

Quest for energy

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auditorium in the capital. The programme was sponsored by Summit, Bank Asia and Citi.

Dr Saifur Rahman, director of the Advanced Research Institute, Virginia Tech; Mohammad Farooque, senior vice-president of Fuel Cell Energy (FCE) Inc, USA; Dr Mehdi Anwar, professor at electrical and computer engineering department, University of Connecticut; and Ahmed Badruzzaman of Chevron Energy Technology Cospoke.

Dr Shams Siddiqi from California and Dr Avni Argun from Massachusetts Institute of Technology addressed the colloquium through video conferencing.

"Energy solution is a combination of all solutions. It is a combination of policy and pricing," said Dr Mehdi Anwar, professor at electrical and computer engineering department, University of Connecticut.

Speaking on "Energy Challenges for Bangladesh -- A Roadmap for Sustainable Energy Solutions", he said Bangladesh aims to have a power generation capacity of 14,000 megawatt by 2020. This requires generating 1,000MW a year for the next nine years.

He said new and alternative energy sources and technologies are the answers. Large-scale solar plants are still too expensive, but small-scale local application is affordable in the context of Bangladesh.

Dr Mehdi Anwar said Bangladesh could opt for biomass, which is relatively inexpensive. Rice husks could be a good source of biomass.

He recommended that Bangladesh should go for short and long-term sustainable energy and water solutions, so that it does not have to depend on any particular source of energy.

The expert suggested partnership between the private sector, academia and the government to form ideas for energy generation.

"However, great technology is not the solution if it is not cost-effective," Anwar said.

On "Fossil Fuels Conservation by High Efficiency Power Generation and Utilisation", Mohammad Farooque, senior vice-president and discipline fellow of FuelCell Energy Inc, USA, said it is imperative to develop alternative energy resources and conserve the existing ones efficiently as energy reserves are depleting fast.

He said Bangladesh could try efficient technologies such as fuel cells developed from chemical energy stored in fossil fuels.

"But its cost is a key question," he said.

Fuel cell technologies, which have emerged as viable options for power generation, can ensure green power generation as well as conservation of water sources and saving of fuel up to 30 percent.

Planners in USA, Europe and Asia now strongly favour these technologies. Fuel cell solutions are available for applications -- from sub-kilowatt mobile to multi-megawatt grid-support -- in Japan, South Korea and USA, Farooque said.

Energy demand will grow and eventually threaten to exceed the supply in foreseeable future. Fuel conservation is a must to ensure energy security and lessen economic impacts of high energy costs, he noted.

On solar, wind and biomass technologies, Prof Saifur Rahman, director of the Advanced Research Institute, Virginia Tech, said many countries in Asia, Europe and North America had gone for wind and solar power to meet their increasing energy demands.

He said present global electricity generation from wind exceeds 150,000MW and countries like Germany, USA, Spain, China and India produce 10,000MW each from wind.

Even an oil rich nation like Kuwait aimed to meet a large part of its energy demands from renewable energy fearing its oil resources might not be enough to meet its domestic demand after 2020, the expert said.

Renewable energy sources can meet the demand for electricity in remote areas as well as large power plants, said Prof Saifur adding sources like the sun, wind, biogas and water extend the scope of using electricity by the disadvantaged.

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"For Bangladesh, it's a question of survival," he said referring to the country's energy issue.

In Bangladesh there are opportunities to install renewable energy solutions on rooftops in villages, develop multifamily solar panels, solar water pumping, localised grouping of electricity generation and photovoltaic power generation for national grid.

Dr Ahmed Badruzzaman, an energy scientist for Chevron Energy Technology Co, suggested better utilisation of natural gas, oil, nuclear and coal resources using the latest technology in Bangladesh.

He said the requirement of gas between 2004 and 2030 for a 7.1 percent growth was estimated at 35 TCF.

According to some estimates, an addition of up to 87 TCF including that from the offshore is possible using advanced technology.

He said the coal reserve in the country will be difficult to extract and use without assessing environmental and social impacts.

Besides, large-scale addition to hydroelectric capacity is unfeasible. Current nuclear plants, though they promise a low carbon footprint, can be expensive and risky to introduce in a densely populated country with limited safety, Badruzzaman said.

Even with the rapid growth in production of solar electricity, which is expected to reach 50 MW by 2012, it will be a mere fraction of the 8,500 MW the government anticipates generating by 2013, he said.

Bangladesh in the near future will have to rely on the merger of conventional energy sources -- marketed and traditional -- while it strives for renewable sources, the physicist said.

He said advanced exploration technologies could allow access to new oil-gas reservoirs that are complex, remote or located in ecologically sensitive areas.

CNG can facilitate transport of gas over large distances reducing the need for gas pipelines in a country crisscrossed by rivers or an expensive LNG infrastructure, Badruzzaman said.

Rapidly advancing small modular reactors would be more suitable for Bangladesh, both in terms of safety and economics, the expert noted.

From California, Dr Shams Siddiqi spoke about deregulated electricity market.

He suggested Bangladesh let gas prices reflect global trend, otherwise any renewable energy project would be disadvantaged due to subsidised natural gas and electricity prices.

"We need to introduce tax incentives to encourage renewable projects."

Siddiqi also said Bangladesh must have premium electricity buy-back prices for electricity generated from renewable sources.

From MIT, Dr Avni Argun spoke on Highly Conductive Nanoassemblies for Clean and Sustainable Energy. Argun highlighted the commercialisation of alternative energy.

"Policy is important, of course. Renewable energy should be able to penetrate the free market. Long-term subsidisation and fundamental research are also important," he said.

The Daily Star Editor and Publisher Mahfuz Anam said the newspaper organised the event to create a platform where NRB experts, national policymakers and private sector can share ideas and find solutions for various development issues of the nation.

The first colloquium focuses on alternative energy and new technologies because the energy crisis is a major issue for Bangladesh, he said. The Daily Star intends to hold a colloquium on different subjects every year.

He said ideas are generated and then fizzle out, but this colloquium is not a one-shot affair for The Daily Star.

"You have a constant partner in The Daily Star to push things forward," he said to the audience in the afternoon session. "Partner with us, intellectually."

"From now, The Daily Star will provide special space for energy efficiency," Mahfuz Anam said.

Bike hijacked Rider shot at

STAFF CORRESPONDENT

A group of criminals hijacked a motorbike last night after shooting the owner in front of Eden College in the capital.

Injured Afzal Hossain, 25, son of Abdul Awal of Sheikh Saheb Bazar in Lalbagh, was admitted to Dhaka Medical College Hospital (DMCH) with a bullet wound in his leg.

Afzal told reporters at DMCH that some eight people on four bikes stopped him in front of the college around 9:00pm when he was going home.

The criminals asked him to show the documents of his bike and at one stage one of them fired at his leg and took away the bike.

Police later took Afzal to the hospital.

Obama names Sperling to top economic job

AFP, Washington

President Barack Obama yesterday was supposed to name veteran Clinton-era policy expert Gene Sperling to a top White House economic job, in the latest stage of a staff reshuffle, officials said.

Obama, who faces a battle with Republicans over a 1.3-trillion-dollar deficit and a slowly recovering economy, will announce Sperling as his new director of the National Economic Council (NEC) during a visit to a windows factory in Maryland, said an official who spoke on condition of anonymity.

Bombs

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Police recovered the live bomb around 8:15pm.

Locals of Natun Bazar area brought out a procession yesterday to protest the incident.

Starting around 11:30am, the procession paraded the main roads of the town before holding a protest meeting at Chourongi Square.

The speakers condemned the bomb attack and demanded Tapan Kumar's security.

Awami League (AL)-backed candidate Altaf Hossain, however, reached the meeting venue and spoke pressing his solidarity with the protest programme.

Officer-in-Charge of Magura Sadar Police Station filed a general diary regarding the incident, police said.

Tapan is a rebel mayoral candidate in the January 27 municipality polls.

The acting mayor, also the organising secretary of district AL, was assaulted on December 29 when the supporters of a rival candidate from Abalpur area attacked him at Defulia bazar during electioneering.

Manmohan

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we are trying to work out mutual dates", Krishna said.

Bangladesh Prime Minister Sheikh Hasina had paid a landmark visit to New Delhi in January last year when India announced a one billion dollar line of credit, the largest to any country, and agreed to ramp up cooperation in a trade and power sectors.

After Hasina's landmark visit to New Delhi in January, a reciprocal tour by the Indian prime minister to Dhaka has been on the cards.

There had not, however, been much headway in resolving contentious issues like water sharing of Teesta River or settlement of enclaves in adverse possession of the two countries.

Krishna, however, said India's relations with Bangladesh had witnessed "an upward swing over the last several months".

Referring to India's engagements with its neighbours in South Asia, Krishna said the Saarc was maturing and gaining greater salience.

"Discharging our responsibilities in an asymmetrical and non-reciprocal manner, India has contributed proactively towards initiating most of the major Saarc programmes and projects," he added.

Green energy

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stakeholders to ensure long-term energy security.

If SEDA is activated, it can be a national body to look into what can be done for development of renewable clean energy and conservation of electricity in urban and rural areas, said Saifur Rahman, director of Advanced Research Institute, Arlington, USA.

Saifur, also a professor at the College of Engineering of Virginia Tech and an expert in renewable energy, made the remark at The Daily Star Leadership Colloquium on Alternative Energy and New Technology.

The Daily Star organised the daylong programme at its office.

Discussants at the event recommended increased generation and use of clean energy, and also conservation of electricity.

Other suggestions include improvement of power generation efficiency, reduction of taxes and duties on renewable energy generation systems, and formulation of a wind map for installation of wind-mills.

They stressed the need for increased use of energy saving light bulbs, and raising mass awareness about these technologies.

They recommended taking an integrated and long-term approach to solving the energy crisis involving all stakeholders.

Formation of SEDA can help formulate that coordinated long-term policy, they added.

"No benefit will come through island operations. You have to have an integrated approach," said Md Delwar Hossain, director of

Energypac Power Generation Ltd.

The recommendations came at a time when countries are looking for sustainable and eco-friendly electricity solutions to meet part of their electricity needs in the wake of depletion of traditional energy sources -- oil, gas, and coal.

To address the issue and reduce carbon emission, many countries such as Thailand are focusing on energy efficiency through conservation.

"Energy saving light bulbs help reduce electricity consumption," said AFM Anwar, professor at the University of Connecticut.

He said incandescent lights are not usually sold in the US now, as most people there use energy saving lamps for their low prices.

Absar Kamal, managing director of Grameen Shakti, said the government should reduce taxes and duties on renewable energy generation systems and their accessories to encourage faster expansion of solar home systems.

He said the government exempted duties on solar panels, but taxes on accessories such as batteries, and charge controllers remain.

Cost of a battery accounts for 35 to 40 percent of the cost of a solar power system. If the government reduces value added tax (VAT) on battery prices, then the price of the system will also drop, he added.

Jebunnessa, a lecturer at the Department of Public Administration of Jahangirnagar University, said the government should opt for public-private partnership in solving the energy crisis.

River

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immediately on information of incidents of river and canal grabbing.

Also, mobile courts will be called in anytime against the sand traders, who have earth-filled the foreshore of the said rivers in different areas of the capital, said the DC.

The five canals the administration decided to reclaim are Baunia Khal in Uttara, Devdholai (Kajlar Khal) in Demra, Kalyanpur main Khal, part of Ramchandrapur Khal and Ulan Khal in Rampura.

A number of private land developers have undertaken housing projects encroaching upon the Ramchandrapur Khal, said Abdul Bashir Md Fakruzzaman, revenue deputy collector of Dhaka.

Five teams, each comprised of seven members led by an additional deputy commissioner, will start serving notice on the encroachers on Sunday, he said. Prior to that, they will conduct a survey and prepare a list of encroachers.

"Our aim is to complete the preparatory work by January 20 and reclaim the said canals by end of the month," Bashir said.

Five teams, each led by an executive magistrate, will lead the drive against encroachment.

Bangladesh Inland Water Transport Authority (BIWTA) agreed at the meeting to take charge of reclaiming only a part of Haikkar Khal at Rayerbazar.

The canal has been a prey to brazen encroachment so far, as it has no official custodian. The other part of the canal remains unguarded.

The administration at the meeting also asked the assistant commissioner (land) of Keraniganj to place the list of land grabbers of Sobhadda Khal. Bashir said eviction notices will be served on the encroachers and an eviction drive will start in two weeks.

According to officials, the district administration over the last eight months demolished some 379 illegal structures on the Buriganga, Turag and Balu in 15 out of 55 moujas.

They aim to carry on similar drives in five moujas in January.

High officials of environment department, Rajuk, Dhaka Wasa, Public Works Department and BIWTA, among others, were present at the meeting.

Bangladeshi

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Islam Nuru of Banarvita village under Rumkhana union.

According to BDR and local sources, Nur Islam went to India with his daughter about 10 years ago.

They were entering Bangladesh around 6:00am yesterday.

Although the father crossed the border with the help of a human trafficker BSF personnel at Chowdhurhat border outpost shot the daughter when she was crossing the fence.

She died on the spot.

BDR sources said they will hold a meeting with BSF on the incident.

Khaleda

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the press conference is going on but the party will finalise on Saturday whether the chairperson will address the conference.

Sources of the chairperson's office said a group of BNP leaders and Khaleda's adviser are working to prepare the speech of the opposition leader.

As per the preparation, the former premier and leader of the opposition in parliament will reply to the allegations raised by Prime Minister Sheikh Hasina against the opposition in her speech before the nation on Thursday.

She will also counter the allegations against the previous BNP government.

The prime minister in her speech bitterly criticised the opposition and its leader for staying away from parliament.

She also accused the previous BNP-led four-party government of creating acute power shortage in the country.

The premier said the power situation deteriorated as the BNP government had shelved many development programmes taken by the earlier Awami League government.

Focus on alternatives

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renewable energy generators for producing green electricity, can be a way forward, he said.

The fuel cell products can be brought into Bangladesh through a partner here, Farooque said.

A fuel cell consists of two electrodes sandwiched around an electrolyte. Oxygen passes over one electrode and hydrogen over the other, generating electricity, water and heat.

The proton exchange membrane fuel cell (PEMFC) is one type. This operates at relatively low temperatures and has high power density. Their output can vary quickly to meet shifts in power demand. This cell is suited for vehicles, which is called a quick start up.

PEMFCs are the primary candidates for light-duty vehicles, buildings, and potentially for much smaller applications such as replacements for rechargeable batteries.

In his presentation, Farooque said the Japanese government is pursuing an aggressive programme to introduce residential fuel cells.

South Korea introduced a regenerative fuel cell (RFC) programme in 2010. RFCs are attractive as a closed-loop form of power generation. Water is separated into hydrogen and oxygen by a solar-powered electrolyser. The hydrogen and oxygen are fed into the fuel cell which generates electricity, heat and water.

Unlike wind and solar technologies, which generally have an overall availability of 35 percent, fuel cell products have an availability of about 95 percent.

Direct fuel cell products are the cleanest power with the highest efficiency, said Farooque, an expert in higher-efficiency power generation and utilisation. He put the efficiency rate at 50 percent.

Demand for energy will grow, threatening to exceed supply in future, Farooque said. He said fuel conservation is a must.

He said the cost of fuel cell power plants are declining while the grid power cost is increasing.

Industrial, agricultural plants and waste-water treatment facilities generate renewable biogas as part of their manufacturing process. Fuel cell power plants can harness the methane in this by-product and use the gas to power the system instead of natural gas, making it a renewable energy source.

Farooque said it is possible to generate 35 megawatts of power from waste from different sources in Dhaka.

Based in Danbury, Connecticut, FuelCell Energy makes ultra-clean stationary fuel cell power plants that generate electricity with up to twice the efficiency of conventional fossil fuel plants, and with virtually no air pollution.

SOLAR ENERGY

Director of the Advanced Research Institute, Virginia Tech, USA, Saifur Rahman said, historically, renewable energy sources have been found in small scale, distributed to and within people's habitat thus filling the need for on-site source of electricity.

He said while this market continues to grow in most developing and some industrialised countries, and there is now a new market for large-scale non-hydro renewable energy sources in Asia, Europe and North America.

"In Bangladesh, the renewable energy sources account for a very small amount of global energy consumption. The country has set up thousands of solar power systems across the country but they are small scale and we have not moved beyond that."

Saifur, however, said although solar power systems might not turn out the most effective solution for the whole country but it could be a good option for local solutions, which do not have access to the grid network.

"Solar cannot give you the grid solution but it can supply power to a significant extent," he said.

Sixty-percent of the country's 165 million people do not have access to electricity.

Saifur said there could be product development beyond the use at village rooftops. Multi-family solar home-based electricity supply, solar water pumping, microgrid-multi-kW free standing grids, and photovoltaic power generation national grid are what Bangladesh Power Development Board is trying to develop.

The expert said renewable energy sources could fill the need for both stand alone remote area electricity needs, and large-scale central station power plants.

Small-scale renewable sources of electricity including solar, wind, biogas and small-scale hydro offer opportunities to provide electricity to the disadvantaged thus allowing them to benefit from use of lights, televisions, computers, internet, mobile phones, he said.

AFM Anwar, professor of electrical and computer engineering at University of Connecticut, USA, said Bangladesh has aimed at adding 4,000MW of electricity to the national grid by 2014. If solar power systems have to provide that then it will cost the country about \$40 billion, which is not cost effective.

Ahmed Badruzzaman, a fellow of Chevron Energy Technology, said although solar power is a huge potential, solar power is not going to make any big difference.

WIND POWER AND BIOMASS

The installation of wind mills and biomass plants for electricity generation would not be viable for the country as those can contribute very little to the national grid, said experts at the colloquium yesterday.

An expert argued that installation of the wind power plants in the country would not be feasible because Bangladesh mostly has flat terrains where flow of wind is not enough to produce adequate power for the energy hungry nation.

"In offshore areas, the installation of wind power plants is possible in a limited scale because wind is available there. But here the government's policies and support are essential," said Saifur Rahman.

Saifur, a Bangladesh-born energy expert, said strong enough wind does not blow in Bangladesh, as a result adequate power cannot be produced with this system to contribute in the national grid. The system might work in the offshore areas in smaller scale.

In his keynote presentation, Saifur Rahman said the total power generation from wind power plants was 1,80,000MW in 2010 which was only 10,000MW in 1997.

"So we should understand that the power generation from wind as an alternative energy has been gaining popularity worldwide. Bangladesh can also try for setting up wind power plant at the offshore areas in small scale," he said.

The USA produced more than 35,000MW of electricity from wind power plants and both China and Germany produced more than 25,000MW power from wind power last year, he added.

Power generation from biomass would not be feasible in Bangladesh as this system would not be able to contribute much to the national grid, he said.

Moreover, biomass power plants by design are small and it can produce only for a small community, Saifur said.

He said there would be a fuel crisis for biomass power plants in Bangladesh because the raw materials for power production are used for other purposes. In Bangladesh cow dung, one of the major resources for biomass power plants, is used as fertiliser. Similarly, the rice husk is used as cooking fuel in the rural areas.

"So, this kind of alternative power system is also not feasible for the country. It has very little capacity to contribute to the national grid," he said.