

**Founders Day Address
Friday, October 29, 2021**

by

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Chairman, AEC & Secretary, DAE**

Respected Seniors, Dear Colleagues, Ladies and Gentlemen, wish you all a very good morning.

On my personal behalf, I extend a warm welcome to you all for the celebration of the 112th birth anniversary of Dr. Homi Jehangir Bhabha. We commemorate this occasion every year as Founder's Day and pay our tribute to Dr. Bhabha, a visionary and the founding father of India's atomic energy program. This day gives us an opportunity to collectively reflect on the progress and achievements of our Department.

Dear Colleagues,

Today, we continue to witness the challenges faced by our country and the world at large because of the on-going pandemic since early last year. However, the dedication and self-less services of our health care researchers and professionals, paramedical staff, sanitation workers, civic administration and implementing agencies have helped us to fight this disease in a most effective manner. We are grateful to all our COVID Warriors who have made this possible. It is these untiring efforts which have started bearing fruit and today we are a nation of over 1 billion vaccinated citizens.

A. I will start with highlighting some major activities of NPCIL.

- The trend of continuous operation of reactors for more than a year has continued. NAPS Unit-2 completed 852 days of safe continuous operation. Rajasthan Atomic Power Station Unit-4 has continued to operate for more than a year (542 days as on 30.09.2021). This shows the level of maturity achieved by NPCIL in design and operation of nuclear power plants.
- Despite the COVID-related restrictions, the project construction work continued in the second phase of COVID-19 with due SOPs and is progressing well.

B. For ensuring operation of Nuclear Power Stations, both NFC and HWB provide vital inputs. I will mention some of the salient activities of NFC and HWB.

- NFC has successfully manufactured & delivered Steam-Generator tubes required for 1st SG set of upcoming 700MWe PHWR of GHAVP. These tubes were manufactured with complete indigenous technology starting from raw material supplied by MIDHANI to the finished tubes developed & manufactured at NFC.

- Our Heavy Water plants have been kept operational despite the constrained circumstances of COVID-19 and could achieve 100 % of targeted Heavy water production without any incident.
- As part of their diversified & extended mandate,
 - The technology for ^{10}B enrichment and production of ^{10}B enriched Boron Carbide for supporting our Fast Breeder Reactor program has been mastered by HWB.
 - HWB has developed the technology for production of Organo-phosphorous solvents to support extraction and recovery of Rare-metal during Front and Back end of Fuel Cycle.

C. As we all know, AMD, UCIL and IREL look after a variety of activities related to atomic minerals. I will describe salient activities of all the three Units.

- On the mineral exploration front, AMD has augmented our U-oxide resources (U_3O_8) by about 13,000 tonnes and the Rare Earth Oxides by about 2,50,000 tonnes. The Rare Metal and Rare Earth (RMRE) stockpile has been augmented.
- UCIL has continued to achieve 'Excellent' ratings from The Department of Public Enterprises, for the third consecutive year. UCIL is currently augmenting its capacity for domestic uranium production and has taken up new projects in different parts of the country for implementation on priority.
- IREL has also received "Excellent" MoU Rating for the third consecutive year. The MoU Score secured by IREL (India) Limited is the highest among the DAE Units and 2nd best among CPSEs all over India.

D. All of us acknowledge that BARC is the mother institute of the Department of Atomic Energy and has multidisciplinary expertise in all the fields of Basic Science and Engineering. I will describe some major activities of BARC.

- Asia's largest gamma-ray telescope, MACE, at Hanle, Ladakh, which is located at the highest altitude in the world among the existing telescopes of this class, recently underwent final stages of commissioning. This facility had its first light in April 2021 with successful detection of the high energy gamma-ray photons from the Crab Nebula.
- In the field of health care, technologies for five types of face masks were transferred to private entrepreneurs for large scale production. These masks use the HEPA filter developed by BARC.
- In addition, several technologies for societal applications have been developed and deployed and one such development is the Quick Scan Whole Body Monitor. This monitor has been indigenously developed to meet the requirements for quick & efficient monitoring of radiation workers for internal contamination for

deployment at various facilities. This technology has been transferred to private entrepreneurs.

E. IGCAR is another premier institute of our department involved in activities of research related to sodium cooled fast reactor technology. One highlight is as follows:

- A Chemical Emergency Response System (CERS) has been developed based on the augmented Online Decision Support System ONERS of IGCAR. This has been done in collaboration with the Department of Factories and Boilers (FAB), Govt of Kerala and NRSC-ISRO for assessing the impact of toxic gas releases at industrial sites.

F. RRCAT and VECC activities are focussed around lasers and particle accelerators. Both the institutes also have activities in the field of societal outreach. I will describe a few of the activities.

- Under Incubation Centre at RRCAT, Fiber Bragg gratings were delivered to a start-up company which were used for development of novel and state of the art safety and monitoring systems for Indian Railways.
- 30 MeV Medical Cyclotron commissioned at VECC is functioning well. Regular supply of radiopharmaceuticals in the region is being carried out in collaboration with BRIT. Many newer isotopes are also being produced, and based on the success achieved, BRIT will be in a position to introduce newer radiopharmaceuticals.

G. I would also like to mention that BRIT has continued the supply of cold kits and radiopharmaceuticals at economical rates. This has helped in carrying out about 1,48,000 in-vivo and 87,500 in-vitro diagnostic investigations, 9800 PET investigations and 5200 therapeutic treatments. BRIT plants have also performed phyto-sanitisation of about 45000 tons of food items in the last one year.

H. From the early days of DAE, Dr. Bhabha had visualised that cancer research and cancer care will play an important role in the activities of DAE. Tata Memorial Centre with hospitals spread at a large number of locations in India provide an excellent health care for persons suffering from Cancer. I will present a few highlights:

- The Dr B Borooah Cancer Institute (BBCI) at Guwahati has contributed significantly to cancer care in the north-east region of our country. WHO Regional Director's Award for tobacco control was presented to Dr B Borooah Cancer Institute.
- Four landmark studies from TMC have changed cancer treatment protocols worldwide and have been published in the top medical journals.

I. In addition to TMC, DAE has a large number of autonomous institutes involved in cutting edge research in specific areas. I will try to describe major highlights of the institutional activities.

- TIFR has developed Nano-Sponges of Solid Acid which transform Carbon Dioxide to Fuel and can help in reducing CO₂ levels and climate change.
- IPR has continued to make valuable contributions to the ITER project. Approximately 4 km of Cryolines, operating at temperatures ranging from 4K to 80K, and about 6 km of return lines for warm gases, have been manufactured by M/s INOXCVA in India and dispatched to the ITER Worksite in France.
- IPR has also been actively engaged in technology development and incubation for societal benefits. A portable hand-held plasma sterilizer has been indigenously developed by IPR for disinfection of surfaces contaminated by microbes like bacteria and viruses.
- NISER has started a Post Graduate programme in Medical and Radiation Physics.

Dear Colleagues,

The programmes of the Department are expanding and are progressing on the lines of "Vision Program" that has been prepared for next 15 years. I urge all the DAE family members to work with dedication and make our Vision Programme a success.

In the end, I would like to thank all the members of our Scientific & Technical; Administration & Security; and last but not the least, health care professionals; who have worked hand in hand, by putting in all possible efforts, in making the program of the Department a success.

I once again extend my good wishes to all members of DAE and their families on this august occasion.

Thank you very much and Jai Hind.