Independence Day
Friday, August 15, 2025
Venue: **DAE Secretariat**
Address by
Dr. Ajit Kumar Mohanty
Secretary, DAE & Chairman, AEC

Dear Colleagues, Ladies & Gentlemen

A very good morning and welcome to all of you. I am delighted to be here with you all to celebrate our 79th Independence Day. On this solemn occasion, I would also like to pay homage to our freedom fighters and martyrs, who have made supreme sacrifices in freeing India from colonial rule. Our freedom fighters not only gave us our freedom, but also created the pathway for a nation which would be prosperous, self-reliant and strong enough to uphold its sovereignty.

Today, I feel proud that the formation and growth of DAE has been concurrent to our aspirations for a modern India and we have persistently remained true to the endeavour of nation building through our multi-disciplinary activities based on the motto of 'atoms-in-service-of-nation'. I wish to congratulate you all for your contribution towards this endeavour.

At the very outset, I am glad to inform you all that this year, India is hosting the18th International Olympiad on Astronomy & Astrophysics, IOAA 2025 at Mumbai through HBCSE, which is a centre under TIFR. This event was inaugurated on the 12th August and is the largest ever International Olympiad on Astronomy & Astrophysics where 300 students and 140 mentors from 64 countries are participating. This event has bolstered India's position in astronomy on the world map. On this occasion, our Honourable Prime Minister addressed the participants through a video message where he highlighted that in India, tradition meets innovation, spirituality meets science, and curiosity meets creativity. He also remarked that for centuries, Indians have been observing the skies and asking big questions and gave the example of Aryabhatta who not only invented zero, but was also the first to say that the Earth rotates on its axis. It makes me feel proud that he also mentioned about DAE's

achievements when he talked about our contribution to global mega-science projects like the Square Kilometre Array and LIGO-India.

Building up further on these sentiments, all of you are also aware, that today, the country's nuclear energy sector is undergoing a transformation in line with our vision for Amrit Kaal and the same has manifested itself in the form of the 'Nuclear Energy Mission', aimed at rapid capacity building and development of advanced reactor technologies. At the national level, there is unprecedented attention, focus and expectation. The completion of the first-quarter of the 21st century has been a journey of 'revelation, realization and reform' for the department. Going forward into the second-quarter of this century, I am sure it will be a period of 'plan, project and perform' for us.

On the occasion of the celebration of DAE Day on 04th Aug, the Department has released its vision for 2047, complementing the national vision of Viksit Bharat. As I stand here today, I consider it my privilege to present the Department's achievements in last one year which has contributed to the prosperity, self-reliance and sovereignty of our great nation.

Dear Colleagues,

Nuclear Power generation is the flagship programme of DAE and has been built on the bedrock of our Aatma-Nirbharta. The transformation that is happening in Nuclear Sector is primarily driven by the changes it is bring to the functioning of Nuclear Power operations.

1. In terms of Operational excellence, the power plants of NPCIL have achieved a Plant Load Factor of 87 % during 2024-25. For the first time in its operation history, the nuclear power plants of NPCIL, generated 50 billion units in a financial year. Rajasthan Atomic Power Station Unit-2 was successfully synchronized back to the grid on 22nd May 2025, following the successful completion of Biennial Shutdown activities. It is the oldest operating PHWR in NPCIL's fleet and has completed 44 years of operation.
2. NPCIL has achieved the highest ever CAPEX of ₹ 17984 Crores during FY 2024-25 and has recently awarded its largest-ever EPC Contract worth ₹ 12,800 Crore to M/s Megha Engineering & Infrastructure Ltd. for Kaiga Units 5 & 6.

3. On 4th July 2025, AERB granted License for Operation to first 2 units of the indigenously developed 700 MWe PHWRs- Kakrapar Unit 3 & 4. RAPP-7, which is the 3rd reactor in a series of 16 sanctioned 700 MWe PHWRs, was successfully connected to the Northern Grid on 17th March 2025 and has started commercial operation on 15th April 2025.
4. AERB has also issued siting consent for the Mahi Banswara Rajasthan Atomic Power Project 1 to 4 which is a green field project being developed by ASHVINI, a JV between NPCIL & NTPC. This site will have 4 units of 700 MWe PHWRs designed by NPCIL. Environmental clearance for this project has been obtained.
5. In its pursuit of developing indigenous advanced reactor technologies, BARC has committed to developing a light water based 200 MWe Bharat Small Modular Reactor, a 55 MWe SMR and a High Temperature Gas Cooled Reactor for clean hydrogen production by integrating it with a thermochemical plant.
6. During the last one year, the total Uranium Oxide in-situ resource of the country has reached 4,33,800 tonnes, with the addition of 10,578 tonnes of these resources. The country's total in-situ Rare Earth Oxide resource has reached 1.29 million tonnes. A total of 1,800 tonne in-situ lithium oxide (Li2O) resource in G-2 category has been established for the first time in pegmatite (hard rock) terrain of Karnataka.
7. All mines and mills of UCIL are continuing to operate satisfactorily and UCIL achieved its production targets during the FY 2024-25.
8. HWB has produced nuclear grade Heavy Water and supplied to RAPS-7 for initial inventory and also met the annual make-up requirement of all PHWRs.
9. NFC has successfully completed the performance demonstration of Module -2 of PFFF at its Kota plant NFC Kota with due regulatory approvals.

In the Health Care sector, DAE continues to contribute to the indigenous development, commercialization & supply of therapeutic/ diagnostic radiopharmaceuticals and Cancer Care. Leading DAE institutes in this area are TMC, BARC, VECC & BRIT.

1. The operation of Fission Molybdenum Production Facility of BRIT for production of medical-grade high specific activity Molybdenum-99 was resumed in January 2025 after obtaining regulatory approvals.
2. For the first time ever in our country, a high specific activity ^{131}I-mIBG (Meta-Iodo-benzyl-guanidine) therapeutic dose having a specific activity of about

400 mCi/mg was prepared at BRIT and used by TMC for treatment of a teenager suffering from neuroblastoma. This dose was effective in treating and completely curing the disease. This achievement received very favourable feedback from the medical fraternity and the media.

3. The National Cancer Grid (NCG), created in 2012 with the broad vision of creating uniform standards of cancer care across India has grown into the world's largest cancer network. As of 2024, it has 370 members comprising cancer care centres, research institutes, patient advocacy groups, charitable organizations and professional societies. 70 new members joined the grid in last 1 year.
4. Tata Memorial Centre has successfully completed the construction of the new HBCH & RC in Muzaffarpur in Bihar. This Centre registered more than 8,000 new cancer patients in the past one year.
5. IAEA has recognised Tata Memorial Hospital as a "Rays of Hope" Anchor Center. This milestone highlights India's leadership in the Global South, showcasing its advanced cancer care expertise and commitment to global health equity".
6. In January 2025, BRIT commenced production and supply of No-Carrier-Added Lutetium-177 based radiopharmaceuticals for cancer therapy.
7. BARC has secured a US patent for use of D-DSePA as an Anticancer or Radioprotective Agent against radiation induced pneumonitis. The development and clinical validation of this agent was pursued at BARC and ACTREC under ICMR's "First in the World Challenge Funding Scheme".
8. In May 2025, BRIT successfully upgraded ISOMED 2.0 - the only High Intensity Irradiator in the world today with Category II type design that is poised to serve the healthcare industry for terminal sterilisation needs using gamma radiation.

In the field of Advanced Technologies & Materials, Radiation-based Technology & its application, wide-ranging activities ranging from high-end accelerators, laser, plasma, materials for defence & space application to societal radiation technologies for food, water, health, waste treatment and even e-governance have been undertaken by several DAE units. DAE is also contributing by way of producing and supplying (including export) minerals and chemicals, which are critical to various other sectors.

1. HWB has set-up the first Electronics-grade Boron-11 Enrichment Facility at Talcher. This state-of-the-art facility enriches B11 to 99.8% purity, suitable for semiconductor applications.

2. Heavy Water Board has executed export orders of 130.28 MT of heavy water to multiple countries. Heavy water is being regularly exported to USA, France, Japan, etc. for non-nuclear applications. India has also signed an agreement with Argentina to supply heavy water for Argentina's nuclear reactors.
3. BRIT has developed India's first compact, lightweight and portable tungsten-shielded, Iridium-192-based industrial radiography device, called the Remotely Operated Tungsten based Exposure device (ROTEX-I), which serves as a potential import substitute for wider Indian Industry base.
4. 15 MoUs have been signed for setting up gamma radiation processing facilities in private and state government sectors and 6 such facilities were commissioned in last one year, taking the total count for such facilities operating in the country to 40. BRIT is supporting these facilities by supplying Co-60 sources and establishing the plant operational parameters.
5. ECIL in collaboration with DRDO & BARC has designed & developed RF seekers which will detect and track the designated target and guide the LRAShM missile towards the target. ECIL has delivered a Seeker system to Advanced System Laboratory, DRDO in June 2025.
6. ECIL has delivered three Shore Based Anti-Ship Missile Systems (SBASMS) and BrahMos batteries to Philippines, each comprising one Mobile Command Post, one Vehicle Mounted Radar, two Mobile Autonomous Launchers and a common VSAT hub. The VSAT hub was commissioned in Apr 2025.
7. Niobium Thermit Production Facility, a plant set up by NFC under MoU with Vikram Sarabhai Space Centre, Department of Space to meet the requirements of Niobium for space programmes has been commissioned. First batch of Niobium oxide has been produced from the plant successfully and handed over to DoS.
8. In May 2025, the Electron Beam Radiation Processing Facility at RRCAT attained a new milestone of accomplishing electron beam sterilization of one crore medical devices using 10 MeV, 6 kW Linac. With progressive increase in the processing rate, the last 50 lakhs medical devices were sterilized in only five months.
9. The 10 MeV, 10 kW Linac model "KIRTI-1010" commissioned by RRCAT for industrial trials has been granted AERB licence for regular operations and is being operated independently at Bengaluru on a regular basis.

We continue to prioritise our basic and directed research and our scientists and engineers are not only delivering on several front-end research areas but are also creating several state-of-the-art scientific infrastructures, in national arena and as

part of global multi-national efforts as well. All our aided institutes-IMSc, SINP, TIFR, IoP, NISER, HRI, TMC, CEBS, HBNI and IPR have reported Significant research output throughout the year. These high-quality research works have been published in both national and international journals and presented at various conferences.

1. HBNI has secured 6th position in the Research Institution category, 16th position in the University category and 27th position in Overall category in NIRF ranking 2024. HBNI was placed in the first position regarding publications in Physical Sciences and at second position in all subjects all over India by Nature Index 2025 based on high-quality publications in Nature Group of Journals by HBNI students and faculties.
2. As part of India's growing prowess in the field of Astronomy, Major Atmospheric Cherenkov Experiment (MACE), Asia's largest Gamma Ray telescope has been installed at Hanle, Ladakh to explore gamma-ray sky in the energy range above 20 GeV and was inaugurated in October 2024. The MACE telescope has detected intense gamma-ray flares from OP-313, eight billion light years away, and NGC-1275, highlighting its deep-universe observation capability.
3. The recovery of Neptunium-237 from the PUREX process stream has been successfully demonstrated. Neptunium-237 can be used to produce Plutonium-238, a source material for Radioisotope Thermoelectric Generators.
4. At FBTR, production of Sr-89 with high specific activity at FBTR was successfully demonstrated. The product satisfied all the Quality Control Parameters as per US, European & International Pharmacopeia. Animal distribution studies have been recently completed on the same.
5. Researchers have produced the deepest radio images of the distant massive galaxy cluster El Gordo (Spanish for "The fat one") at 400, 650, and 1400 MHz using the Upgraded GMRT.
6. At NISER, two Facilities– "National Centre for Animal Research & Experimentation" and "400 keV ion Implantation facility" have been dedicated to the nation.
7. The 1 Petaflop HPC Facility, based on C-DAC's indigenously designed PRAM RUDRA servers are being deployed at GMRT under the National Supercomputing Mission. This facility is aimed at conducting real-time commensal searches of transient sources. This was inaugurated by the Hon'ble Prime Minister, Shri Narendra Modi, on 26th September 2024, highlighting the development of AI-powered big data science on indigenously developed hardware.

8. As part of a new project, TIFR has collected over 730,000 records of 3,752 butterfly species from across tropical Asia using research data and citizen science. The study created distribution maps for 1,576 species and identified places needing more research, like Myanmar and New Guinea, as well as regions rich in butterfly diversity, like Peninsular Malaysia and Borneo.
9. The TIFR Balloon Facility, Hyderabad has conducted eight rubber balloon experiments during the Balloon measurements of the Asian Tropopause Aerosol Layer-2024 campaign in collaboration with ISRO and NASA. It also conducted the first zero-pressure balloon experiment for the BATAL-2024 campaign and launched four such balloons. The main objective of these experiments was to study the vertical profiles of aerosols and cloud properties along with the meteorological parameters in the Indian Summer Monsoon season

Knowledge retention, transfer and capacity building for future in terms of human as well as other enabling resources are integral part of any DAE program and this is not limited to the geographical boundary of the country.

1. During the FY 2024-25, HBNI has awarded a total of 897 degrees including, 293 Ph.D. degrees, 131 M.Tech. degrees, 260 M.Sc. degrees (in various disciplines), 98 post-graduate & super specialty medical degrees (with specializations in Oncology), 70 Post Graduate Diploma degrees (in Nuclear Science and Engineering), and 26 Diploma degrees (in Radiological Physics)
2. The first batch of ten MSc students from the CMRP (Center for Medical and Radiological Physics), NISER have graduated, and all of them received Job offers in hospitals and cancer centers across the country.
3. The 1st phase of the BIMSTEC Cancer Care Capacity-building Program was launched at Tata Memorial Centre in Mumbai. This is part Honourable Prime Minister's 21-point Action Plan, announced during 6th BIMSTEC Summit, in line with its #NeighbourhoodFirst policy. 21 participants from BIMSTEC countries will be trained in 4-week long program in Radiation Oncology, Nuclear Medicine and Radiology.
4. Tata Memorial Centre launched one of the most comprehensive Textbook of Oncology in a comprehensive volume
5. In order to facilitate research collaboration with premier academic institutes and universities of the country, HBNI has signed new MoUs with (i) Indian Institute of Technology (IIT), Jammu, (ii) Indian Institute of Technology (IIT), Guwahati, (iii)

Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bangalore, (iv) AIC RRCAT Pi-hub foundation (AIC π-Hub), Indore, (v) Indian Institute of Technology (IIT), Hyderabad and (vi) AIC-IPR Plasma Tech Innovation Foundation (AIC-IPR), Gandhinagar.

6. At the Atal Incubation Centre of IPR, 8 incubation agreements have been signed with Indian start-ups and 6 technology transfer agreements have been executed
7. As part of our international collaborations, an MoU on the peaceful uses of Nuclear Energy has been signed between Global Centre for Nuclear Energy Partnership (GCNEP) and Tanzania Atomic Energy Commission. This MoU is a step towards strengthening capacity building and skill development in peaceful use of nuclear energy between India and Tanzania.

Given the performance of DAE institutes and professionals, it is but natural that a few Awards and Recognitions were bestowed upon DAE fraternity, both by National and International Agencies.

1. Several scientists from various institutes of DAE working on the India-ALICE and India-CMS projects with CERN have figured in the list of recipients of the 2025 Breakthrough Prize in Fundamental Physics, for outstanding contributions to LHC Run-2 research.
2. AMD has been conferred with Excellence Award in the category for *'Best Heavy Mineral Exploration of the Year'* in the forum of International Conference on Heavy Minerals and Lithium for Energy Security (REES – 2024) at Kochi, Kerala.

1. Team AMD has also won the First Prize in the 'Mineral Exploration Hackathon' organised by Geological Survey of India (GSI), Ministry of Mines (MoM) on 'Innovative Mineral Hunt Techniques' at Bhubaneswar on 19.01.2025.
2. ECIL was conferred with Miniratna (Category-I) status on 13 May 2025, for its consistent performance, operational efficiency & strategic contributions towards the Nation.
3. ECIL has received the IETE Corporate Award for Performance in Electronic Instruments and Instrumentation – 2024 in the category of Large Enterprises.
4. During this year also, Indian students have continued to excel at the International Olympiads in every subject, thanks to the mentoring by HBCSE. India won 2 Gold and 2 Silver medals at the 36th International Biology Olympiad, 3 Gold and 2 Silver medals at the 55th International Physics Olympiad, 1 Gold, 2 and 2 Silver medals at the 57th International Chemistry Olympiad, 3 Gold, 2 Silver, and 1 bronze medal

at the 66th International Mathematics Olympiad. India also won 1 gold medal and 4 silver medals at the 17th International Olympiad on Astronomy and Astrophysics.

While we continue to strengthen our focus in our core activities, our Service Organizations continue to support, facilitate and augment the Department's infrastructure; while managing real estate and maintaining the landscape and biodiversity in all the DAE campuses. DCSEM has completed the civil upgradation work for the upcoming DAE- Institute of Advance Studies (DIAS). Material Management System (MMS) of DPS has been extended to all the DAE units in Mumbai to reduce the processing time and to create MMS data base available to all the DAE units in Mumbai. DPS has played key role in explaining and convincing DPIIT to give GTE exemption to R&D units of DAE, wherein, Unit Heads of DAE, R&D units are authorised to approve GTE for less than 200 crores. This is a major decision to shorten the procedure of GTE for important R&D procurement.

Towards awareness and building positive perception about the beneficial effects of nuclear energy to mankind and environment, DAE continues to implement its outreach programs in mission mode.

Before I end, my sincere wishes and gratitude for our health care professionals, security professionals and administrative/ technical/ scientific staffs, who are the people on the ground and keep the system up and running as always. A special thanks to the teachers in our 30 schools and junior college under AEES who are mentoring our next generations.
I once again thank you and urge you all to stand up and deliver on the high expectations the nation has put on us during the Amrit Kaal.

I will end with another quote made at the IOAA 2025 by our honourable Prime Minister. Aim high, dream big, and remember, in India, we believe that the sky is not the limit; it is just the beginning.

Vande Mataram and Jai Hind.