengthening of Human Resources and building expertise in the specialised areas of nuclear sciences through initiatives under Homi Bhabha National Institute (HBNI), a deemed University, setting up of National Institute of Science Education and Research (NISER), University of Mumbai-Department of Atomic Energy-Centre for Excellence in Basic Sciences (UM-DAE-CBS), collaborations of Research Centres /Aided Institutions of DAE with Universities in India and abroad;
- iv) Strengthening of R&D infrastructure by way of new project activities for establishing new BARC campus at Vizag, TIFR Centre for Interdisciplinary Sciences (TCIS) at Hyderabad and International Centre for Theoretical Sciences (ICTS), Bengaluru.
- v) Pursuing research in the Fast Breeder Reactor and fusion research programmes.

(b)&(c) Two research reactors are proposed to be constructed at the new BARC Campus at Vizag. One of the research reactors will be similar to existing 100 MW Dhruva research reactor. The other research reactor will be a 30 MW reactor specifically designed to produce high specific activity radioisotopes not presently produced in the country.

(d) The Department has proposed a total of 400 projects with an outlay of `19740 crore under R&D Sector in XII Five Year Plan. Some significant initiatives are listed in the table below:

## Department of Atomic Energy – Significant initiatives

S.No.	Significance of the programme	Title
1		High flux research reactor and Isotope processing laboratory
2		125 MW Thermal research reactor
3		Peta Flop class Parallel Supercomputing facility
4		Sodium Technology Complex
5		Advanced National facility for Unstable and Rare Isotope Beams
6		India based Neutrino Observatory (INO)- a multi-institutional green field project of the Department of Atomic Energy to build a world class underground laboratory for high energy and nuclear physics research.
7	Flagship Programmes	Enhancement of INDUS synchrotron user facility
8		Development of GCNEP - an initiative to enable India in establishing the leadership in the field of nuclear energy through research and training
9		TI FR Hyderabad Campus - special focus on science education at all levels
		# Unification of traditional disciplines under research themes.
		# Convergence of fundamental and applied sciences, facilitating the emergence of new technologies.
		# Unification of teaching and research in ways that reinforce and elevate each other.
10		Establishment of cancer hospital at Vizag
11		NISER Campus
	Developing Human resources and fostering new opportunities in science education	Development of International Centre for Theoretical Sciences - TIFR Bengaluru
12	science education	# programs in science education and communication; # refresher courses for college and university teachers

# open courseware to students and researchers

# enthusing high school and college students by

providing opportunities for interaction with  
renowned scientists