N. L. Dalmia Institute of Management Studies and Research

Industrial Visit Report

Nuclear Power Corporation of India Limited (NPCIL)

(Tarapur Atomic Power Station, Maharashtra)

Nuclear Power Corporation of India Limited (NPCIL) is a Public Sector Enterprise under the administrative control of the **Department of Atomic Energy (DAE)**, Government of India. The Company was registered as a Public Limited Company under the Companies Act, 1956 in September 1987 with the objectives of operating atomic power plants and implementing atomic power projects for generation of electricity in pursuance of the schemes and programmes of the Government of India under the Atomic Energy Act, 1962. NPCIL also has equity participation in BHAVINI, another PSU of Department of Atomic Energy (DAE) which implements Fast Breeder Reactors programme in the country.

NPCIL is responsible for design, construction, commissioning and operation of nuclear power reactors. NPCIL is a MoU signing, profit making and dividend paying company with the highest level of credit rating (AAA rating by CRISIL and CARE). NPCIL is presently operating 22 commercial nuclear power reactors with an installed capacity of 6780 MW. The reactor fleet comprises two Boiling Water Reactors (BWRs) and 18 Pressurised Heavy Water Reactors (PHWRs) including one 100 MW PHWR at Rajasthan which is owned by DAE, Government of India and two 1000 MW VVER reactor KKNPS-1&2, in this, latest addition to the fleet is the unit-2 of Kudankulam Nuclear Power Station, a 1000 MW VVER (Pressurised Water Reactor type), which has started its commercial operation on March 31, 2017. Currently NPCIL has Eight reactors under various stages of construction totalling 620W capacity.

Tarapur Atomic Power Station was constructed initially with two boiling water reactor (BWR) units under the 1963 123 Agreement between India, the United States, and the International Atomic Energy Agency (IAEA). It was built for the Department of Atomic Energy by GE and Bechtel. Units 1 and 2 were brought online for commercial operation on 28 October 1969 with an initial power of 210 MW of electricity. Later on this was reduced to 160 MW due to technical difficulties. These were the first of their kind in Asia.

More recently, an additional two pressurised heavy water reactor (PHWR) units of 540 MW each were constructed by BHEL, L&T and Gammon India, seven months ahead of schedule and well within the original cost estimates. Unit 3 was brought online for commercial operation on 18 August 2006, and unit 4 on 12 September 2005. The facility is operated by the NPCIL (Nuclear Power Corporation of India).

Tarapur Atomic Power Station, (MH) TAPS

Objectives of Industrial Visit are to enhance the knowledge of students, to make aware with real industry, to know the persons of industry and what the working role of person in industry. The visit was planned for making observations in desired framework of the study Tarapur Atomic Power Station (TAPS) is located in Tarapur, (MH). It was initially constructed with two Boiling Water Reactor (BWR) units of 210 MWe each initially by Bechtel and GE under the 1963 123

Agreement between India, US and International Atomic Energy Agency (IAEA). The capacity of units 1 and 2 was reduced to 160 MWe later on due to technical difficulties. Units 1 and 2 were brought online for commercial operation on 28 October 1969.These were the first of their kind in Asia. More recently, an additional two Pressurised Heavy Water Reactor (PHWR) units of 540 MWe. Each were constructed by L&T and Gammon India, Unit 3 was brought online for commercial operation on 18 August 2006, and unit 4 on 12 September 2005.

Introduction to Tarapur Atomic Power Station (TAPS)

TAPS 1&2 is Boiling Water Reactor (BWR) having capacity 160MWe each and TABS 3&4 Pressurized Heavy Water Reactor (PHWR) 540MW each in India. These reactors are indigenously developed and designed. Its operation will be supported by a supply of heavy water from the heavy water plants and fuel from Nuclear Fuel complex, both under the Department of Atomic Energy.

PS 3&4 is located on the west Coast of the Arabian Sea. The site is located near existing TAPS - 1&2. The nearest railway station is Boisar at a distance of 12 km from the site, which is on the main trunk railway line from Mumbai-Delhi. The site is well connected by road and around 30 km away from the Mumbai-Ahmadabad National Highway.

Unique features of this plant:

1. 220 KV and a 400 KV gas insulated indoor switchyard (GIS) are present of which 400KV is used for power evacuation system

2. Introduction of generator circuit breaker between generator and GT system divides the system in two independent EMTRs for both divisions are present

Details of Industrial Visit

The Visit was organised for PGDM Finance Students with the prior permission of Director Dr. M.A. Khan, HOD of Finance Department Prof. Jyoti Nair N.L. Dalmia.

We thank following Officers of Tarapur Atomic Power Station -1to4, NPCIL. : Shri AB Deshmukh, Site Director, TMS , Shri SM Mulkalwar, Station Director, TAPS-1&2 ,Shri R. Murali, Chief Superintendent, TAPS-1&2 , Shri V. Thattey, Technical Services Superintendent, TAPS-1&2 , Shri KVSN Murthy, Maintenance Superintendent, TAPS-1&2 , Shri PA Joshi, Training Superintendent, TMS , Shri KM Bhave, Chairman, CSR , Shri CK Gupta, Sr. Training Officer, TAPS-1&2 , Shri AK Pandey, Training Officer, TAPS-1&2 , Shri RT Ahire, F/Man-C, Training, TAPS-1&2 , Shri DM Nijai, F/Man-C, Training, TAPS-1&2 , Shri Abhishek Neelabh, SO/E, Training, TAPS-3&4 , Shri Anand Vishnu Bharambe, SA/E, Training, TAPS-3&4 , Shri VD Gopale, Technician/G, Training, TAPS-3&4 ,Shri Santosh Mangal Yadav, Technician/G, Training, TAPS-3&4 , Shri M. Sharma, Commandant, CISF , Shri Prashant Raut, Coordinator, Industrial Visit and Special thanks to Gunshekhar Gounder sir.

Batch - 1

Batch - 2

Batch – 3

It was a good experience, which has provided exposure to the final year students with industrial life. The students are benefited in terms of the technical details provided by the guides on an important part of TAP and Various Career Opportunities in Nuclear power plant and their core field. Presentation on Nuclear Technology & TAPS at Nuclear Training Centre (NTC): They conducted around 2 hours and 30 min seminar sessions as following details.

- Detailed presentation on the Nuclear Technology, Tarapur Atomic Power Station and its operations to students by senior Technical Staff of TAPS-3&4.

- The presentation covered various safety aspects of the nuclear power plants (NPPs) keeping in mind the Atomic Energy Regulatory Board (AERB) guidelines, their emergency preparedness and the benefits of nuclear power.

- Students were also told that radiation level is periodically measured in the surrounding areas of TMS by the Environment Sampling Laboratory (ESL) and briefed about the functioning and role of environment monitoring mechanism towards nuclear safety.

- Health monitoring of workers and local peoples are done by measuring the doses of radiations on regular intervals.

- It was also highlighted in the presentation that radiation received from NPPs, by the people residing in the vicinity, is insignificant in comparison to the natural background radiation. On this occasion, a film on Tarapur, telecast by National Geographic Channel was also screened to us

The details of Journey are as follows: -

- For convenience of pickup facility, we started travelling from Mira Road at 7.00 AM on 7th and 8th of November 2022.

- We had Tea with Samosa in the middle of the journey.

- The whole journey was enjoyable & we reached to Tarapur at morning 9.30 A.M.

- At the entrance there were CISF security, they checked the bus as well as our I card. All the Check-in process has been done by the assigned faculty and some special task force from 9.45 AM to 10.15 AM.

- Two senior officers of TAPS guided us to the power plant and they took us to the canteen for our breakfast. After finishing our breakfast, they took us to the nuclear training centre (NTC)

- 11Am to 1:30 Pm there were Presentation on Nuclear Technology & TABS at NTC.

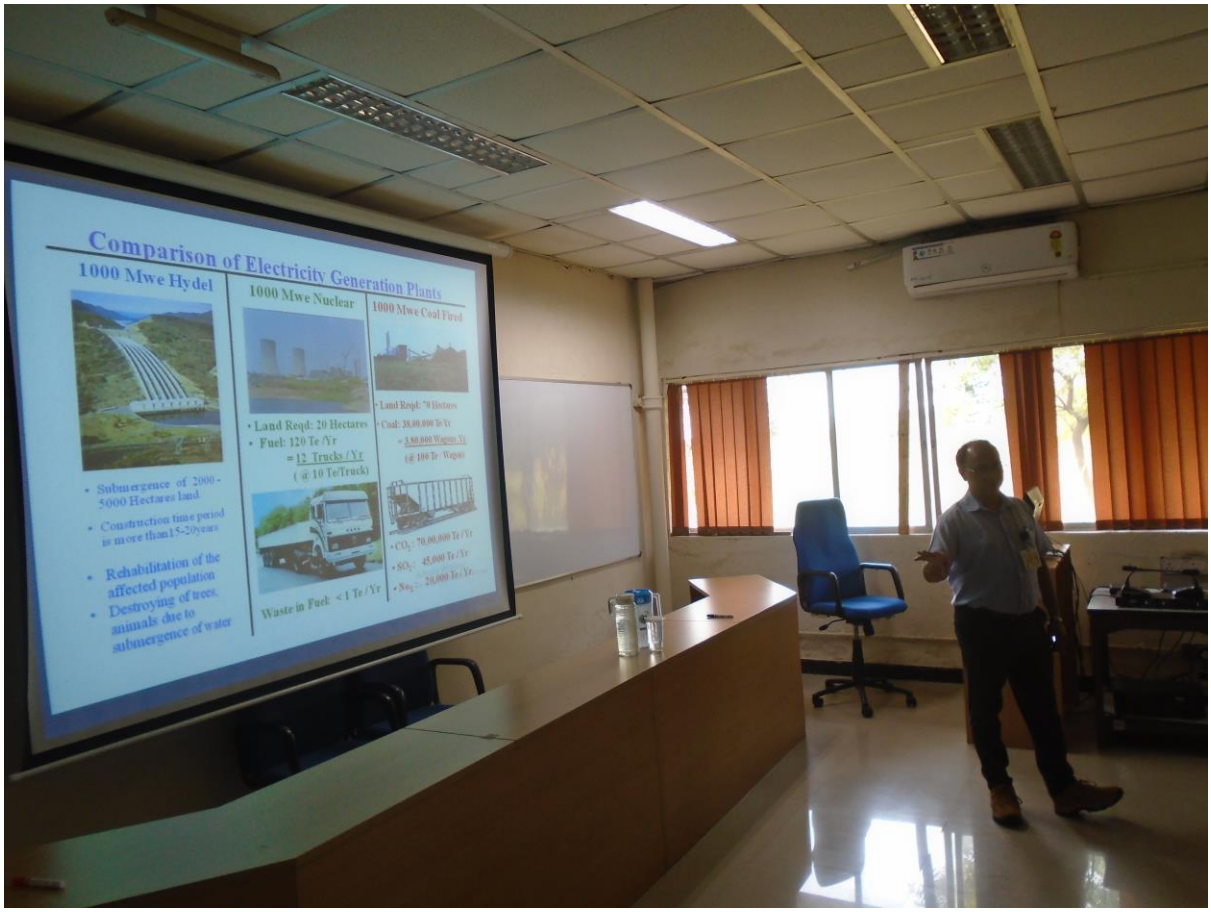
- 1:45Pm we had lunch at TABS canteen.
- We visited the plant in detail from 2.00 pm to 5.00 pm.
- Again, check in process has been done at 5.30 pm while leaving the plant.
- At 6.00 pm we again boarded in the bus and headed towards our home.
- In the middle of return journey, we took a tea break around 7.30 pm for refreshing our mood.
- Till then time 9.00 pm all students reached to their respective homes with safe and full of glory.

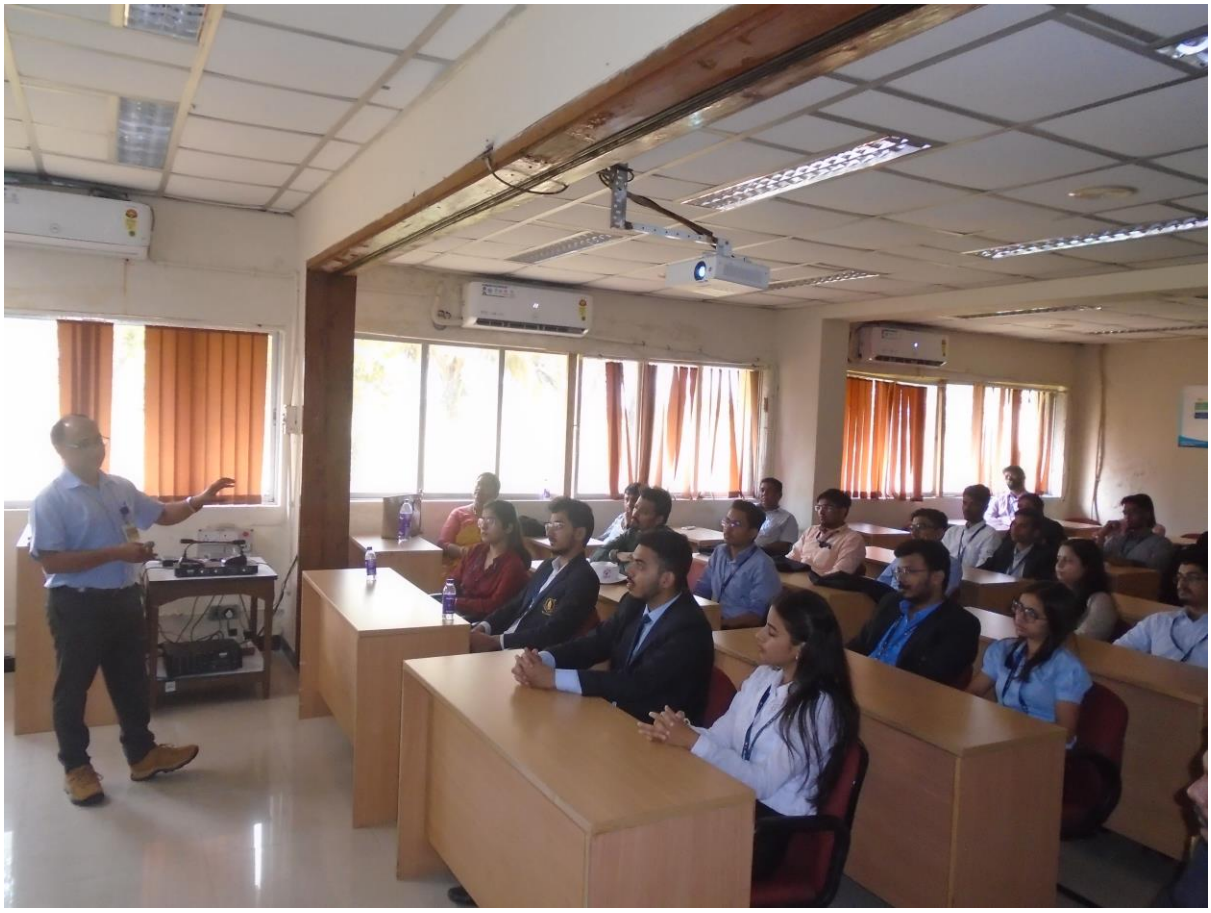
During the trip students raised many questions about the radiation, congenital deformity, safety of Indian nuclear power plants, effects of earthquake and tsunami in the wake of the nuclear disaster happened at Fukushima, which were answered with authentic facts and logical approach by senior officials of Tarapur Atomic Power Station – 3&4

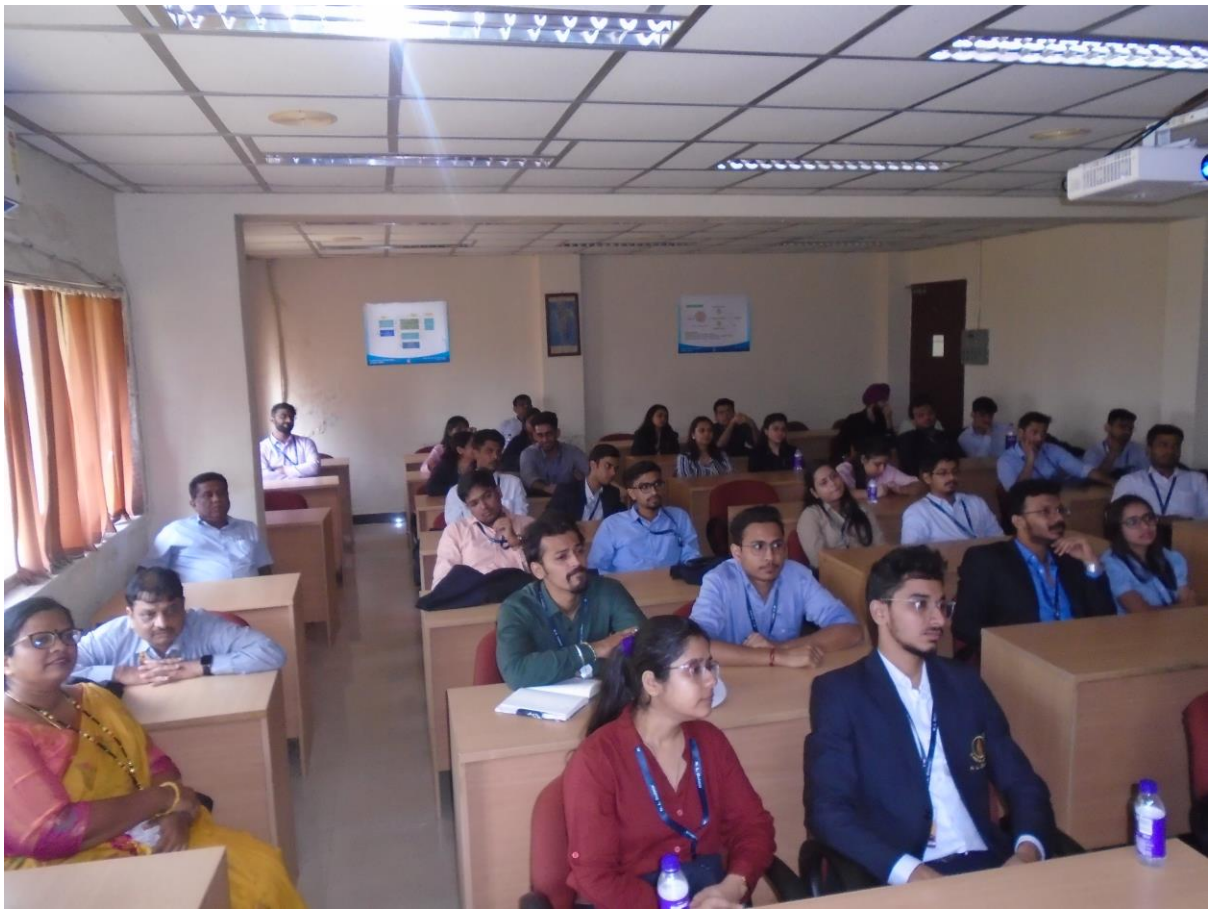
KEY TAKE AWAYS:

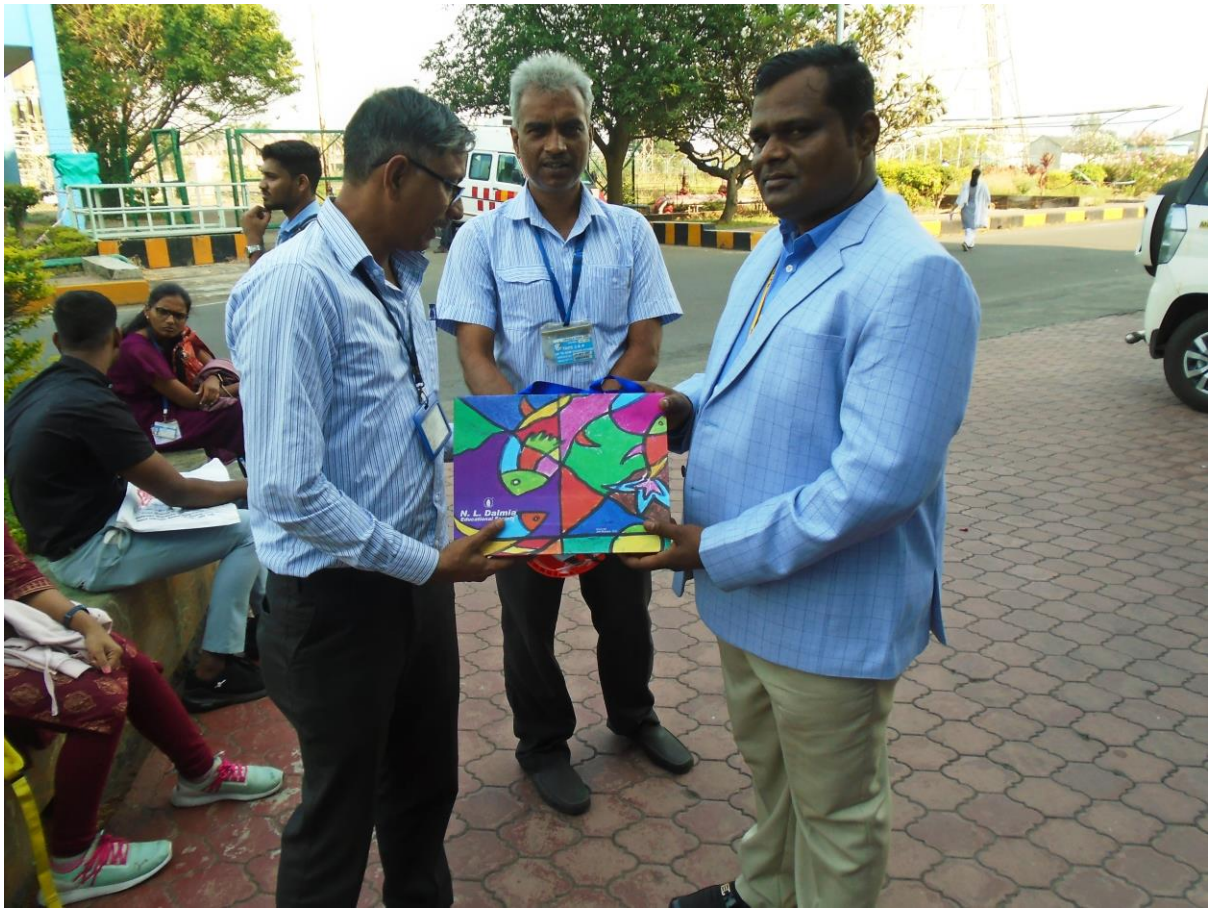
Students got the opportunity to visit NPCIL which is first and largest power plant in India. Students got exposure to the operations in power plants which gave them insights into working of companies in power sector including costing and financial in power company.

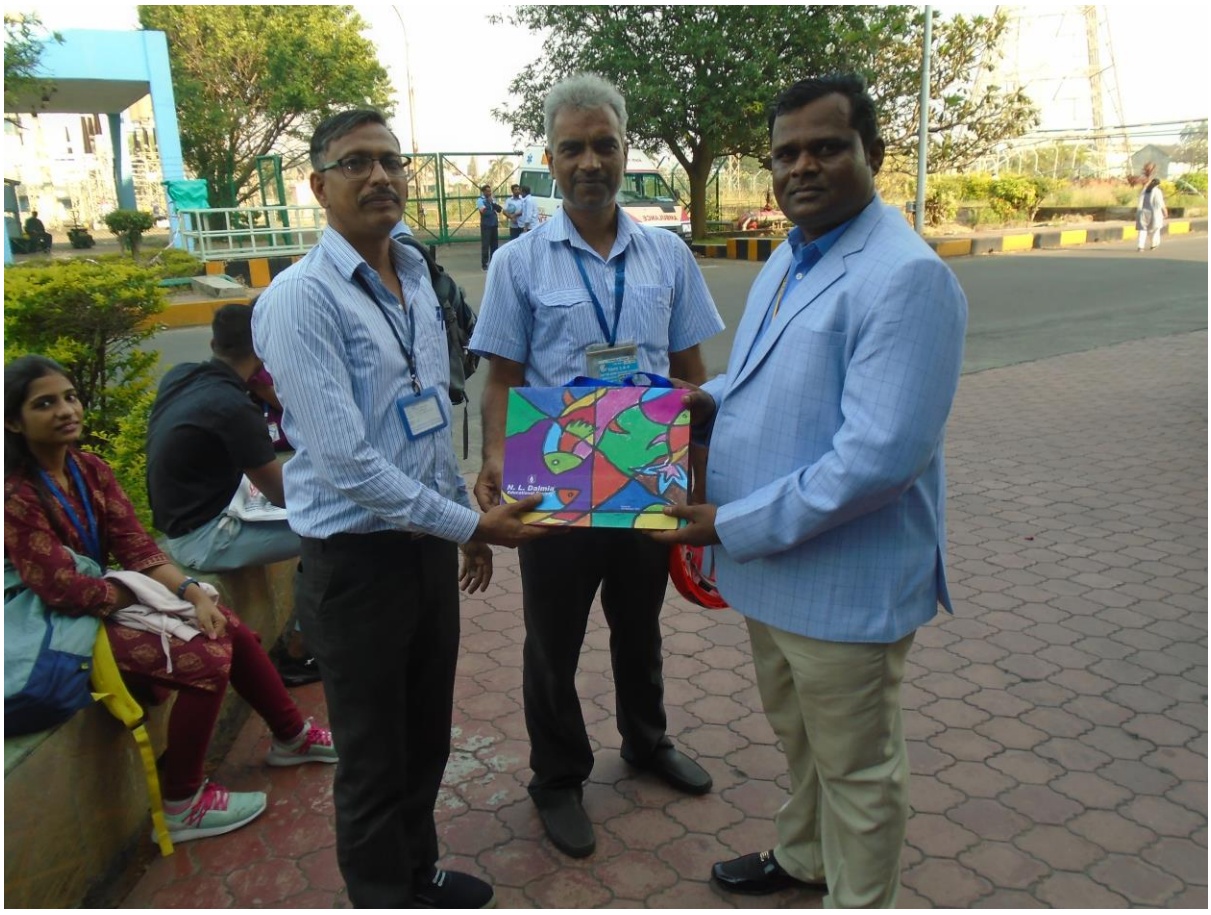
Some Glimpses of visit









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NPCIL


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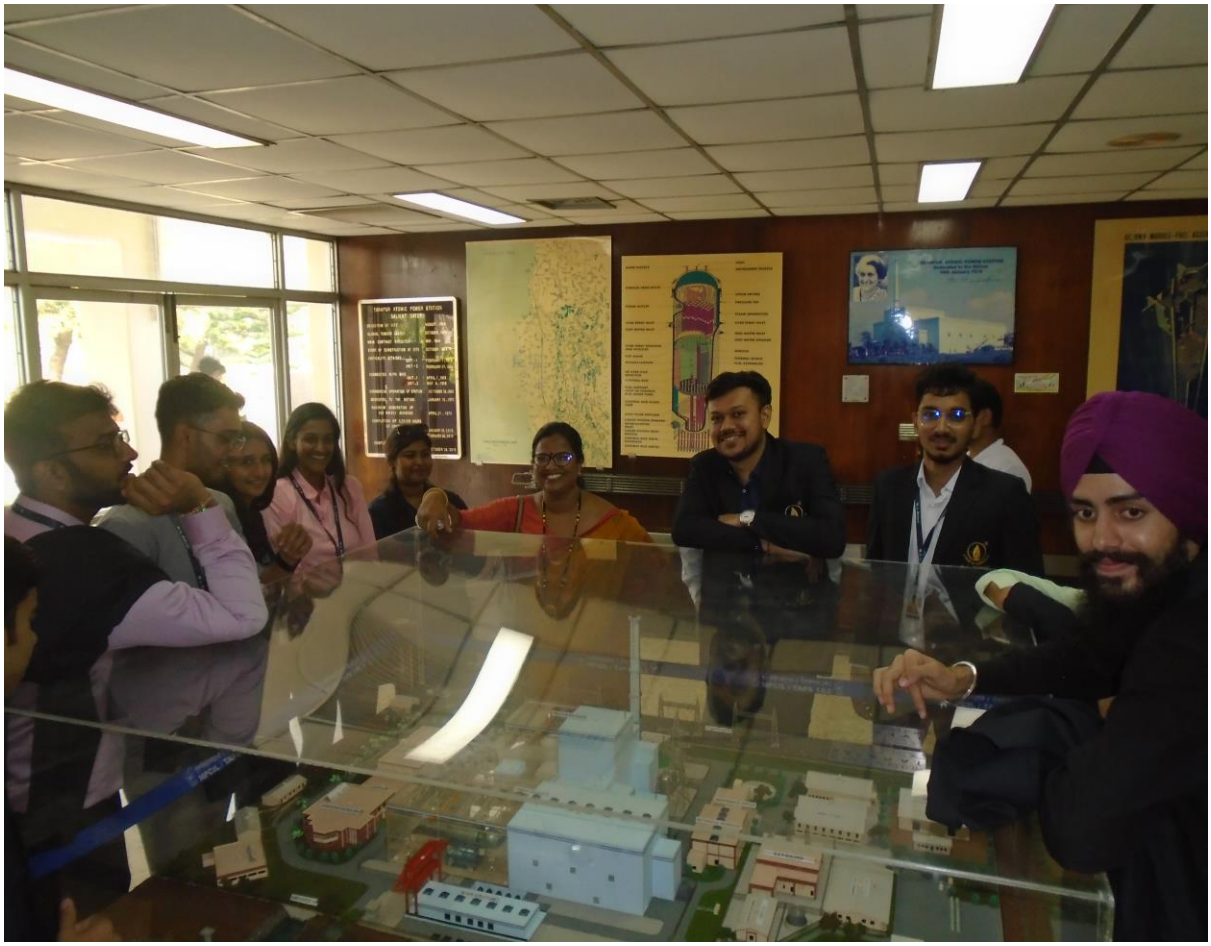


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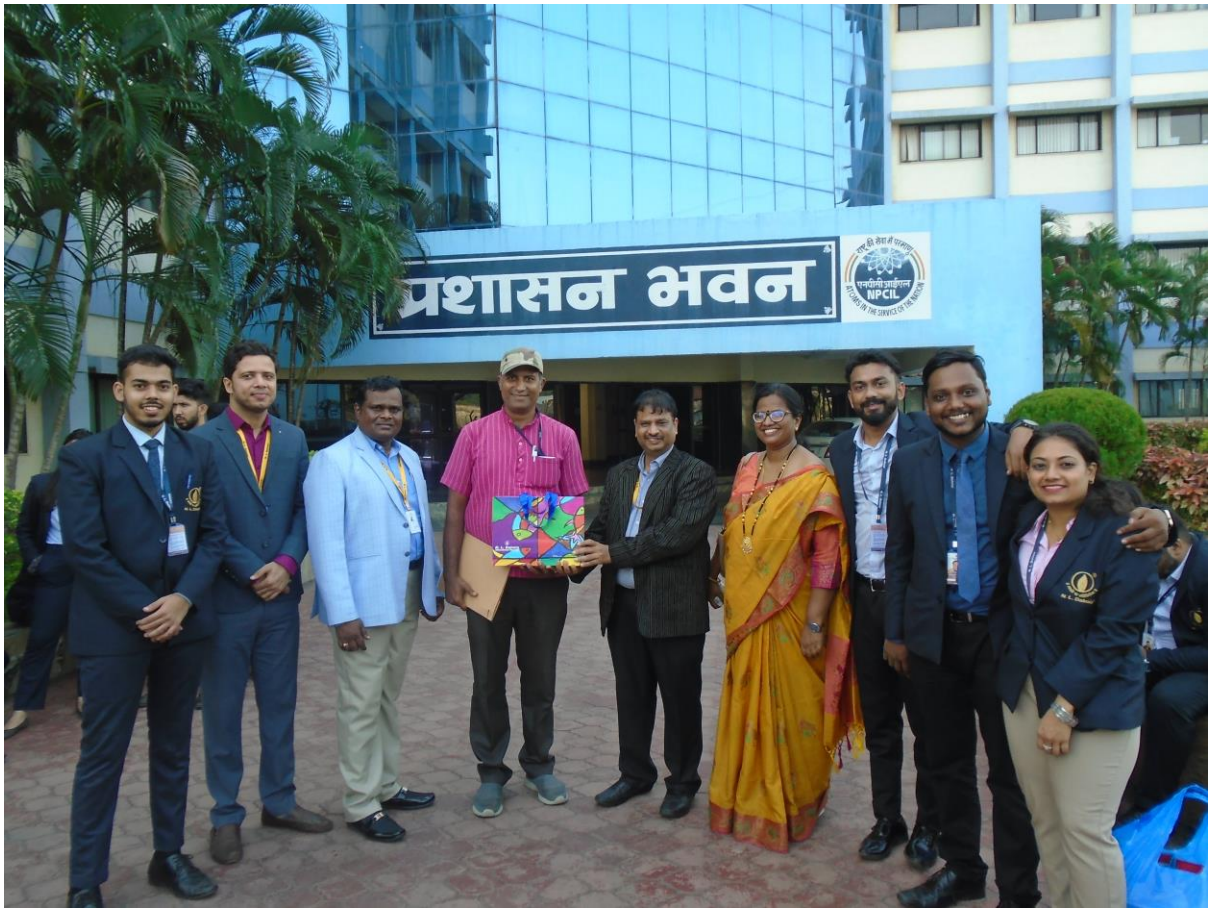
तारापुर परमाणु बिजलीघर 1 एवं 2
Nuclear Power Corporation of India Limited
TARAPUR ATOMIC POWER STATION 1 & 2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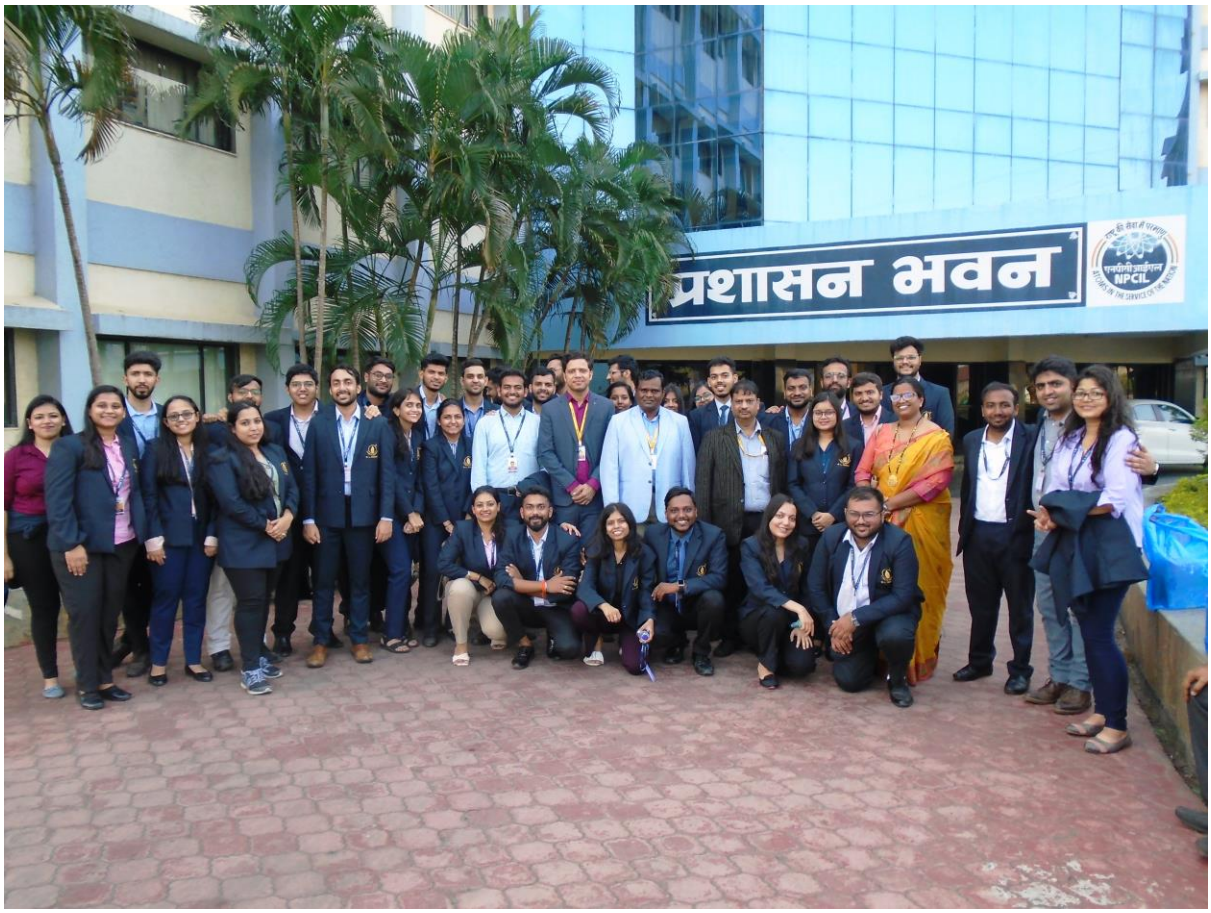
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