

EXPERIENCE

# Enhancing learning experience with state-of-the-art campus

AMID HOSSAIN CHOWDHURY

Educational institutions play an essential role in our lives for our growth into responsible and independent individuals.

The education sector has come a long way from what it used to be years ago. Continuous technological advancements and developments have blended into the system. The heart of an institution lies with the people – the students, staff, and faculty. However, the physical premises and cutting-edge technology are important pieces for creating a state-of-the-art campus.

An ideal campus helps in building the

foundation of a student's intellectual, conceptual, and emotional growth. The combination of technology-based learning environment and a comprehensive curriculum, skill-building workshops, and other educational programmes make learning more efficient. As a result, teachers and educators can effectively shape students as future assets of society.

In Bangladesh, many educational institutions are adopting groundbreaking technologies to develop a campus that provides better experiences for students and visitors. The country's premier transnational educational institute,

Universal College Bangladesh (UCB), notably, is bringing affordable, world-class international education to the doorsteps of Bangladeshi students, along with an amazing campus.

UCB is transforming the learning experience in the country with its wide range of unique facilities. The institute features 'counseling pods' which embrace the authentic culture of Bangladesh with sitting arrangements that resemble rickshaws.

Their flexible learning space not only supports varied learning styles, but also enables teachers and educators to interact. Keeping this in mind, UCB has a contemporary 'educator space' as well as a resource-enabled library, designed for collaborative learning. Campus learning spaces that foster collaboration encourage students to take more creative risks as a group and lean on their peers for support.

UCB has introduced several other cutting-edge technologies in their campus to create innovative learning areas with 86-inch touchscreens and laboratories with integrated testing areas. As an exclusive partner for Monash College in Bangladesh, UCB seeks to create an atmosphere where students can participate in the campus community and engage with their lessons long after classes end. Their campus has a vibrant rooftop café, enabling numerous co-curricular interactions.

Besides academics, a campus that embraces technology is essential for enhancing the learning experience of students. Studying in campuses that use technology and offer more than just bookish knowledge will help them flourish as individuals.

The author is Head of Marketing at UCB.



PHOTO: COURTESY OF UCB

YOUNG ACHIEVER

## Shayla Bithi conquers Island Peak of the Himalayas

LABIBA ANJUMI KABIR

Bangladeshi mountaineer Shayla Parvin Bithi successfully conquered the Island Peak of the Himalayas, a 6,160-metre mountain in Nepal. Born in Swarupkathi Pirojpur, Shayla has been visiting hill tracts since 2014. She visited Chandranath Hill with her friends, where she was introduced to Bangla Mountaineering and Trekking Club. Through this club, she went trekking up the Himalayas for the first time in 2015.

Her recent achievement was conquering the Island Peak of the Himalayas, which was also her first self-organised adventure. After three days of preparation, Shayla started her journey on October 28 of last year from Lukla, Nepal. After three hours of journey to Phakding, Shayla and her guide reached Namche Bazaar on second day. Her planned itinerary took a turn as she visited Thame and Lungden. After that, she started her extended trekking, including three challenging 5,000 m passes: Renjo La on November 2, Cho La on November 4 and Kongma La Pass on November 6. After these treks, Shayla reached Chukung, the last village before the Island Peak basecamp. On November 7, Shayla and another Indian team started their journey from Chukung to the basecamp.

She completed climbing the Island Peak on the evening of November 8; it took her 11 days to reach the peak. She trekked back to Lukla on November 11.

"A part of my plan is to conquer an 8,000 meter mountain in 2022," asserted Shayla.

She also expressed her concerns regarding the trend of young people visiting mountains across the world. "I hope the younger and future mountaineers will take proper preparation and advice as well as equipment along with them, when they decide to go trekking, because faulty or unsuitable equipment do not just hinder the journey, but also create discomfort, which essentially ruins the fun of trekking," she says.

In celebration of the Golden Jubilee of the independence of Bangladesh, Shayla took a portrait of Father of the Nation Bangabandhu Sheikh Mujibur Rahman and another placard to promote her anti-rape campaign on her journey.

The author is a freelance journalist. Email: labibakabir99@gmail.com.



PHOTO COURTESY: SHAYLA PARVIN BITHI

Despite the alarming rate of global warming, electricity generation and transportation industries are still heavily reliant on conventional fossil fuels. Burning of fossil fuels can bring drastic consequences for the planet – from climate-damaging greenhouse gas to health-endangering environment. On top of that, an accelerated depletion rate of these natural resources is posing a tremendous threat on the future energy security. Particularly, in a country like Bangladesh, it is critical to maximize renewable-based power generation to ensure diversified energy supply and reduce dependence on imported fuels. However, such an option has the challenges of its own. With that in mind, Electrical and Electronic Engineering (EEE) department of United International University (UIU) held the International Conference on the Developments of Renewable Energy Technology (ICDRET) on December 28-30, 2021. Due to continued COVID uncertainties, the conference was held on the virtual platform. This was the 6th time that the university organized this unique conference to bring together researchers, policy makers, students, and other stakeholders to exchange their ideas.

The inaugural ceremony of ICDRET was held on December 28, 2021. Hon'ble Adviser (Minister) to the Prime Minister for Power, Energy, and Mineral Resources Affairs, Government of the People's Republic of Bangladesh Dr. Tawfiq-e-Elahi Chowdhury, BB graced the ceremony as the chief guest. Mr. Moinuddin Hasan Rashid, Chairman & Managing Director of United Group and member Board of Trustees and Professor Dr. Moshikul Hoque, Chair of IEEE Bangladesh Section were present as special guests. Professor Dr. Chowdhury Mofizur Rahman, Vice Chancellor of UIU presided over the programme.

The audiences were welcomed by Professor Dr. Intekhab Alam, Head of the EEE department and Technical Chair of ICDRET 21 followed by a speech from Dean of School of Science and Engineering Professor Dr. Raqibul Mostafa and Professor Dr. M. Rezwana Khan, Organizing Chair of ICDRET 2021.

Mr. Moinuddin Hasan Rashid expressed his delight to see ICDRET being held for the 6th time and reiterated his support to UIU for the advancement of research in RE and other fields. United Group being one of the major power producers (IPP) of the country, he stressed the importance of the IPPs to come forward to install RE based power stations.

In his inaugural speech, the chief guest Dr. Tawfiq-e-Elahi Chowdhury pointed out the technological challenges like food security and land usage for PV farms, power system stability due to intermittent nature of RE based sources, importance of innovation in energy storage like battery to address the peak power problem in the evening etc. In his opinion, we should focus more on clean technology like nuclear power than specifically on renewable energy. There can always be limited use of fossil fuel-based power generation if carbon capture technology can be made cost effective. He also stressed the importance of innovation in adopting clean technology for power generation.

Expressing his gratitude to all parties involved in ICDRET, Professor Dr. Chowdhury Mofizur Rahman said that UIU is always supportive to Research and Development activities and as an example mentioned the enviable success of Mr. Shahriar Ahmed Chowdhury, Director, Centre for Energy Research (CER) in establishing solar mini-grids, providing consultancy services to the large scale govt. funded solar PV projects and achieving international awards like UN's 'Momentum for Change' award, Intersolar award etc.

Mr. Shahriar Ahmed Chowdhury, Director, Center for Energy Research (CER), UIU and Co-chair of the Organizing Committee of ICDRET 2021 gave the vote of thanks to the involved parties to make the conference a success.

### History of ICDRET

UIU organized the first ICDRET in 2009 when need for awareness and effective platform for exchange of views amongst the policy makers, researchers and implantation agencies was strongly felt. It was the first international conference on renewable energy in Bangladesh. Following the success of the event, the organizers decided to bring back ICDRET in 2012, by when the falling prices of solar PV panels had indicated that renewable energy is a viable option, economically. ICDRET became a bi-yearly event, and was held in 2014, 2016 and 2018. It was supposed to be held in 2020. However, the aggravating COVID situation has delayed this event.

### Invited Talks

Five invited talks were delivered at the ICDRET 2021 by eminent researchers and policy makers. The first invited talk was presented by Dr. M. Ryyan Khan, Assoc. Professor of East West University on "Techno-economic Prediction of Agrivoltaics: Prospects of Long-Term Sustainable Energy Growth in Bangladesh". He presented his research findings on the possibility of using crop fields for the PV power generation and its opportunities and threats. As investment in a specific area of land can be 30 to 50 times higher with PV in comparison to the crop, it will be a natural tendency to go for PV power generation instead of crop production. So, such a co-generation will require policy intervention so that the crop fields are never



## ICDRET 2021

### 6th International Conference on the Developments in Renewable Energy Technology

used for intense PV installation and the crop yield does not drop more than 5-10%. Even with a 5% compromise in the crop production, the net return from an Agrivoltaic project can be 10 to 20 times higher than a crop only field. Without any proper policy, there will be a tendency for total PV installation as it is economically more rewarding by a factor more than 10.

Mr. Shahriar Ahmed Chowdhury in his invited talk "Renewable Energies in Bangladesh: Challenges and Opportunities" discussed in detail the challenges, including both technical and economic challenges, that Bangladesh may face when the percentage of renewable share in the power system gradually increases. He also pointed out possible options like floating PV farms that can minimize the land usage to address the issue of food security. He presented a proposed road map for the growth of renewable energy integration in our power system to move towards a carbon neutral power system.

Professor Dr. Nowshad Amin, UiTEN, Malaysia, a distinguished researcher in the field of solar cell technology expounded on "Thin Film Photovoltaic (PV) Technology – From Inception to Successful Commercialization of CdTe" presented his talk on the future prospect of Cadmium Tellurium PV cells as a viable alternative for silicon solar cells (the most popular solar cell material of present time). It is a lower cost material, easier to process and manufacture solar cells and can lead to cheaper solar electricity. Its market share is already on the rise.

Dr. Al Jumlat Ahmed of University of Wollongong, Australia discussed on the possibility of using thermal waste energy to

generate electricity using thermoelectric junctions and the new trends in the design and materials that is expected to enhance the conversion efficiency (which is still quite low, less than 5%). Perovskite based metal oxides are promising thermoelectric material for heat to electricity generation. However, their energy conversion efficiency is low mainly due to high thermal conductivity. It has been proven that nano-porous and nanostructure in SrTiO3 and BaTiO3 bulk materials can reduce lattice thermal conductivity significantly by scattering phonons and this mechanism can be used for other thermoelectric materials also.

Mr. Mohammad Alauddin, Chairman of the Sustainable and Renewable Energy Development Authority (SREDA), presented a presentation titled "Promotion of Renewable Energy in Bangladesh: SREDA's Role". SREDA is the only cell dedicated to promoting renewable energy and is committed to mitigating climate change challenges by boosting renewable energy and implementing energy efficiency measures. Currently, the total contribution of renewable energy is 777.31MW (including off-grid). He discussed the challenges of generating 10% of total capacity from renewables, including land scarcity, institutional capability, a comprehensive RE map, intermittency, financing, subsidized energy tariff and location reliance, and etc. SREDA's successes in RE promotion include a national database, net metering rooftop solar system calculators, and an E-service desk for solar. In addition, the Kushtia Municipality, the International Center for Climate Change and Development,

mance analysis and performance improvements of large-scale solar power plants. Solar power plants are subject to performance degradation due to dust deposition on the PV panels. A paper was presented that highlighted how increase in the cleaning frequency can substantially increase the power generation. Authors also presented few articles on improving the efficiency of the solar cells by considering various materials. One of the papers proposed a standalone hybrid microgrid for Rohingya refugees. Some presented articles analyzed the feasibility of floating solar system and use of hydrogen as energy storage solution. In the other RE category, an article was presented that evaluated the feasibility of electricity generation from biogas produced by solid municipal waste.

Besides the technical sessions, a workshop on State-of-the-art solar cell technology and Factors affecting Solar PV Generation was conducted on the first day of the conference.

### Prof. Muhammad H. Rashid Best Paper award

In the closing session, Technical Chair Professor Dr. Intekhab Alam declared the winners of the 'Prof. Muhammad H. Rashid Best Paper Award'. Professor Dr. Muhammad H. Rashid, University of South Florida, USA, is a life fellow of IEEE and is a well-known name in the field of Electronics and Power Electronics for his outstanding research in the field of power electronics and his widely studied text books on electronics and power electronics. This year, the award winners were

### First position

Ronniato C. Mendoza, Glendy D. Aguilar & Alexander T. Demetillo, 'Title Design of Floating Solar Power System for a Local Community Application with Sample Prototype for a Single Panel'

### Joint Second Positions

Nadim Reza Khandaker, Mohammad Moshir Rahman & Farzana Islam Khan, 'Action Research in Bhutan: Production of Biogas from Rice Cooking Generated Wastewater'

And

Sabrina Nurhan Hasan, Abrar Jawad Haque, Tawseef Ahmed Kore & Mustafa Habib Chowdhury, 'Use of Aluminum-Silica Core-Shell Plasmonic Nanoparticles to Enhance the Opto-Electronic Performance of Thin-Film Solar Cells'

### Co-organizers and Sponsors

Organized by United International University, ICDRET 2021 was co-organized by TERI (India), Micro energy International (Germany), UC Berkeley (USA), IDCOL (Bangladesh), alongside partners Oldenburg University (Germany), Kathmandu University (Nepal), Center for Energy and the Global Environment (Virginia Tech, USA), National University of Singapore (Singapore). The technical co-sponsors of the event were IEEE Bangladesh Section, United Group, IDCOL, GIZ, Chint Solar and the Daily Star extended their support to make the event a success.



United City, Madani Avenue, Dhaka 1212.  
Phone: +88 09604-848-848