

South Asia IAEE-NSU Energy Summit Report

17 October 2017

The South Asia IAEE-NSU Energy Summit took place on the 17th of October, 2017 at the campus of North South University, Dhaka, Bangladesh. The event was a collaborative effort between The International Association for Energy Economics (IAEE) and Department of Economics, North South University. The summit was host to a number of high officials from the government sector, eminent academicians and researchers, the present and the immediate past presidents of IAEE, donor agencies, and private sector energy experts. The event was conceptualized to be an ideal platform for panel discussions on the crucial energy sector issues of the country and was also expected to shed light on international energy policies and practices. Helpful insight in dealing with the energy issues of Bangladesh was extracted from the discussions. It facilitated the incorporation of opinions and exchange of ideas from both local and foreign knowledgeable professionals, as well as students who participated. The chief guest was Mr. Nasrul Hamid, MP, Honorable State Minister, Ministry of Power, Mineral and Energy Resources, Government of the People's Republic of Bangladesh. Professor Dr. M. Ismail Hossain, Chairman of Economics Department, Dr. Ricardo Raineri, President of IAEE and Dr. Sakib Bin Amin, Assistant Professor in Economics Department was the summit chair, summit co-chair and summit convener, respectively.



SESSION 1: SOUTH ASIA ENERGY CHALLENGES

The session began with an address by Dr. Ismail Hossain, Professor and Chairman of The Department of Economics, North South University. He highlighted the fact that it was the first time IAEE has collaborated with any university from Bangladesh; making this event, with its scope and focus, unique in the country. He mentioned, in the context of Bangladesh, the lack of high quality energy supply to meet the demands for a growing population and a rapidly developing economy. The participants were informed that this session would focus mainly on the energy challenges and issues of South Asian countries.

Following this, Dr. Ricardo Raineri, President of IAEE, also addressed and extended his gratitude to everyone present. He presented some information about The International Association for Energy Economics, noting that it is a non-profit, non-partisan entity and that the institution is celebrating 40 years of establishment. He was pleased to address the focus of the summit and stated that IAEE wishes to broaden its horizons and work with countries, such as those in South Asia, as they have been underrepresented so far in the institution's affiliate network. He expressed his thanks to all the organizers of the event.

The moderator of this session was Dr. Mohammad Tamim, Professor and Head, Department of Petroleum and Mineral Resource Engineering (BUET). He welcomed the guests and requested the first speaker of the session to begin.

Rahamat Ullah mohd. Dastagir, Additional Secretary, Power Division, Government of Bangladesh

Mr. Rahmat Ullah talked about the correlation between energy requirement and growth. A growing economy like Bangladesh is seeing a larger sustained demand for energy. Our rapidly increasing population means a lower GDP per capita despite our impressive growth rate. He mentioned that electricity has become an essential and inextricable aspect of human life. Mr. Rahmat Ullah quoted Barack Obama, stating that the country that will lead in renewable energy will be the one to lead the world in global politics, in the 21st century. He mentioned that without nationwide access to electricity, none of Bangladesh's SDGs can be properly fulfilled. Currently about 80% of households have electricity access. He outlined the vision of the Government of Bangladesh in improving electricity access nationwide, saying that with the Power Division's achievement in significantly raising electricity output over the last few years, we can envision a 2021 in which all households will have electricity access.

He mentioned the shift in energy sources that we can expect, particularly the shift away from gas dependency by 2030. He went on to state that though coal seems to be an ideal source to generate power at an affordable price, there is the argument of it being a dirty fuel. Bangladesh must lower its dependency on fuel imports and raise its electricity use in the industrial sector as currently, 50% of grid electricity is consumed by households. He highlighted the difficulties in financing energy projects and the lengthy amount of time for a project to be approved. Another major challenge is the lack of expertise in handling power generation from renewable sources and transportation of fuel. He concluded, saying that Bangladesh can hopefully become a middle income country by 2021 and high income country by 2041 and that "a worried person always sees a problem, a concerned person figures out how to solve it."

Dr. Gour Gobinda Goswami, Professor, Department of Economics and Treasurer, North South University

Dr. Gour Gobinda Goswami spoke from his international experience in economics. He put into perspective the urbanization and industrialization of Bangladesh over the last 45 years. All those years ago, rural electrification was not an issue of concern and there was not much difference in the context of electricity, between rural and urban areas. Energy was as he puts it, "A luxury good, even for urban dwellers". However, we have now progressed far beyond that stage, with much greater power output. One reason is because of Bangladesh's economic growth which facilitates power generation. This, coupled with the large demand for electricity, has promoted power generation to the point where load-shedding and power outages which had caused significant loss of economic output even a few years ago, have almost been eliminated. He hoped that with the current policy measures in place, geared to achieving zero load-shedding in a few short years, Bangladesh can progress further down the road of achieving its SDGs. He highlighted the fact that there is not enough research going into the feasibility, safety and sustainability of nuclear power sources, which if utilized could fast-track development. As a tropical country with greater energy demand than non-tropical countries, we can better make use of sunlight and develop solar energy generation further.

He mentioned that the main growth drivers of a developed Bangladesh will be energy and education.

Mr. Tazmilur Rahman, Senior Sector Specialist Energy at KfW

Mr. Tazmilur presented information on German Development Cooperation (GDC). He spoke about KfW which is a development bank in cooperation with GIZ, working in line with the aims of the government in the context of renewable energy development. He spoke about the progress of the German Development Cooperation which started with grant support and has now expanded to a nationwide level, working to improve power efficiency and distribution. They have projects that look into voltage drops in irrigation. A major project involves the set-up of solar home systems in both urban and rural areas. Currently, the number of set up systems is over 420,000. Solar Irrigation pumps and a domestic bio-gas support program have already been set up by GDC. He talked about research ongoing in reducing the amount of waste produced during festive periods such as Eid and recycling to generate power. He also showed the speakers and participants the wind map of Bangladesh, describing how wind energy fits into the energy mix and stating that wind is a feasible and clean energy source with a lot of potential and may see investment in the foreseeable future.

Mr. Daniel Ciganovic, Director Business Development, ME Solshare LTD

Mr. Ciganovic thanked all those present and North South University. The focus of his speech and presentation would be "Bangladesh is one of the superstars in RE". He mentioned that there are 3 stages to embracing renewable energy: making policies, looking at impact of policy and constraints, and eventually tackling bigger projects and small scale privatization. He said that Bangladesh is a special case and can implement in all 3 stages simultaneously. This is because the country already undertakes policy making and integration of those policies as it happens in order to improve renewable energy output. Privatization and the building of larger plants for renewable energy are also taking place at the same time.

He further mentioned that private households in BD were the first to set up solar home systems in the whole world and because of BD's intensive use of solar energy, Solshare has even made new technology such as micro grids for roofs, that is specially designed for BD.

Replying to Mr. Rahamat Ullah, he said that development might not necessarily result in increased energy demand. For example, China's development did not increase demand for energy at the same proportions.

Finally, he concluded saying that embracing renewable energy is a process different from country to country and so Bangladesh must find its own way instead of only looking at the methods of other countries.

Dr. Mohammad Tamim, Professor and Head, Department of Petroleum and Mineral Resource Engineering (BUET)

Dr. Tamim focused on the availability of coal resources in South Asia first. Coming to the context of Bangladesh, he mentioned that we have 3 billion tonnes of underutilized coal resources. He explained that we had 2 challenges: maintaining the supply of sustainable energy and financing the sustainable energy. Bangladesh is importing coal but the infrastructure is failing. The power planning has been done for generations but import planning has been lacking. The government was looking to import-based solutions such as importing LPG which will ease pressure on oil based power plants. He talked about the possibility of oil prices going up and eventually the possibility of electric prices as well.

The scarcity of land was also pointed out in South Asian countries. He stated that with our power plant projects emerging such as Payra and Rampal plants, we could be seeing significant growth in electricity generation. He wishes to see better human resources management on projects to promote efficiency. He concluded saying, "Resources can only be converted to wealth by the human brain." and stated that regional cooperation will be helpful in overcoming energy challenges.

A brief question and answer session followed the speeches by the 5 speakers, in which the importance of Energy Security vs. Renewable Energy Generation, the methods in which HR for energy projects can be improved, the environmental costs to power generation, and waste management were all discussed upon various participants' queries.

SESSION 2: ENERGY ACCESS

The moderator for this session was Dr. Sajjad Zohir, Executive Director, Economic Research Group (ERG).

He began the session by discussing energy access in Bangladesh and how availability, access and security are all concerns. He stated that energy access should not be sector exclusive. He mentioned the importance of regional cooperation in attaining better access to energy.

Dr. Saiful Huque, Professor and Director, Institute of Energy, Dhaka University

He began his speech, urging us to look into country-specific energy access issues. He mentioned renewable energy's role in basic amenities such as cooking. He highlighted the disparity in energy requirement for different demographics of the country and mentioned that we need a long term plan to ensure sustainability and affordability.

He stated that access to energy for the ultra-poor is a major concern. The Power Division of Bangladesh is making significant progress towards this. He also highlighted the under-utilization of resources saying, we have 12000 channels of rivers unutilized. We have thousands of square miles of rivers unutilized that could potentially be used to generate solar power. We can generate about 5-10 Giga watts of energy according to our studies."

He stated that power plants could be set up locally and private entrepreneurs should be given sufficient incentive to pursue these endeavors. He also mentioned the prospects of solar energy in agriculture.

Dr. Sebastian Groh, Assistant Professor, Department of Management, North South University

Dr. Sebastian stated that "definitions and metrics do matter." He went on to say that the paradigm of improving power generation by grid extension has become obsolete and that technical information has risen in importance.

He mentioned that SDG7 is essential for the achievement of the other SDGs. He asked participants what universal electrification means. He said that we must find a specific answer to this question in the context of the country before we can progress towards it.

He mentioned that 6 million solar home systems operate worldwide and 4 million of them are in Bangladesh. According to him, we need to adopt a multi-tier framework that translates into what "Access" means. A tier framework defines access to energy in tiers that include: affordability, quality, and reliability. He said that the Bangladesh Government's plan currently is not sustainable in terms of energy economics. Mini grids and solar homes are better adaptable for sustainability. The private sector's contribution is essential, but they lack incentives and a stable, profitable environment in which to operate.

Mr. Mohammad Hossain, Director General, Power Cell

Mr. Hossain outlined the Vision for the Government of Bangladesh: Providing reliable electricity to all by 2021. He mentioned that accessibility of electricity has risen from 47% in 2009 to a whopping 80% in 2017. Constraints of primary fuel cause inability to generate sufficient electricity to meet standards. He mentioned that we have largely expanded transmission capacity and that net energy generation has risen from 883 megawatts in 1971 to 57000 Giga watts in 2017. He hopes that we can establish regional cooperation. Myanmar is still not ruled out as a regional partner despite political unrest since our regional plans are long term.

He discussed plans for solar power including utilizing hundreds of square miles of uninhabited char lands by setting up cells there. Islands and remote areas and a majority of rural areas will be covered by solar homes. He reiterated that uninterrupted, quality electricity must be provided to all by 2041. He also noted that future plans will include a major shift away from gas dependency for power generation.

The question and answer session discussed various issues such as challenges in being able to establish solar home systems in rural homes, limiting illegal users of electricity who siphon off the national grid, and the importance of being energy efficient when using electricity at home.

SESSION 3: ROLE OF INSTITUTIONS AND REGULATORY FRAMEWORK FOR ENERGY DEVELOPMENT**Mr. Monowar Islam, Chairman, Bangladesh Energy Regulatory Commission**

Mr. Islam began with a brief summation of the progress that Bangladesh has achieved in terms of economics growth at a rapid rate, sustained over the last few years.

He mentioned the increase in output from 4000MW to 15000MW under Prime Minister Sheikh Hasina's governance. He also mentioned the role of BERC to ensure good governance, and efficiency in energy. In order to increase efficiency, two visions were formed, of which vision 2021 is near to being successful.

He mentioned that people are not happy with the idea of a regulatory board as it entails strict measures and laws which they perceive as tricky and unpleasant. Goals are to promote equal opportunity for all and to ensure equal justice in food settlement. BERC believes in ensuring energy security for all in the country. He stated that sustainable development is holistic and energy subsidy is a challenge for all of us. A meticulous framework is needed to find balance with economic growth. The public wants to have full access to electricity and energy at lower prices while investors from the private sector seek to maximize profit. A balance must be established.

Mr. Islam mentioned two policies in improving Gas and Energy power generation and access. The policies include:

- i. Power Sector Master Plan; to promote uninterrupted quality electricity to all by 2021.
- ii. Gas Sector Master Plan: emphasizes gas production and import including ensuring energy security to all stakeholders.

Mr. Tanvir. A. Siddiqui, Vice President & Unit Head, Large Infrastructure Unit, Infrastructure Development Company Limited.

Mr. Tanvir said that energy security is a must, to achieve most of the SDGs. He mentioned that 1.1 mil people in Bangladesh lack access to electricity. Energy development means that we have to primarily focus on production of renewable energy. In Bangladesh, natural gas is the major source of energy production and then comes bio gas. While the rest of the world runs primarily on coal. He noted that BERC considers nuclear power and coal power in its Power Sector Master Plan.

He noted that in Renewable Energy development, there are four types of institutions involved:

- i. Government supply, ii. Development agencies, iii. Energy and Planning Institutions and iv. Financial Institutions

He spoke about the LNG sector and how it has been established with companies from the private sector. The issue we face now is the mass use of conventional generation methods. However, both public and private companies are working in energy efficiency and conservation. The government is trying their level best in transferring to “green energy” and “green financing”.

Mr. S.M. Zahid Hasan, Component Manager of GIZ Renewable Energy and Energy Efficiency Programme

Mr. Zahid spoke of energy efficiency and governance and how it is essential in achieving SDGs. With better energy efficiency, we can be in a better condition to fight climate change. He stated that energy efficiency is drastically poor right now, providing an example: ‘from a mineral source with 100% energy, the user gets 3% as input energy while all the rest is wasted.

He noted that Japan and Germany are ideal examples of optimum energy usage. Mr. Zahid explained energy efficiency governance and how it is the use of political authority and institutions to achieve improved efficiency.

From the context of Bangladesh, we have many steps in this process of achieving efficiency, beginning with a strong vision and mandate and following through with innovation, technology and commitment towards the long term. In Bangladesh, the sustainable and renewable energy commission is funded by the government and they are mostly responsible for maximizing energy and energy efficiency programs. Energy efficiency is not a rational choice for most private sector firms or even households so problems do arise. Monitoring, capacity development and funding are required. To achieve these, fiscal instrument incentives are required. Measures can be taken including taxing and putting tariffs on non-renewable and inefficient sources. Transparency and regional co-operation is also needed to achieve this. He concluded saying a few words about his line of work in which energy efficiency is aided by energy audit regulations. GIZ drafts energy standards and regulations of country. And also has contribution for capacity building programs.

Dr. Gürkan Kumbaroğlu, Immediate Past President IAEE, Professor, Bogazici University

Dr. Kumbaroglu, who was also the moderator of this session, spoke about price determination by demand and supply. He talked about the typical components of the electricity market:

- i. Electric energy market – the Day Ahead Market, and the Real Time market.
- ii. Capacity Market
- iii. Ancillary services market

He mentioned that the international regulatory challenge includes capacity shortage and lack of implementation strategies. He explained in brief, the design stages in order to facilitate successful energy regulation.

Dr. Sakib Bin Amin, Assistant Professor, Department of Economics, North South University

Dr. Sakib, the convener of the summit, expressed his gratitude before beginning his discussion about the issue of energy subsidy in the context of Bangladesh. He noted the importance of energy in moving towards a more equitable and sustainable world with access to electricity and a better life. He remarked that energy subsidies are designed to reduce the cost of consumption and to aid domestic production, ensuring a greater access to energy. However, he observed that energy subsidies might put a fiscal burden on developing countries such as Indonesia, Pakistan, Brunei and Bangladesh; and the net impact of an energy subsidy might be negative as reported by the World Bank in the case of Indonesia. He pointed out that energy subsidies can obstruct other development goals by potentially crowding out important sectors including physical infrastructure, health, education and such. According to Dr. Sakib, these might lead to an adverse impact on the balance of trade through over consumption, cause market distortion and might delay the effect of energy efficiency. Therefore, he noted that despite the short-term benefits, energy subsidies should be removed in the long-run. He concluded by emphasizing the importance of long-term planning, transparency, inclusion of private sector, and effective campaigning to gradually remove subsidies in the energy sector.

In the question and answer session, on request from Dr. Kumbaroğlu to comment on the issue of subsidy removal as presented by Dr. Sakib, Mr. Islam agreed that even though energy subsidy cannot be withdrawn overnight, it could be

removed in the long-run. To answer the question of finding ways to achieve greater energy efficiency in the local context, Mr. Islam noted that Bangladesh has already started using compressed natural gas for several years and the government has decided to import liquid natural gas to ensure energy security. It was also pointed out that use of some traditional biomass such as cow dung as a source of energy is hazardous to health and should be avoided. In answering the question about involvement of universities in achieving higher energy efficiency, Mr. Tanvir proposed that universities such as NSU could play a crucial role in carrying out more studies and sharing the knowledge. To answer the questions on the use of alternate renewable energy sources, Mr. Islam emphasized the use of public transport and better technology, while Mr. Tanvir stressed the commitment of the government to increase electricity generation through nuclear power. Dr. Sakib suggested that decreasing the amount of subsidy as well as diversifying subsidy in the energy sector could be more effective in avoiding market failure.

SESSION 4: ACCESS TO FINANCE

Dr. Ricardo Raineri, President IAEE and Professor, Pontificia Universidad Católica de Chile

Dr. Ricardo Raineri was the moderator of the 4th session and commenced the panel discussion with his speech. The present state of Bangladesh: a developing middle income country with a vision of becoming a developing country in 2041. What this means according to the World Bank is the per capita income of the people of Bangladesh is over \$1000 a year but when the country becomes a developing country it means that the income per capita will be around \$24,000

In a short period of time Bangladesh has been able to achieve a lot in terms of energy access but still we have a large number of people who do not have access to sufficient energy. An estimate of 40 billion dollars is what is required to connect all the people to the grid. According to Dr. Raineri, a very important word for the energy sector market is “competition”. Investments will come together and the market will choose the best projects under healthy competition. Having a master plan is important. It provides a sense of direction as to what kind of investment is needed for the near future. So investors require the proper signal to decide on the appropriate kind of investment. It is important that the state owned enterprises draw up a wall between the government and the management of the government. This allows the state owned enterprise to be free from the conflicts of government bureaucracy to deliver a performance likewise to that of a private enterprise.

The problem lies in the financing of the appropriate resources needed to build a grid that will supply power to all the people. World Bank has a budget of 60-70 billion dollars that they have to distribute between the other developing countries

There is a big challenge as to how the finance will be acquired and so the involvement of the private sector company is important in order to bring in electricity for all and electricity for development.

Mr. Munawar Misbah Moin, Group Director, Rahimafrooz Renewable Energy Limited.

Mr. Munawar explained the need for greater emphasis on the renewable energy sector's finances; energy by itself doesn't solve the problem. Through his speech, the audience learned the need to consider other components like technology, business model, and access to finance.

Bangladesh is ahead in terms of access to energy and the structure for access to finance. Bangladesh has the largest solar roof system in the world. Solar home installation as a source of providing electricity to households is actively being taken into consideration. This was made feasible by a combination of technology and the right business model coming into shape with the addition of finance. In contrast to the situation of Bangladesh in the 90's where our only access to electricity was from India and Africa.

The main concern now is that the mainstream financial distributors have yet to catch up in the area of renewable energy. There are a lot of pilot businesses at play however there is yet a lot to be done in order to make these pilots go full scale. Bangladesh has to decide on an all-encompassing business model which is partly policy driven and consumer demand driven. The Bangladesh government has policies regarding this however these policies are out dated.

According to Mr. Munawar, we need to come up with innovative market driven models like irrigation pumps. This is feasible through payment of water rent. Another innovative financing area in Bangladesh is electric vehicle charging. So there is a significant opportunity for solar charging to be passed on as conventional charging.



Mr. Shams Zaman, Corporate and Investment Banking Head, Citibank NA

He focused on the financing sources of renewable energy projects and the issue of banks overlooking these projects. He mentioned that the size of the project will influence the appropriate source of finance that will be required to facilitate the project. The government is taking a lot initiative and has involvement in the renewable energy sector of Bangladesh. However we need involvement from other private sectors. According to him, we need to check up on the feasibility of the projects in terms of what is workable here in Bangladesh. We must check other alternative sources like solar power, wind energy and the practicality of these projects.

We can invite development institutions from the international market who are interested in investing in our local market and depending on the prospects; they will be interested in doing so. Small projects can pose a greater risk factor than a larger project.

In terms of policy infrastructure, Mr. Shams suggest we need to formulate the right framework for a project in which it will be beneficial for investors to invest. If there are cross-corporate guarantees then it became easier to secure finance for these projects, the risk of success is higher in that case then the risk of failure.

Mr. Thomas Holzapfel, Executive Director, Fichtner GmbH & Co. KG

According to Mr. Holzapfel, on one side we are looking for reliable energy sources and on the other side we are looking for cheap energy. This is the basis of the power generation in Bangladesh. We are still at the burgeoning phase. It is not a question of the places but the finances that are required. He suggested we need to make preparations for the transmission system and then the distribution system for the power energy plants. The larger the power plant, the more energy for the people however the consequent maintenance cost and distribution cost will also be higher.

We need to take into account the feasibility studies, never forgetting the price and the social responsibility we have. Whatever the business model, the investor is looking for a profit. So our investments have to be on the principles of efficiency. Solar power has great prospective in Bangladesh. This is a possibility that can be utilized but, very importantly, the financial details have to be made clear. Without the proper technical model and the feasibility studies and a reliable project we will not be able to attract the investors to support these projects.

Dr. Ahmad Kaikaus, Secretary, Power Division, Government of Bangladesh

Dr. Kaikaus said during his speech, "Power generation has been quite successful in Bangladesh since the last decade. Recently we have allowed 10 projects in the last 2 months. However no one pointed to the fact that we are having problems with the financing of the project. And all these investments came from local investors". According to him, this is the basis to say that wherever there is opportunity finances will come from everywhere.

The government has to create an atmosphere through which we can remove the barriers which will allow markets to participate. Two distinct policies that the government has employed in the power sector are the 'private power generation policy' and the 'government procurement system', this has allowed the ministry to act like private sectors through which projects are picked and negotiated upon. Dr. Kaikaus stated that the number of steps that are needed for the implementation of the project has reduced now, and that is what matters.

He urged energy conservation by saying that instead of thinking that a certain form of energy is renewable, we should actively treat all the sources as limited and focus on efficiency instead. Dr. Kaikaus also said, "We need to understand when to involve the government and when to pull them out of a project. When the private sectors have a good understanding of the project it is best for the government to not interject."

CLOSING CEREMONY

The closing ceremony of the South Asia IAEE-NSU Energy Summit was presided over by a number of eminent individuals as guests and speakers.

The chief guest was Mr. Nasrul Hamid, MP, Honorable State Minister, Ministry of Power, Mineral and Energy Resources, Government of the People's Republic of Bangladesh. He presented an invigorating speech on the importance of renewable energy and the access to electricity, highlighting Bangladesh's progress to the point at which it is now. He also involved students observing the closing ceremony in voicing their ideas on innovative financing for energy projects to reach the 2021 and 2041 visions of the government in the energy sectors. He urged participation and active involvement of the students in making energy conservation and efficiency a priority issue. He thanked all of the speakers and the organizers of the event and hoped this kind of energy summit to discuss global issues of energy will become a more regular occurrence.

The other speakers at the closing ceremony were Mr. Faisal Karim Khan (Additional Managing Director, Summit Group), Dr. Ricardo Raineri (President, IAEE), Dr. Gurkan Kumbaroglu (Immediate past president, IAEE), Mr. Benajir Ahmed (Member, Board of Trustees, NSU), Professor Atiqul Islam (Vice-Chancellor, NSU), Dr. Mahboob Rahman (Dean, School of Business and Economics, NSU), Dr. M. Ismail Hossain (Professor and Chairman, Department of Economics, NSU) and Dr. Sakib Bin Amin (Assistant Professor, Department of Economics, NSU & Convener of the event).

The event concluded with a presentation of crests by Professor Atiqul Islam to all the Special Guests and the Chief Guest of the Closing ceremony.