FoundersDay Address
Friday, October 30, 2020
by
Shri K N Vyas
Chairman, AEC & Secretary, DAE

My Dear Colleagues,

A very good morning to all my Respected Seniors, Dear Colleagues, Ladies and Gentlemen.

Today we have assembled here (both in physical as well as in virtual modes) this morning on the occasion of the 111th birth anniversary of Dr. Homi Jehangir Bhabha, a day which is celebrated by all of us as the Founder's Day. Dr Bhaba, a visionary and founding father for the India's atomic energy program laid out a roadmap for the growth of atomic energy in the country for societal use. Every year, we celebrate Founder's day, a day which reminds us to re-assess ourselves, whether we are in sync with the roadmap laid by him.

Dear Colleagues,

As you all know that, since the beginning of this year, the whole world is passing through a very difficult time due to COVID-19 pandemic. During this pandemic,our soldiers are Doctors, Nurses, Paramedical staff, Health workers, Sanitation workers, Police force etc. They are helping us fight the COVID-19 disease, in amost effective manner. We, as a nation are determined to overcome this difficult time.

In order to prevent spread of COVID-19 in the DAE family, many initiatives were taken in this direction, while complying with the guidelines issued by both Central as well as State Governments from time-to-time. In all our units, including Autonomous Institutes and PSUs wearing of face mask and maintaining social distancing has been made compulsory. Body temperature check is done at the entry of the unit. Hand sanitizers

have been kept at various locations. Regular room sanitisation is being done using UV-C machines. Several machines to sanitise physical files have also been installed at various locations.

It is worth mentioning that, especially in Mumbai, due to complete stoppage of local trains, arrangement for bringing minimum staff from various far-off locations in the city were made and are still in operation. Noteworthy is that during the entire period of pandemic, all our operating units werein continuous operation, following the guidelines issued by MHA and MoHFW for prevention of spread of COVID-19.

Dear Colleagues,

While some activities of the Department got affected due to lockdown, still substantial progress has been made. Today, I would like to highlight some major achievements of this Department.

Our first indigenously built 700 MWe PHWR at Kakrapar (KAPP-3) achieved first criticality successfully on 22nd July 2020 at 0936 hrs. This is a key milestone for our Nuclear Power Program. Three more 700 MWe PHWRs are in advanced stage of construction and commissioning. Herein after, NPCIL plans to standardise design of 700 MWe PHWRs and also plans to build about 10 such reactors in fleet mode for which Government approval exists.

As on end September, 2020, NAPS-2 completed 767 days of safe continuous operation, thus achieved a milestone of continuous operation for two years and is still continuing to operate. So far, NPCIL has achieved continuous operation for more than two years 4 times and for more than a year 34 times, for its fleet of operational reactors. Thus depicting the robust maintenance and operation experience gained by our Scientists and Engineers.

In the financial year 2019-2020, NPCIL recorded highest ever generation of 46,472 Million Units of electricity as compared to any previous financial year’s generation.

During the lockdown period, all the NPPs have operated well. The fleet capacity factor was more than 78% and availability factor of 82% was achieved during the period April to September 2020.

I congratulate NPCIL's management, Scientists, Engineers and staff for these achievements.

India has been making efforts for extending our nuclear power capabilities internationally. To begin with, agreements have been signed for training manpower in operation and maintenance of reactors coming up in Bangladesh. This will help in establishing our credibility as global player in the field of nuclear power.

In April 2020, Turamdih Mill has commissioned the facility for the production of 'Heat Treated Uranium Peroxide (HTUP)' in place of 'Magnesium Di-Uranate (MDU). With this, all the mills of UCIL in Jharkhand are now producing yellow cake in the form of HTUP which is of more than 84% grade as compared to around 70% for MDU. HTUP contains lower impurities and is easily soluble in nitric acid, and being of superior grade, it will increase the efficiency of downstream processes.
On the industrial front, all the production units of the Departmentviz NFC, HWB, UCIL, IREL, BRIT, ECIL have been meeting their targeted production. Apart from taking up various developmental projects, the focus of NFC is on Automation of the fuel production line.

During the FY 2019-20, IREL has recorded highest ever Revenue from Operations of Rs.1038.74 crore since its inception, which is an increase by about 35% over previous FY. It also achieved highest ever Profit Before Tax (PBT) of Rs. 402.94 crore. This is almost double of previous year's PBT. For developing value added / strategic products, IREL is setting up Rare earth Permanent Magnet Plant, for which major statutory clearances have been received.

ECIL has developed innovative Remote Health Monitoring System (RHMS) for remote health monitoring and tracking of COVID-19 and

general patients, based on Internet of Things (IoT) Technology. RHMS has two variants MONAL 2020 (for measuring body temperature, oxygen saturation in blood and heart beat rate) and COVID BEEP 2020 (in addition to MONAL 2020 parameter measurement, it also remotely monitors Blood Pressure and ECG).

ECIL has successfully implemented the Smart Grid Pilot Project for Telangana State Southern Power Distribution Company Limited (TSSPDCL), Hyderabad under Government of India's Integrated Power Development Scheme.

Heavy Water Plant at Kota has made highest production of heavy waterin the history of operation of the plant since 1985, with 110.2% of the target, with consumption of 28.7 GJ/kg specific energy as against a target of 29 GJ /kg.

Sodium Purification facility (400 kg per batch) was commissioned at Heavy Water Plant at Baroda on 5th January 2020, and purified Nuclear Grade Sodium of 3.0 MT was produced for supply to IGCAR, Kalpakkam.

At HWP, Manuguru, Oxygen-18 unit attained the required enrichment of 95.5%, and 800 ml product was collected. It is a milestone in the production of enriched water for medical applications.

At Medical Cyclotron Facility, VECC, Kolkata regular production and supply of [F-18]-FDG radiopharmaceutical has commenced from 29th June, 2020 for the PET imaging at Nuclear Medicine Centres in Kolkata.

After obtaining regulatory approvals,BRIT started the regular Production & Supply of ^{177}Lu-PSMA, ready-to use therapeutic Radiopharmaceutical, for the treatment of Prostate Cancer since September 2019.More than 100 Consignments have been supplied till date.

In the area of Mega Science projects, a number of milestones were completed by ITER-India for the ITER project. On May 28 2020, the Cryostat Base section was installed in the Tokamak pit. The structure,

weighing approximately 1250 Tons, over 30 m diameter and 10 m tall, was placed with a positional accuracy of less than 3 mm with only very small gaps around.

As a part of new initiatives forDAE, on May 16, 2020, the Hon'ble Finance Minister had made three announcements under the umbrella of 'AtmaNirbhar Bharat' concerning DAE.

Quote

- ***Establish research reactor in PPP mode for production of medical isotopes-promote welfare of humanity through affordable treatment for cancer and other diseases.***
- ***Establish facilities in PPP mode to use irradiation technology for food preservation to complement agricultural reforms and assist farmers.***
- ***Link India's robust start-up ecosystem to nuclear sector – Technology Development-cum- Incubation Centres will be set up for fostering synergy between research facilities and tech-entrepreneurs.***

Unquote

Substantial progress has been made in all the three areas.

RRCAT has indigenously developed a remotely operated and fiber coupled 500 W average power Nd:YAG laser systems for welding and cutting applications. One laser system has been commissioned at the Advanced Fuel Fabrication Facility (AFFF), Tarapur for fuel fabrication of PFBR and BWR.

Most of our research facilities, including Synchrotron, Cyclotron, Dhruva, Fast Breeder Test Reactor (FBTR) etc. continued to achieve the highest ever performance.

Department has also been working in the field of various non-power applications in a mission mode.

Bhabha Kavach jacket material developed by BARC is a low-cost import substitute AK-47-HSC bullet resistant level III+ material and has been inducted into the armed forces. Its developer received prestigious Shanti Swarup Bhatnagar Award in 2020.

In the health care sector, BARC in association with SCTIMST (Sree Chitra Tirunal Institute for Medical Sciences and Technology), Thiruvananthapuram, successfully completed development of prototype Deep Brain Stimulator (DBS) for neurological disorders of brain. This will facilitate treating neurological conditions, like Essential tremor, Parkinson's disease & Dystonia.

A big push in Cancer treatment is taken up by TMC. After Varanasi hospital, it is also building cancer hospitals in Mullanpur, Visakhapatnam and Sangrur. TMC has started Paediatriconcology services at Visakhapatnam.

In the area of Food Security, two gamma ray induced mutant rice varieties developed through BARC and Indira Gandhi Krishi Vishwavidyalaya (IGKV) collaboration were released by State Variety Release Committee (SVRC)-Chhattisgarh. One of the mutant rice varieties is named as Vikram-TCR to honour the late Dr Vikram Sarabhai, our former Chairman, during his birth centenary year.

In the field of basic science, a team of astronomers at the National Centre for Radio Astrophysics (NCRA-TIFR), in Pune, have recently discovered an extremely large ring composed primarily of neutral hydrogen gas around a distant galaxy named AGC 203001 using the Giant Metrewave Radio Telescope (GMRT). This ring happens to be only the second known example of such elusive rings whose origin remains a matter of debate among astrophysicists.

A travelling exhibition ‘Vigyan Samagam’ was held during May 2019 to March 2020. In this, some of the Mega Science Projects in which India is participating like CERN, LIGO (Laser Interferometer Gravitational-Wave Observatory), SKA (Square Kilometre Array), TMT (Thirty Meter

Telescope), FAIR (Facility for Antiproton and Ion Research) were showcased. During the entire 11 monthsof this travelling exhibition, a first-of-its-kind, attracted a total of about 6.5 lakhs visitors, which is a great achievement for science exhibitions.

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 am sure that a sustained contribution of the members of DAE family will make this a success.

In order to translate spin-off technologies to reach society in a product form, DAE has decided to set-up incubation centres. These centres shall be mentored by different R&D Units for transfer of the technologies. This is also one of the announcements made by the Hon'ble Finance Minister.Under this, the technologies already developed shall be transferred to entrepreneurs. The Institutes can also collaborate with suitable partners to develop newer technologies as per the societal needs.

In the initial phase, incubation centres at BARC, IGCAR and RRCAT are being launched. Two more centres viz. VECC and IPR are in the process of initiating the procedure for establishing the incubation centre. On this occasion, to give fitting tribute to our founding father, we are releasing a logo and a short film as a visual identity for the activity.

In the end, I would like to thank all the members of our Scientific, Technical Administrative and Auxiliary Staff, including Security who have worked hand in hand in making the program of the Department a success.

In this pandemic period, I would request all to Stay Safe by wearing face mask, maintaining social distancing and maintaining good hygiene.

Thank you all and Jai Hind.