Physical Start-Up of Unit-1
Rooppur NPP

Harnessing Atomic Energy for Prosperous Bangladesh

Rooppur Nuclear Power Plant Project

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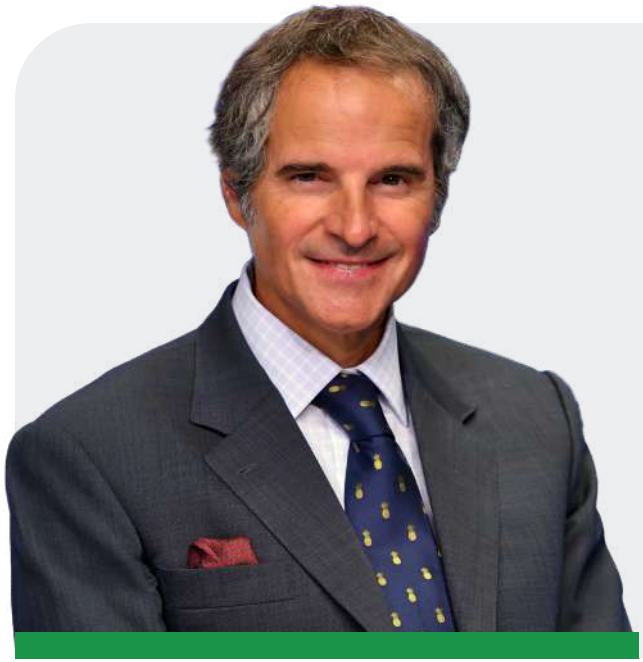
28 April 2026

Ceremony of

PHYSICAL START-UP

OF UNIT 1

ROOPPUR NPP



On behalf of the International Atomic Energy Agency, I congratulate Bangladesh on the historic achievement of the first fuel loading of the Rooppur Nuclear Power Plant.

It is a milestone in the journey towards becoming the newest State to join those using nuclear in their energy mix and to fueling Bangladesh with reliable, low-carbon electricity.

This is a long-term commitment that comes with long-term benefits and long-term responsibilities. Therefore, today is also a chance to recommit to safety, security and safeguards.

The IAEA has been with you as you have worked towards this day, and we will continue to be there in the decades to come.

RAFAEL MARIANO GROSSI
Director General
International Atomic Energy Agency (IAEA)

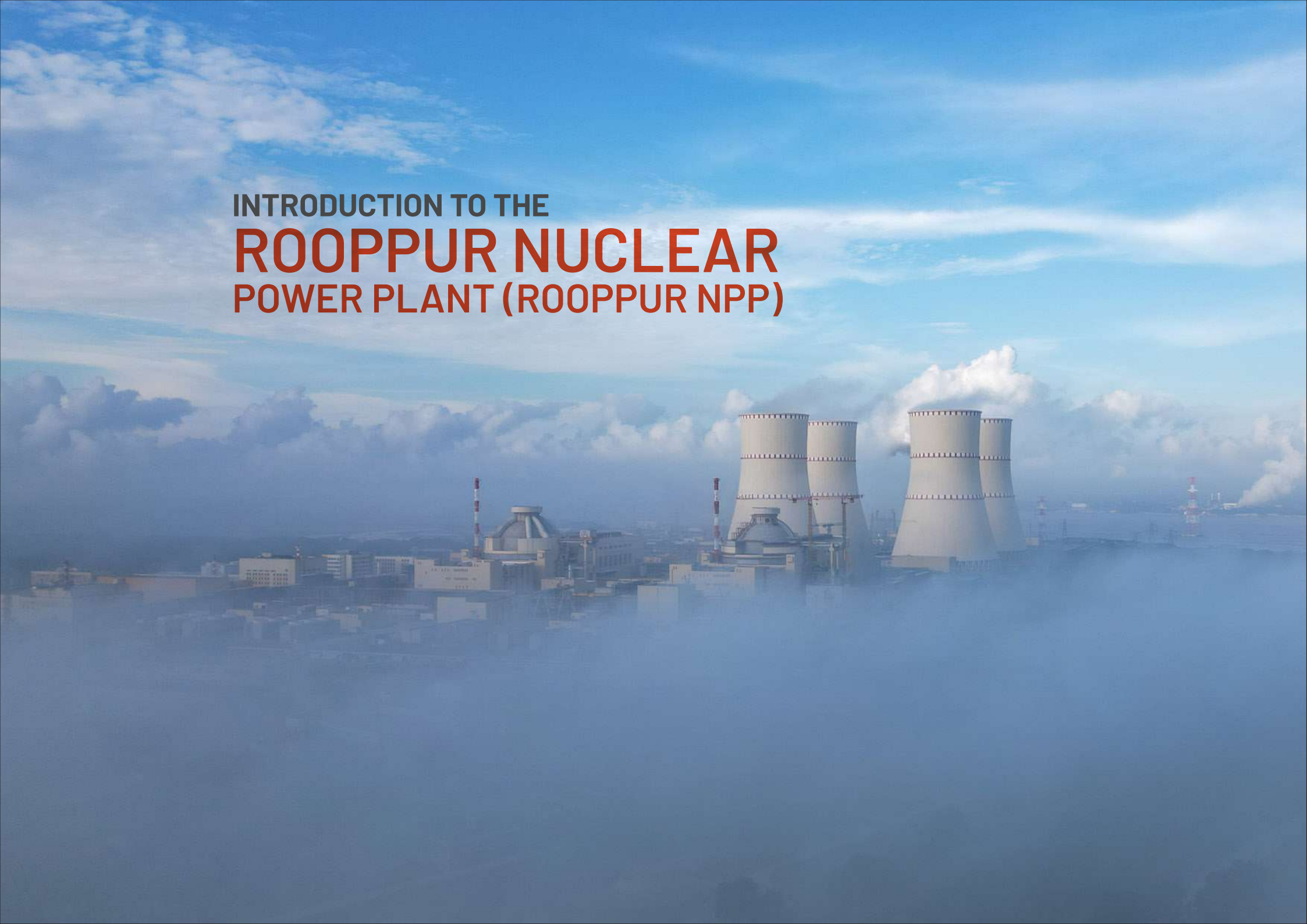
Foreword

Rooppur Nuclear Power Plant (Rooppur NPP) stands as a major milestone in Bangladesh's journey toward energy independence. It reflects national strength, global collaboration, and technological advancement. A project of national importance, it represents progress, resilience, and a commitment to future generations.

VISION & NATIONAL IMPORTANCE

Regarding the nuclear aspects, the main vision of Bangladesh Atomic Energy Commission is the promotion of nuclear science and technology for the peaceful use of atomic energy to achieve self-reliance for the socio-economic development of Bangladesh.

In the present perspective, Bangladesh's electricity demand has been growing at over 8–10% annually, driven by rapid economic development. To ensure long-term energy security and diversity, a stable and sustainable baseload source has become essential. Nuclear energy provides uninterrupted power with net-zero carbon emission, supporting industrial growth and national stability.



INTRODUCTION TO THE ROOPPUR NUCLEAR POWER PLANT (ROOPPUR NPP)

The Rooppur NPP is located at Rooppur in Pabna district, on the bank of the river Padma. It is Bangladesh's first nuclear power plant. The project marks the country's entry into the global nuclear community, becoming the 33rd nuclear power nation. It represents a transition toward advanced, high-capacity energy generation.


PROJECT
OVERVIEW

PROJECT OVERVIEW

The plant consists of two III+ Generation VVER-1200 reactors, each with a capacity of 1,200 MW, totaling 2,400 MW. Implemented by Bangladesh Atomic Energy Commission (BAEC) with Russian State Atomic Energy Corporation (ROSATOM). Once operational, it will contribute significantly to the national grid with reliable baseload power.


TECHNOLOGY
& SAFETY

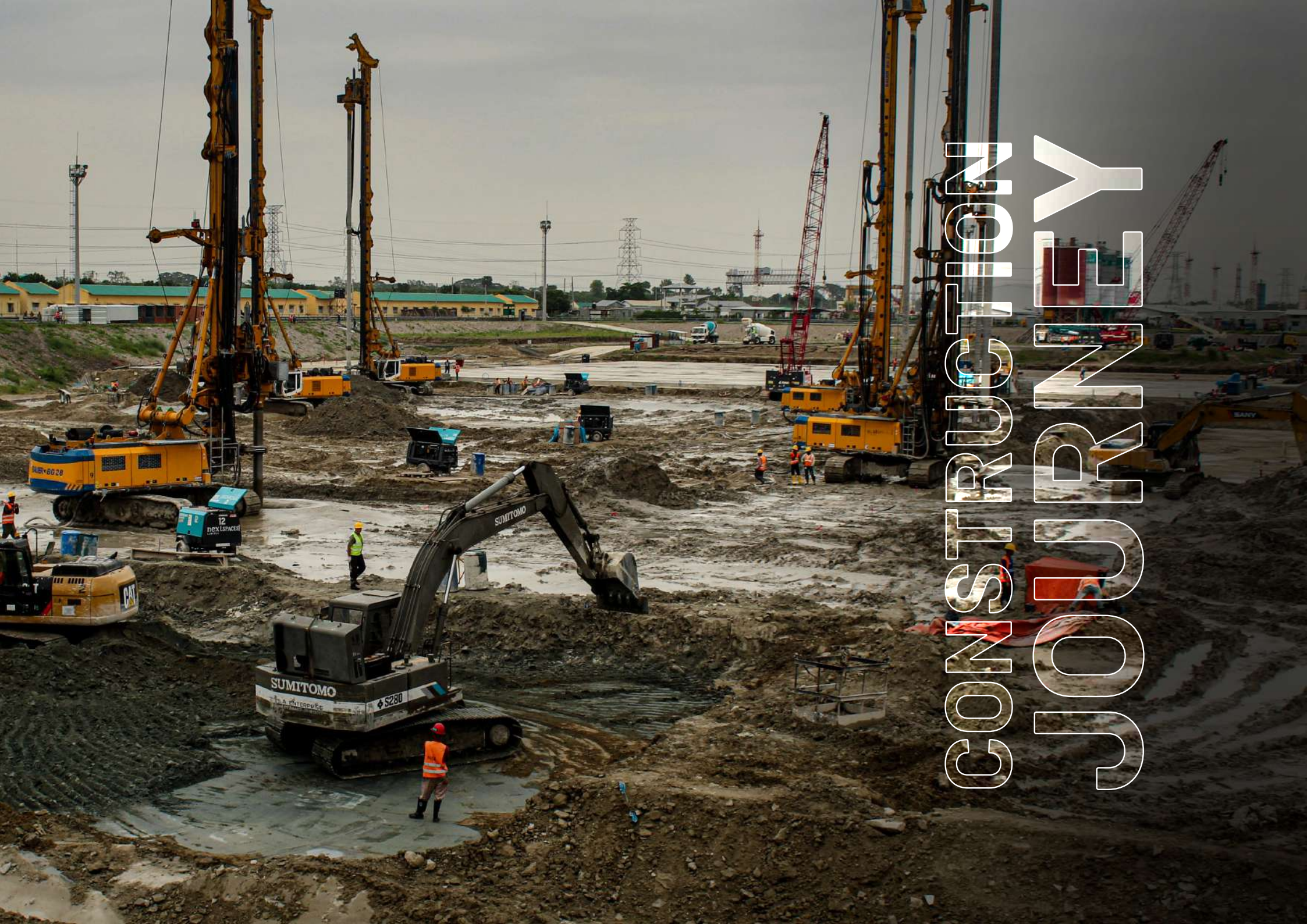
TECHNOLOGY & SAFETY

Rooppur NPP uses Generation III+ VVER-1200 technology, among the most advanced reactor designs. Key safety systems include:

- Active Safety Systems
- Passive Safety Systems
- Five Layers of Safety Barriers
- Core Catcher

The plant is designed for an operational life of 60+ years and complies with IAEA safety standards.

Commitment to environmental monitoring, waste management and radiation safety will continue throughout the plant's lifecycle, ensuring that operations remain fully aligned with global standards for sustainable nuclear energy production.



CONSTRUCTION JOURNEY

CONSTRUCTION JOURNEY

The project initiated since 1961 and major decisions were taken in 1977, 1995, 2011 & 2015 and the project moved into construction with the first concrete pour in 2017 (Unit-1) and 2018 (Unit-2). At peak, the project engaged over 25,000 workers, including local and international experts. It represents one of the largest and most complex engineering efforts in Bangladesh.

FINANCIAL STRUCTURE AND ECONOMIC IMPACT

FINANCIAL STRUCTURE AND ECONOMIC IMPACT

The total project investment is approximately USD 12.65 billion. It is expected to generate thousands of direct and indirect jobs. The plant will significantly reduce dependence on imported fossil fuels and stabilize long-term energy costs. Estimated annual generation: about 17.40 billion kWh.

HUMAN RESOURCE DEVELOPMENT AND CAPACITY BUILDING

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In the long term, around 3,000 skilled personnel will be required for plant operation and maintenance.

Under the General Contract signed between Bangladesh Atomic Energy Commission (BAEC) and JSC Atomstroyexport, the required number of personnel have already completed their training in Russia and necessary support has been provided by BAEC to facilitate their participation in training programs at various training centers and institutes approved by the IAEA.

Continuous training, both domestically and abroad, ensures a growing pool of qualified nuclear professionals, strengthening Bangladesh's position in the global nuclear community.


ENVIRONMENTAL
SUSTAINABILITY

ENVIRONMENTAL SUSTAINABILITY

Rooppur will produce large-scale electricity with minimal greenhouse gas emissions.

It is expected to avoid millions of tons of CO_2 emissions annually compared to fossil fuel-based plants.

Modern systems ensure safe handling of nuclear fuel and Radioactive waste under international guidelines.

SAFETY, SECURITY & EMERGENCY PREPAREDNESS

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Nuclear safety is built upon the principle of defense-in-depth, which requires multiple layers of protection against potential incidents. Before loading nuclear fuel into the core plant's Emergency Response Preparedness is prepared.

This stage involves:

- Testing the emergency power supply systems.
- Verifying the operability of radiation monitoring and containment systems.
- Conducting full-scale emergency drills involving plant staff and local authorities.
- Establishing communication protocols between on-site, off-site and national emergency centers.

Training programs and safety culture initiatives ensure that all personnel are fully aware of their roles and responsibilities during any emergency. Rooppur NPP's emergency preparedness framework follows international best practices, ensuring that both on-site and off-site communities remain protected.

COMMUNITY & SOCIAL IMPACT

COMMUNITY & SOCIAL IMPACT

- The project has driven major infrastructure development in the region.
- It has created employment opportunities and improved local economic conditions.
- Rooppur has become a center for regional growth and modernization.

GLOBAL CONTEXT & STRATEGIC PARTNERSHIPS

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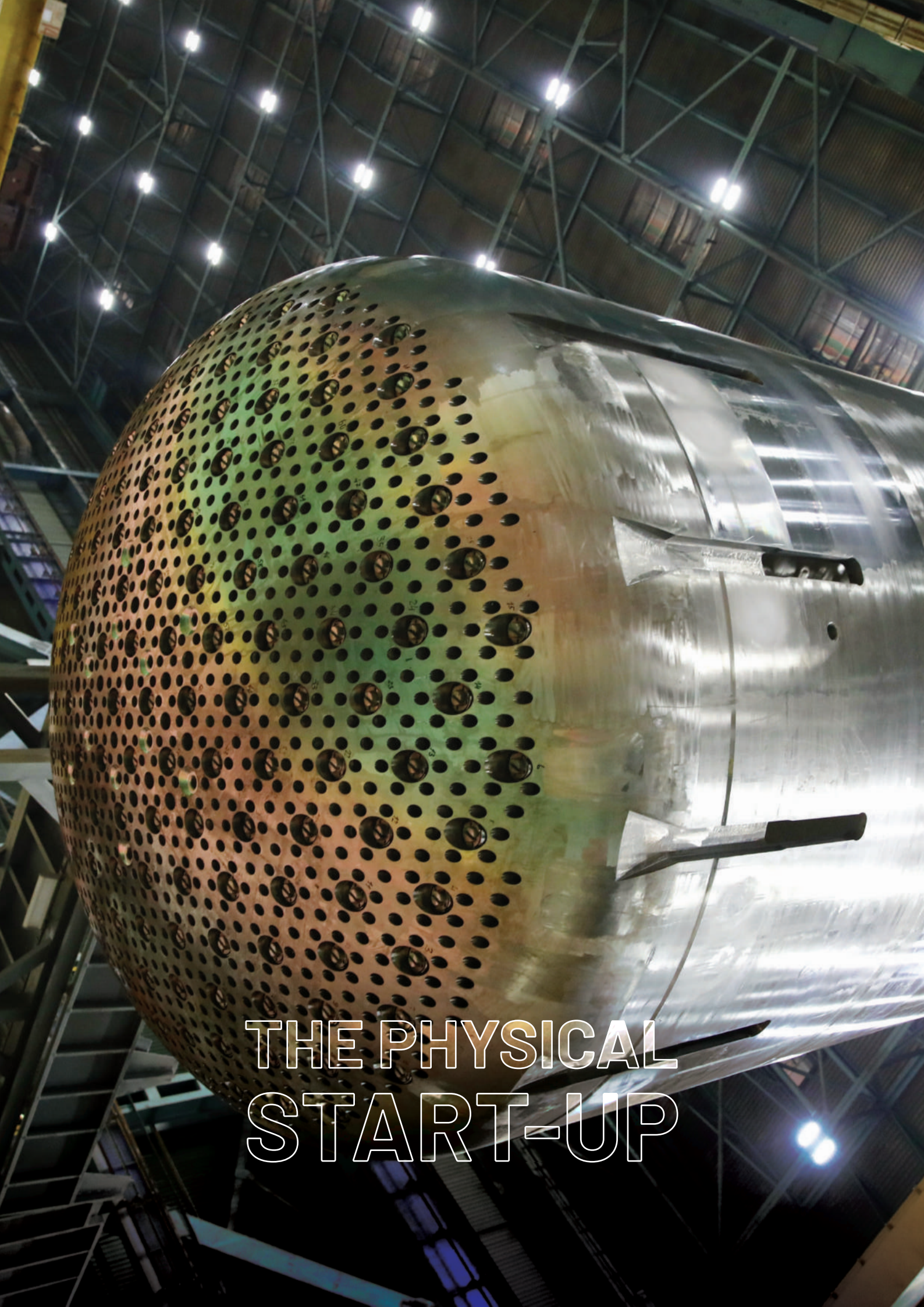
Developed in partnership with the Russian Federation, the project reflects strong international collaboration.

Bangladesh joins a global network of over 30 countries operating nuclear power plants.

The project aligns with international standards for peaceful use of nuclear energy.

- Affordable and Sustainable Power Supply
- The total generation capacity of Rooppur NPP is 2,400 megawatts (2×1,200 MW)
- Its design lifetime is 60 years, which can be extended by 20-30 years through proper maintenance and modernization.
- As an III+ generation nuclear power plant, it operates as a net zero-carbon energy source, directly contributing to Bangladesh's green energy portfolio.



THE PHYSICAL START-UP

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The term Physical Start-Up refers to the stage where nuclear fuel is loaded into the reactor core, and for the first time, a self-sustaining nuclear chain reaction is achieved under full regulatory supervision.

This moment is often regarded as the ‘birth’ of a nuclear reactor-transforming it from a construction project into a living energy-generating system.

At Rooppur, this process is implemented with the highest level of precision, safety and compliance with International Atomic Energy Agency (IAEA) standards.

A VISION FOR THE FUTURE

A VISION FOR THE FUTURE

The Rooppur NPP stands not only as an achievement of engineering excellence but also as a symbol of Bangladesh's determination to secure a cleaner, smarter, and more resilient future.

With its transition to Reactor Start-Up phase and eventual commercial operation, Bangladesh is poised to enter the exclusive League of Nations with peaceful nuclear power capability. This achievement represents more than technological advancement. It embodies the country's aspiration for self-reliance, scientific progress and sustainable prosperity.

As the first nuclear power plant in Bangladesh begins to illuminate the national grid, it will also illuminate the nation's path toward a net zero-carbon, knowledge-based and energy-secure future.

Photo Courtesy: ROSATOM
Project: BAEC
Special Thanks: ROSATOM, NPCBL, BAEC, Spellbound Communications Limited


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গণপ্রজাতন্ত্রী বাংলাদেশ
সরকার