The Daily Star
FOUNDER EDITOR: **LATE S. M. ALI**



# A promising solution to post-harvest losses

## New irradiation facility must deliver equitable access, reduce losses for farmers

The inauguration of an irradiation centre at the Bangladesh Institute of Nuclear Agriculture's (Bina) Regional Research Station in Gazipur is encouraging as it is expected to extend the shelf life of produce, giving farmers greater flexibility in storing and marketing their harvest. The facility's non-invasive technology will use radiation to eliminate parasites, pathogens, and harmful microorganisms that limit produce's shelf life. It should be noted that the gamma radiation used in the process does not make food radioactive and is a highly regulated technology endorsed by major global organisations.

Every year, Bangladesh loses agricultural produce worth around Tk 20,000 crore during the post-harvest period, which is roughly 25 to 30 percent of our annual farm produce. Limited cold storage and bumper production often lead to huge losses for many farmers every year. Against this backdrop, this Tk-115-crore facility offers a limited but promising solution. It is estimated to process around 85,000 tonnes of produce annually, with a processing capacity of 8 to 10 tonnes of produce an hour, operating in three shifts each day. Experts hope that Bangladeshi producers too can use the technology at the Gazipur facility to meet quarantine requirements for exporting high-value agricultural products.

While the new facility offers reasons to be cautiously optimistic, the extent to which the technology can reduce post-harvest losses can only be evaluated through pilot operations and sustained data collection. This should be a particularly important step in evaluating the success of this technology. Also, the facility should cater to small-scale farmers alongside export-oriented firms, unlike the two existing gamma irradiation plants at the Atomic Energy Research Establishment in Savar, whose commercial services cater to export-oriented pharmaceuticals and spices.

**While the new facility offers reasons to be cautiously optimistic, the extent to which the technology can reduce post-harvest losses can only be evaluated through pilot operations and sustained data collection. This should be a particularly important step in evaluating the success of this technology. Also, the facility should cater to small-scale farmers alongside export-oriented firms, unlike the two existing gamma irradiation plants at the Atomic Energy Research Establishment in Savar, whose commercial services cater to export-oriented pharmaceuticals and spices.**

While the new centre is expected to benefit agricultural and food producers from the surrounding areas in Gazipur, similar facilities should be built in other locations to help small-scale producers and reduce transportation costs for agri businesses in other districts. The authorities should also rein in any unwanted involvement of syndicates and politically powerful groups. Equally important is ensuring that the facility operates with adequate safeguards and trained personnel, with workplace safety treated as a top priority. Furthermore, the radioactive material used in irradiation requires careful handling, storage, and eventual disposal. Proper ventilation, regular monitoring, and safeguards against leaks are also essential to protect workers and surrounding communities.

The government must ensure the facility plays an instrumental role in reducing farmers' losses and improving their livelihoods. The technology might have the potential to address the country's food insecurity, but for that, it must serve producers across the country and not become another establishment whose benefits remain out of reach for those who need it most.

# Make public toilets women-friendly

## Increase the number of toilets and ensure good hygiene and better access

That women in Dhaka suffer terribly when looking for a toilet in public places is telling of the capital's priorities, particularly given the city is also the geographic, cultural, economic, and sociological centre of our country. A report by this daily outlines how major bus terminals in Dhaka feature poorly maintained sanitation facilities, with services being inadequate or even absent for women commuters. At the Mohakhali Inter-District Bus Terminal, for instance, most of the women's toilets were reportedly converted into facilities for men a few years ago. Worse, the existing toilets, which women have to share with men, have broken doors, dirty floors, unclean toilet pans and urinals, and foul odours.

Public toilets supported by NGOs and private funding are usually better maintained, with many containing liquid soap and other basic hygiene elements. Meanwhile, facilities operated primarily by city corporations or their contractors tend to be in poorer conditions. Even among the NGO-supported facilities, though, many allow men to use women's facilities due to the infrequency of women users. But this should not be a reason to open women-only facilities for general use; rather, we should ask if the absence or impermanence of women-only toilets discourages women from drinking water during their commute or travelling at all. With most facilities prioritising men's needs, how can a female commuter feel assured that her hygiene, health, privacy, and dignity are being taken into consideration by authorities who build and maintain urban public toilets? As an earlier report mentioned, mothers often advise daughters not to drink water before travel because they may not find a suitable toilet. The health risks of this unfortunate practice include urinary tract infections, kidney stones, and even bladder dysfunction.

Women make up half of the population, and they are living increasingly public lives, with millions engaged in education and the workforce. The country's urban centres must catch up in terms of catering to women's sanitation needs in public spaces such as bus terminals, train stations, and major intersections. We urge city authorities in Dhaka and around the country to ensure that public toilets are easy to access and well-maintained, and that separate facilities of equal quality are available for women to use.

# Rooppur's first electricity will be a milestone, not the finish line



*Dr Md. Shafiqul Islam is professor of nuclear engineering at the University of Dhaka. He can be reached at msislam@du.ac.bd.*

■ **MD. SHAFIQUL ISLAM**

If everything goes as planned, Bangladesh will soon do something it has never done before: transmit electricity from a nuclear reactor to the national grid. News headlines will call it historic, and rightly so. But that moment will only be the visible tip of a long, carefully ordered process called commissioning. During this process, every structure, system, component, item of equipment, and safety system at Unit 1 of the Rooppur Nuclear Power Plant is tested, inspected, and approved before the reactor can begin trial electricity generation. Rooppur has two VVER-1200 Generation III+ reactor units, each with an electrical capacity of 1,200 MW. The commissioning of Unit 2 is expected to begin next year.

There seem to be some misconceptions about Rooppur's electricity generation and transmission, so it is important to understand how the commissioning process works. Commissioning does not end when electricity first reaches the grid, nor does it follow a political calendar. Understanding how the work proceeds can help readers distinguish routine pauses from genuine problems in the weeks ahead. The project's contractual schedule divides the process into four stages, A to D, each with several sub-stages, followed by a guarantee period. The durations discussed below are planned figures, not actual elapsed times.

Stage A—pre-commissioning alignment—is the longest, accounting for 55 of the planned 68 months before commercial operation. Beginning with the first concrete pour for the Unit 1 reactor on November 30, 2017, it covers completing installations, training and licensing operators, testing every system individually and in combination, pressurising the containment building, and running the reactor circuit through cold and then hot (16.2 MPa, 329 °C) tests without fuel. The aim is to detect faults so they can be fixed inexpensively. Fuel for Unit 1 reached the site in October 2023 and has since been stored under International Atomic Energy Agency (IAEA) safeguards.

Stage B—physical start-up—began with fuel loading on April 28, 2026. The reactor is kept in a subcritical state while instruments and control rods are tested, then brought to first criticality: the start of a controlled, self-sustaining chain reaction at well under one percent of full power. Planned for two months, this stage took more than five in reality. Faults in the pressure-relief safety valves postponed regulatory approval until Russian specialists fixed them and the system passed high-pressure tests. Finally, the reactor reached criticality on October 11, 2026, and the minimum-power physical tests have since been completed.

Stage C—power start-up—has just begun after receiving regulatory approval from the Bangladesh Atomic Energy Regulatory Authority (BAERA). During this stage, heat generated by the reactor is used to produce steam, while the reactor's thermal power is gradually increased in controlled steps. The process has already begun at five percent of the reactor's rated power, with engineers progressively raising the output while closely monitoring the reactor instrumentation, cooling systems, turbine-generator synchronisation, and electrical transmission systems. Once the reactor safely reaches at least 30 percent of its capacity—a milestone expected in November/December 2026—sufficient steam will be available to drive the turbine-generator and begin trial electricity generation and transmission to the national grid. Initially, approximately 300 MW of electricity will be supplied against the unit's 1,200 MW capacity.

Stage D—pilot commercial operation—then runs for a planned ten months, testing the unit up to its full power, including at least three days of continuous full-capacity operation, with Bangladeshi operators working alongside Russian experts. A 12-month guarantee period follows. Theoretically, the whole sequence spans 80 months (six years and eight months). In practice, if Unit 1 connects to the grid in November/December, nine years will have passed since construction began.



**'The proper test of Rooppur is whether every stage is completed correctly and safely.'** FILE PHOTO: **STAR**

Grid connection is more than a switch-over. At 1,200 MW, Unit 1 is larger than any other power-generating unit supplying the national grid. If it trips suddenly, supply drops sharply and grid frequency falls, so the system must respond at once with spinning reserves or by shedding load to avoid a blackout. Nuclear plants run best at steady output, so other conventional plants must be flexible enough to follow daily swings in demand. The dependence also runs the other way: a reactor needs a reliable off-site power supply to keep its cooling systems running, even when shut down. Importantly, the electricity must be transmitted reliably from Rooppur to Dhaka and other major demand centres, such as Gazipur, Narayanganj and Chattogram, through dedicated high-voltage (400 kV) lines strong enough to carry it. If a line is congested or unreliable, or trips, the unit may have to cut its output. This could cause heavy economic losses.

This matters because Bangladesh is in the middle of an energy crisis. This summer, load-shedding reached record levels, exceeding 3,600 MW at its peak in August as shortages of gas, LNG, coal and oil left power plants short of fuel, even though installed capacity exceeds demand. The weakness lies in fuel, not generating capacity. Domestic gas output is declining, and Bangladesh imports roughly two-thirds of its primary energy, so disruptions in global markets quickly result in power cuts at home while costly spot purchases strain public finances.

What, then, can Rooppur realistically deliver? Once both units operate, their combined 2,400 MW would equal about one-seventh of recent peak demand of 16,000 to 18,000 MW, or roughly the amount of power lost to load-shedding this summer. Unit 1 alone would supply about half of that amount. This is significant, but it will not end load-shedding by itself. Output will be modest at first, and a full, reliable contribution from Unit 1 is unlikely before pilot operation ends, probably in the second half of 2027. If Unit 2 starts operating in 2028, less load-shedding should be needed thereafter. A sensible expectation, therefore, is a gradual contribution that eases pressure on the system, not a sudden end to outages. The benefit should become clearer over the next few years as Unit 2 joins and the grid learns to operate alongside nuclear power.

What nuclear power offers is different in kind: steady, round-the-clock baseload supply; fuel delivered and stored in advance rather than bought cargo-by-cargo on volatile markets; and less dependence on fossil fuels. Realising these benefits will depend on matters beyond the reactor: a robust grid, secure fuel supply, loan repayment, a skilled workforce, a competent regulator, and long-term management of intermediate-level radioactive waste and spent fuel.

In short, we should not expect everything to change overnight. The first grid connection will be modest, brief pauses are normal during testing, and each step requires regulatory approval. So the proper test of Rooppur is not whether the first electricity reaches the grid on a promised day, but whether every stage is completed correctly and safely. Bangladesh will become the world's 33rd country to generate nuclear power. Rooppur can strengthen our energy security, but only as one part of a wider remedy for the fuel, grid and finance problems behind today's energy crisis.

# How to make the jute industry thrive at last



*Dr Md Al-Mamun is principal scientific officer in the breeding division of Bangladesh Jute Research Institute (BJRI), Dhaka, specialising in plant breeding, quantitative genetics, and molecular biology.*

■ **MD AL-MAMUN**

After the closure of 25 mills under the Bangladesh Jute Mills Corporation (BJMC) in 2020, the government several months ago initiated a leasing programme to bring selected facilities back into production under private management. According to a recent report, leases for 17 mills were completed as of early October, and production had resumed in nine, creating employment for approximately 9,500 people. The government expects the initiative to generate nearly 50,000 jobs as operations expand. These are encouraging developments, but the real test will be whether the mills can sustain production and employment over time.

Many of the mills have remained idle for years, leaving machinery and infrastructure in need of rehabilitation. Simply restarting old equipment may not ensure competitiveness. Investors should conduct thorough technical and financial assessments, modernise production facilities, adopt energy-efficient technologies, and introduce effective quality-control and digital management systems. Lease agreements should also specify investment milestones, production targets, employment commitments, and maintenance obligations. Additionally, routine performance reviews and appropriate corrective measures would help prevent renewed financial distress.

Transparency is equally important because these jute factories are public assets. Leasing does not transfer ownership; rather, it entrusts the mills' productive use to private operators under mutually agreed conditions. The government must therefore ensure transparent contracts, credible monitoring, and accountability for commitments made by operators. Public reporting on investment, production, employment, and compliance at the jute mills would strengthen confidence among citizens, workers and investors.

With the renewal of the industry, market diversification should be a priority. Growing interest in sustainable materials creates opportunities to expand beyond traditional jute sacks, yarn, and hessian. Jute bags, geotextiles, furniture, industrial textiles, and natural-fibre composites could open higher-value market segments. However, environmental appeal alone cannot guarantee commercial success. Competitive pricing, consistent quality, product certification, modern design, and reliable delivery are essential for Bangladesh to be able to access domestic and international markets.

Additionally, stronger collaboration among research institutions, universities, manufacturers, and entrepreneurs could accelerate the development of improved fibre-processing techniques, diversified products and commercially viable applications. Research should respond to existing industrial needs, with greater emphasis on technology transfer, product testing, and commercialisation.

**Stronger collaboration among research institutions, universities, manufacturers, and entrepreneurs could accelerate the development of improved fibre-processing techniques, diversified products and commercially viable applications. Research should respond to existing industrial needs, with greater emphasis on technology transfer, product testing, and commercialisation.**

To protect the interests of jute farmers, mills need a reliable supply of quality raw jute, while farmers require fair prices and dependable markets. Quality-based pricing, transparent procurement, and better coordination between producing areas and mills could strengthen the supply chain while improving farmers' returns. Industrial buyers must recognise that sustainable production depends partly on the economic wellbeing of raw material suppliers.

Workers deserve equal consideration. Safe working conditions, fair wages, timely salary payments, social protection, and skills development must accompany the revival of production. Experienced workers possess valuable technical knowledge that should be retained wherever possible, while retraining can prepare employees for modern machinery and production methods. Industrial revitalisation should improve livelihoods, not merely restore factory operations.

The government should also adopt a differentiated strategy for the remaining BJMC assets. Not every site will necessarily be viable under the same business model. Decisions should reflect infrastructure conditions, location, raw material access, market prospects, and financial feasibility. Some mills may suit diversified jute manufacturing, while other sites may support alternative productive uses consistent with national industrial priorities. Legal disputes that keep valuable assets idle should be resolved promptly.

A unified monitoring framework could track actual investment against commitments, production, capacity utilisation, sales, exports, employment conditions, wage compliance, and environmental performance. Periodic assessments can help identify problems early and help replicate successful management practices. Such oversight should combine accountability with practical support for technology adoption, market development, and industrial efficiency.

Reopening Bangladesh's jute mills is important, but keeping them productive and helping them thrive will be the real test. The government must safeguard public assets, entrepreneurs must honour investment commitments, workers must receive fair treatment, and farmers must be given reasonable returns. By combining responsible private management with technological innovation, transparent oversight, and market-oriented production, Bangladesh can turn idle industrial assets into a foundation for a more competitive and sustainable jute industry.

**The Daily Star** Reg. No. DA 781 | **EDITOR & PUBLISHER: Mahfuz Anam** Printed by him on behalf of Mediaworld Ltd at Transcraft Ltd, 229, Tejgaon Industrial Area, editor@thedailystar.net | **Registered & Head Offices:** The Daily Star Centre 64-65 Kazi Nazrul Islam Avenue, Dhaka-1215 Phone: 09610222222 | **Newsroom:** Fax- 58156306 reporting@thedailystar.net | **Advertisement:** 01711623910 advertisement@thedailystar.net GPO Box: 3257 | **Subscription:** 01711623906 | thedailystar.net bangla.thedailystar.net/