

Discuss the activities & services of Bhabha Atomic Research Center

Prof. Hemant Sharma

SOS in Library & Information Science

Jiwaji University, Gwalior

email: shrheman@yahoo.co.in

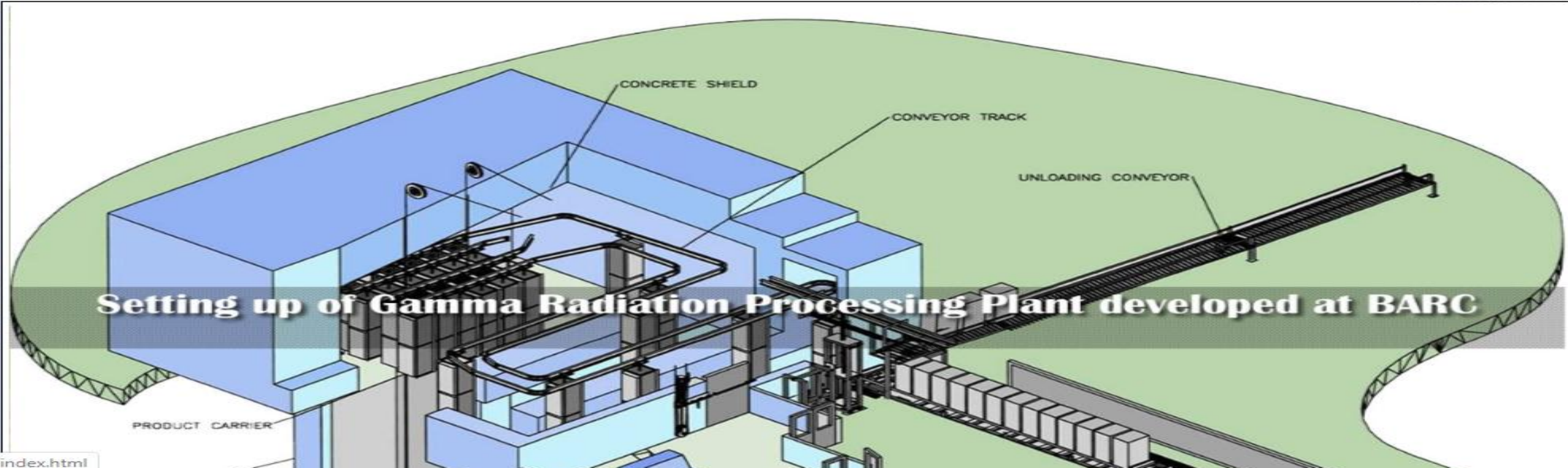

HOME PAGE

Government of India
Department of Atomic Energy

BHABHA ATOMIC RESEARCH CENTRE

Home About BARC Research & Development Career Opportunities
Right to Information Public Awareness Symposia Tenders Entrepreneur's Corner

हिन्दी में A- A A+ BARC DAE Search for... 



About

Dr. Homi Jehangir Bhabha conceived the Nuclear Program in India. Dr Bhabha established the Tata Institute of Fundamental Research (TIFR) for carrying out nuclear science research in 1945. To intensify the effort to exploit nuclear energy for the benefit of the nation, Dr Bhabha established the Atomic Energy Establishment, Trombay (AEET) in January 1954 for multidisciplinary research program essential for the ambitious nuclear program of India. After the sad demise of Bhabha in 1966, AEET was renamed Bhabha Atomic Research Centre (BARC).

Dr. Bhabha established the BARC Training School to cater to the manpower needs of the expanding atomic energy research and development program. In Bhabha's own words "When Nuclear Energy has been successfully applied for power production in, say a couple of decades from now, India will not have to look abroad for its experts but will find them ready at hand". Dr Bhabha emphasized on self reliance in all the fields of nuclear science and engineering.

Organisational Structure

DIRECTOR : Dr. A. K. Mohanty

(March 2019 onwards)

ADMINISTRATIVE GROUP	Mr. P. GOVERDHAN, Controller BARC
CHEMICAL ENGINEERING GROUP	Dr. (Mrs.) SADHANA MOHAN
MEDICAL GROUP	Director, BARC
NUCLEAR FUELS GROUP	Mr. VIVEK BHASIN
NUCLEAR RECYCLE BOARD	Mr. K. V. RAVI, Chief Executive
RADIO CHEMISTRY & ISOTOPE GROUP	Dr. P. K. PUJARI

Research and Development

- Thorium fuel cycle
- Advanced reactor technologies & nuclear power
- Electronics instrumentation & computers
- Nuclear fuels design & fabrication
- Reprocessing & waste management
- Environment & radiation
- Material science & engineering
- Chemical engineering & technology
- Physical science
- Chemical science
- Health, food & agriculture

PUBLICATIONS

➤ BARC NEWSLETTER

- Current issues
- Archival

➤ Technical brochures

- National Facility for Neutron Beam Research [NFNBR] Brochure - 2013
- Desalination & Water Purification Technologies
- Medical Guidelines or Patient Care - January 2009 Edition
- Remembering Dr. Homi Bhabha, the Physicist (Bhabha Centenary Year 2008-2009)
- TRIBOLOGY LAB
- 50 Years of APSARA Reactor

PUBLICATIONS

➤ BARC Highlights

- **Desalination & Water Purification Technologies**
- **Chemical Science and Engineering**
- **Electronics, Instrumentation and Computers**
- **Environmental Science and Engineering**
- **Life Sciences**
- **Materials Science and Engineering**
- **Nuclear Fuel Cycle**
- **Physical Sciences**
- **Reactor Technology and Engineering**

➤ PULSE

ACTIVITIES

- Radiation and Photochemistry & Laser Induced Chemistry
- Solid State Reactions & Thermodynamic Studies
- Diamond Film Deposition
- Dry Combustion Plasma
- Chemical Synthesis
- Superconductivity
- Studies on Metal Hydrides
- Catalysis studies
- Analytical Chemistry
- Biocatalysts
- Chirons
- Peptides
- Pest Control
- Radiopharmaceuticals
- Solvent for Fuel Reprocessing
- Bio Active Compounds

SERVICES

- Environmental Monitoring around Nuclear reactors
- Safety of nuclear reactors
- Radioactive waste management: Indian scenario
- Applications of radiation in health care
- Nuclear agriculture
- Food agriculture
- Water
- Rural development
- Industry

Environmental Monitoring around Nuclear reactors

Measurement of radiation and other pollutants, often extending up to 30 km around nuclear facilities, forms the most important component of environmental monitoring program. Environmental Survey Laboratories (ESLs) equipped with sophisticated Gamma Spectrometers and Tritium counters to detect extremely low-levels of radioactivity, are established for constant monitoring to ensure safety of personnel associated with nuclear facilities and people at large. Protection of environment and the compliance of the radiation exposure limits set by Atomic Energy Regulatory Board (AERB) are other objectives of this program.

Safety of Nuclear Reactors

All nuclear facilities are sited, designed, constructed, commissioned and operated in accordance with strict quality and safety standards. The Atomic Energy Regulatory Board (AERB) frames the policies and lays down safety standards and requirements. It also monitors and enforces all the safety provisions. The AERB exercises regulatory control through a stage-wise system of licensing. This has resulted in India's excellent record in operation of Nuclear Power Plants (NPPs)

Tackling radioactive wastes efficiently

Any activity related to the nuclear fuel cycle, that produces or uses radioactive materials generates radioactive waste. The management of radiation emitting radioactive material is a matter of concern and is what sets nuclear wastes apart. Public acceptance of nuclear energy largely depends on the public assurance for safe management of radioactive wastes. Not all nuclear wastes are particularly hazardous or hard to manage as compared to other toxic industrial wastes. It is also a time of heightened global concern about nuclear energy after the earthquake and the fear of the radioactive releases from the affected damaged reactors in Japan. In accordance with international guidelines, a coherent comprehensive and consistent set of principles and standards are being practiced all over the world for waste management system.

Understanding radioactive wastes

- Radioactive wastes are generated during various operations of the nuclear fuel cycle. Mining, nuclear power generation, and various processes in industry, defence, medicine and scientific research produce byproducts that include radioactive wastes.
- Radioactive waste can be in gas, liquid or solid form, and its level of radioactivity can vary. The waste can remain radioactive for a few hours or several months or even hundreds of thousands of years. Depending on the level and nature of radioactivity, radioactive wastes can be classified as exempt waste, Low & Intermediate level waste and High Level Waste

Applications of radiation in health care

Every day applications of radiation medicine help millions of patients worldwide. Some techniques enable physicians to see inside the human body creating digital images using short-lived radioisotopes. These are called diagnostic techniques. Others which enable targeted and precise radiation treatment of cancer are therapeutic techniques. In general, radiation and radioisotopes find applications in the following categories of health care:

- 1) External beam therapy
- 2) Brachytherapy
- 3) Nuclear medicine and
- 4) Radiation Sterilisation of health care products

Nuclear Agriculture

BARC develops high yielding seed varieties by inducing mutations using Gamma radiation. Gamma radiation only accelerates the mutations which otherwise occurs naturally over a much longer periods of time. So far BARC released 42 seed varieties for commercial exploitation. Mutations can be in such a way that the crops mature early, to withstand biotic and abiotic stresses and to obtain better nutritional quality

LIBRARY SERVICES

- Online services-Lakshya
- Onsite services- Saraswati
- Translations services
- Photo/videography
- Auditorium
- Print & Bind and Reprography.
- Publishing- The division undertakes publishing work for BARC. External, Internal, Restricted, Annual reports, BARC Newsletter, Nuclear News Digest, Foreign Language Abstracts, Foreign Language Transbulletin, various brochures, pamphlets & booklets; BARC Highlights & other required publications from time to time are published regularly.

Digital Library

- Digital Library In keeping with the pace of time, a significant effort has been put in establishing a modern Digital Library. In early 1997, a DOS based CD-ROM networking using Banyan Wines operating system was implemented. With the beginning of windows era, switching to web based access technology in 2000 was carried out.
- Continuous addition and upgradation of software & hard infrastructure are going on since last few years.

FEATURES OF DIGITAL LIBRARY

- 10 Internet terminals have been provided for fast access of online digital resources on Internet.
- About 20 terminals have also been installed to accessing onsite digital resources on Saraswati.
- All of Saraswati workstations are equipped with CD Writers and USB port for fast downloading to portable devices like Pen drive etc.
- To provide printing infrastructure, two high speed network Line Matrix Printer at a speed of 1800 lines/ sec and 1500 lines/ sec have been incorporated at the Digital node.
- To provide smooth and uninterrupted power supply to the Digital Node, two 5 KVA UPS system have been installed.
- False ceiling with integrated light and powerful AC system have made the Digital Node a first choice of visit in Central Library.

Integrated Library management Software

For the purpose of achieving automation in library activities, a fully integrated multi-user (ILM) software package has been installed & commissioned. ILMS is designed to run on wide spectrum of hardware / software platforms in Client-Server environment. The library staff has adopted it quickly with intensive in-house efforts and relevant training in programming / computer skills.

Various modules of the management software facilitates various activities of the library.

- **Acquisition**
- **Cataloguing**
- **Serial Controls**
- **Circulations**
- **OPAC (Online Public Access Catalogue)**

Motto of BARC

Atoms in the service of the Nation