

The Daily Star

N-power plant discussion Hopes revolve round N-plant

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Former chief nuclear engineer of BAEC Abdul Matin presents his paper on nuclear energy at the roundtable on "Prospects of nuclear power in Bangladesh" at The Daily Star conference room yesterday. Photo: STAR

Nuclear scientists, energy experts and policymakers yesterday said the country has no alternative but to set up nuclear power plants to meet the country's growing energy demands but called for extensive precautions to prevent a future nuclear catastrophe.

Prof Jamilur Reza Choudhury **President, Buet Alumni Association**

Professor Jamilur Reza Chowdhury, who moderated the roundtable, observed that there is a huge prospect for nuclear power in Bangladesh.

"We have realized that there is no alternative to setting up nuclear power plants to ensure energy security in Bangladesh. If we have a proper plan and can move forward with that we will be able to generate nuclear power in 6 to 7 years," he said in his concluding remarks.

He said guidelines to establish nuclear power plant are already written in the International Atomic Energy Agency (IAEA) milestone document.

Choudhury, Vice-Chancellor of Brac University, assured the State Minister for Science and ICT of extending all types of cooperation to the government's nuclear power plan.

Toufiq-e-Elahi Chowdhury **Adviser to the Prime Minister on Power and Energy**

The power and energy adviser Toufiq-e-Elahi Chowdhury said creating a nuclear power regulatory authority and operator is a must to go forward with the plan to set up nuclear power plants in Bangladesh.

He said the government is committed to the nuclear power project as a long-term solution to the power crisis in a country that has limited fossil fuel.

“It is a good way of taking position against uncertainties that loom large. But I feel sad that our engineers set up nuclear power plants in other countries, whereas we could not do it in our own,” he said.

Chowdhury said the government is open to new ideas but the work must start now as setting up a nuclear power plant can take five or ten years.

The former energy secretary also advocated the use of power plants to open up options with dual fuel. He said that although dual fuel plants cost an additional ten percent, they are more effective and sustainable.

Yeafesh Osman
State Minister for Science and ICT

State minister for Science and ICT Yeafesh Osman said there is no alternative to the introduction of nuclear power in Bangladesh.

“We have no time to waste, we mean business,” the minister said. “We have already decided to set up the Rooppur Nuclear Power Plant, now we have to work to remove the technical problems,” he said.

Yeafesh reiterated the government's pledge to provide power as outlined in their election manifesto.

The state minister said although Bangladesh does not want "charity" from other countries, the government would welcome assistance in a "win-win" situation.

Dr C S Karim
Former Adviser to the caretaker government

Former adviser C S Karim said Bangladesh risks incurring a 30 percent rise in costs by delaying the start of nuclear power plants.

He cited the cases of Japan and South Korea as countries who have started their own nuclear power plants when they did not have the appropriate human resources.

Karim said "We must follow the international standards in setting up such plants. We must not compromise with the safety."

"Bangladesh can take lessons from the Chernobyl disaster," he said, adding, the power plant must only be started when safety has been ensured.

Terming Rooppur an optimum location for setting up a nuclear power plant, Karim urged the government to train the young generation for five years to work in the plant.

Dr Abdul Matin
Former chief nuclear scientist, BAEC

Former chief nuclear scientist at the Bangladesh Atomic Energy Commission (BAEC), Abdul Matin, said although nuclear reactors emit practically no greenhouse gases like carbon dioxide, its production of radioactive wastes need special treatment and management.

Nuclear power is cost competitive with other forms of electricity generation, except where there are direct access to low-cost fuels, said Matin, adding, capital costs for nuclear power plants are greater than coal-fired plants and gas-fired plants.

Matin opposed an estimate that a 1000MW nuclear power plant would cost seven billion dollars, saying it could cost no more than two billion dollars.

“If the environmental costs of fossil fuels are taken into account, nuclear is highly competitive,” Matin said, adding “There is a growing concern about emission of greenhouse gases from the combustion of fossil fuels and the consequent effect on global warming and climate change.”

He said Bangladesh should build a series of nuclear power plants as part of a long-term strategy to carry the bulk of the base load of the power system. Matin added the BAEC must immediately start recruitment and training of technical personnel for both plant operation and project management.

A fresh evaluation of the site is necessary in view of the reduced flow of water in the Ganges during the dry season and BAEC must look for additional sites for future nuclear power plants in Chittagong and Khulna regions, he proposed.

Matin suggested creation of a separate and fully autonomous body like a Nuclear Power Authority to supervise the construction and cooperation of nuclear power plants.

Saifur Rahman
Director, Advanced Research Institute
Virginia Polytechnic Institute and State University, USA

Saifur Rahman, speaking through a taped audio recording, said the government should first ensure energy, fuel and security for setting up the nuclear power plant.

Estimating the cost for setting up a 1000 megawatt (MW) power plant at US\$7 billion, he said processing nuclear fuel and the disposal of spent fuel require special agreements which may ward off nuclear fuel suppliers.

"The cost of nuclear fuel, due to limited number of suppliers and proliferation concerns, has increased significantly over the last few years and expected to go up further," Rahman said.

He said the sizes of commercial nuclear power reactors under construction today range from 1000 to 1300 MW.

"If operational and commercial viability of smaller power plants can be demonstrated, Bangladesh may consider such plants; fuel security, manpower and overall cost issues withstanding," he added.

Rahman said the nuclear power reactor needs to be refuelled every 18 to 24 months with fresh fuel for a part of the reactor when the spent fuel is removed and stored. "And this fuel is not available in the open market like coal, oil or gas," he said.

To accept a 1000 MW or similar sized power plant, he said the grid capacity needs to be at least 10,000 MW. He added the only way a 1000 MW nuclear power plant would be feasible here is if Bangladesh connects its electric power grid with India or Myanmar which would raise the effective grid capacity much higher than the current 4,000 MW.

Prof AMM Safiullah
Vice-chancellor, Buet

Buet Vice chancellor Prof AMM Shafiullah said it is imperative to develop human resources in the engineering universities to build the knowledge base on nuclear power.

“We also need to develop a nuclear culture. We do not have alternative other than nuclear power plant,” he said.

He said China has 11 nuclear reactors, India 17, Pakistan three and South Korea has 20 nuclear reactors in operation, so Bangladesh shouldn't fall behind.

“We are shifting from an agrarian country to an industrial one. Thus, we have to go for power generation for energy security. And the question here is how we can ensure uninterrupted supply of fuel,” he added

Prof Shafiullah said Bangladesh can share experiences of others and choose the best available option in this regard. "Third generation type plant will be the option for us. But we need to see whether it is economically viable, environment-friendly and safe," the BUET VC said.

Regarding disposal of wastes, he said initiatives can be taken to devise a plan with the help of foreign experts. "On the other hand, we need to identify and fill-up skill shortages."

Profesor M A Quaiyum
Former chairman, BAEC

Former BAEC chairman MA Quaiyum said a new management system is required to operate a complex nuclear power plant.

"If we want to implement the Rooppur power plant we should have different management divisions, rather than the existing bureaucracy," he said.

He said a separate authority, similar to the one for the Jamuna Bridge, could be created to check corruption.

M Nurul Islam
Professor, Buet

Buet professor Nurul Islam said Bangladesh does not have adequate capacity to operate and maintain power plants.

He outlined several safety issues for nuclear power plants and said the existing bureaucracy may not be able to adequately manage nuclear power plants.

Nurul blamed successive governments for failing to finalise the coal policy for the last three years, saying a similar fate may await nuclear power policy.

At present, he said 18 countries around the world possess the uranium of nuclear power and of the total stock seven countries possess 90 percent.

Aminul Haque
Professor, Buet

Aminul Haque said even some bigger nuclear power plants could be established if the safety measures is ensured.

Saying more nuclear experts are required, he suggested changes in the curricula at universities to build up human resources.

Mahbubur Rahman
Director, Nuclear Safety and Radiation Control Division, BAEC

Mahbubur Rahman urged the government to form the legal framework for establishing the plant in line with the guidelines of the International Atomic Energy Agency (IAEA) for sustainability.

He also advised the creation of two 1000MW nuclear power plants so that at least one could be in operation in case of any accident.

Ali Zulquarnain
BAEC

Ali Zulkarnain suggested the government change the current salary structure of technical experts to attract bright recruits to this sector.

He also warned against corruption in the project, saying "We must not compromise with any graft in implementing the Rooppur Nuclear Power Plant."

Shawkat Akbar
Principal Scientific Officer, BAEC

Shawkat Akbar said authorities must build nuclear power plants to reduce dependence on gas and coal-based power.

The provision of nuclear power has been incorporated in the National Energy Policy in 1996, and was re-incorporated in 2006. In 2008, the nuclear power provision was again added, he said.

Akbar explained the nuclear power plant's institutional framework includes the concept of nuclear power authority, how fuel would be supplied, who will be guarantor and how waste will be disposed of.

“The international community is looking at the nuclear power plant positively. International Atomic Energy Agency could be the guarantor of supplying fuel,” he noted.

Engineer Obaidul Awal
Former chairman, BAEC

Former chairman Obaidul Awal said a comprehensive and in-depth review of the financial and environmental effects of creating a nuclear power plant is required.

There are Bangladeshi engineers who set up nuclear power plants in many countries including South Korea and Pakistan and they could help in this regard, he said.

He said Bangladesh should take nuclear power seriously and immediately chalk out plans as it is already a signatory to the Comprehensive Test Ban Treaty (CTBT).

Awal said fuel supply is unlikely to be a problem and suggested the government approach South Korea and Japan to supply fuel for the nuclear power plant as Japan generates 40 percent of its total power from nuclear plants.

Ensuring water supply to cool the nuclear power plants, however, is very important and this should be very carefully thought before going for such plant, the scientist said.

Dr M Anwar Hossain
Vice chancellor, Ahsanullah Engineering University

Anwar Hossain suggested the nuclear power plant should be set up in a more remote or coastal area, instead of Rooppur. He said the Rooppur site could be better utilised for fossil fuel-based power plants.

Monzurul Hoque
Engineer, BAEC

Monzurul Haque said the government must design a long-term plan for power generation despite the increasing demand for power.

“We are not serious about electricity. The use of air conditioners, fans and refrigerators is increasing fast but we don't have any long-term plan to increase power generation. We couldn't make a plan ever since the independence of the country,” he said.

He said there are several steps to set up nuclear power plants but the government has to take lead in initiating short, medium and long-term measures to ensure energy security.

Farid Uddin Ahmed
Member, Physical Science, BAEC

BAEC member Farid Uddin Ahmed said Bangladesh cannot afford to wait any longer to decide its energy future.

“Bangladesh should no longer wait. When energy crisis and its cost is increasing day by day, we need to take decision right now,” observed Farid Uddin Ahmed.

He said Bangladesh would need to train experts at the IAEA and prepare a nuclear law.

**Muhammad Aziz Khan,
Chairman, Summit Group**

Aziz Khan said that the country has diverged from its Power System Master Plan that envisioned several large power projects like Sirajganj 450MW, Meghnaghat 450MW II and III which did not come into operation.

He said the cost of nuclear power per kilowatt is less attractive than fossil-fuel based power.

**Syed Shareq Rashid
Electrical engineer**

Syed Shareq Rashid urged the government to review the country's energy reserves, especially gas, to reduce the people's confusion about the country's state of energy.

He suggested the estimated \$7 billion investment for a nuclear power plant would be too great for Bangladesh and the country should concentrate on coal and gas energy instead.

**Mahfuz Anam
Editor, The Daily Star**

The Daily Star Editor Mahfuz Anam said he was happy to see the government policymakers are already committed to nuclear power.

“Nuclear power generation may take time but we have to start now as energy and water are going to be the issues in future,” he said, adding that Bangladesh requires huge energy strength.

He asked for more writings on nuclear power to create public opinion about the issue. “We need to give people a clear idea that we require nuclear power. People should know that we are following the right idea,” said Mahfuz Anam.

He said this is the right time to take the necessary action to build the nuclear power plant to meet the growing demand for power in the country.

Federation of Bangladesh Chambers of Commerce and Industry (FBCCI) president Annisul Huq, executive director Buet Alumni Association (Buetaa) Sadiqul Islam Bhuiyan and Buetaa vice president Serajul Majid Mamoon attended the seminar, among others.