

NAME: MONALISA DAS CLASS: X-C  
SCHOOL: NEW ERA SENIOR SECONDARY SCHOOL

TOPIC: "INDIA'S QUEST FOR NUCLEAR ENERGY - A 75 YEAR PERSPECTIVE"  
A BEGINNING OF A FLOURISHING FUTURE

"A scientific institution, be it a laboratory or an academy, has to be grown with great care like a tree. Its growth in terms of quality and achievement can only be accelerated to a very limited extent." These iconic words by the 'Father of the Indian Nuclear Programme', Dr Homi Jehangir Bhabha, resonate the ideation of India's Nuclear Energy Programme. However, the nation still has a long path ahead waiting to be conquered.

Post-independence in 1947, India's population experienced a nuclear fission that led to rapid increase in energy consumption levels. Commercial energy consumption skyrocketed from a mere 25% to 65% in 1950 and a similar trend was observed in domestic energy consumption. Although coal was and still is the largest source of energy in the country, its limited quantity and other drawbacks like the carbon footprints it leaves, necessitated the development of alternate energy resources that were more reliable and clean.

The pursuit of harnessing nuclear energy, had begun way before our independence. It all started when Bhabha returned to India in 1939 and noticed that there was no institute here which had the necessary facilities for original work in nuclear-physics, cosmic-rays and other related subjects of physics. The establishment of Cosmic-Ray Research Unit at the IISc was the first step in that direction. The

proposal was then sent to the Tata Trust for establishing 'a vigorous school of research in fundamental physics' in 1944. This marked the birth of Tata Institute of Fundamental Research (TIFR) in Bombay in 1945 and the Atomic Energy Commission (AEC) in 1948.

In 1955, the proposition for building a commercial nuclear-power station was raised in the parliament and accordingly AEC planned to construct two nuclear power stations. By 1960, the Indian government issued a tender for India's first nuclear-power station near Tarapur, Maharashtra with two reactors, each generating around 150 MW of electricity and to be commissioned in 1965.

Over the time, many nations have pitched-in to help India. When world's first commercial nuclear-power plant commenced operations at Obninsk in the USSR, the Soviets invited Indian experts to visit it. The US too offered to train the Indian technicians & scientists. With India's vast thorium reserves but meager uranium reserves, Russia has been a major supplier of uranium since the early 1990s. India now has civil nuclear agreements with 14 countries. Even though India is not a party of the Non-Proliferation Treaty, it is still allowed to carry out nuclear commerce with the rest of the world.

Today, nuclear-power is the fifth-largest source of electricity in India. There are 23 nuclear reactors in operation in 7 nuclear-power plants, with a total installed capacity of 7,480 MW. 10 more reactors are under construction with a combined generation capacity of 8,000 MW. The nuclear-energy capacity would be increased thrice the present capacity in the next 10 years to reduce the country's carbon-footprint.

So, let's march forward in this journey, for the next energy miracle is nuclear energy.