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United International University organises the 7th International Conference on the Developments in Renewable Energy Technology

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United International University (UIU) organised its three-day biennial flagship conference – the 7th International Conference on the Developments in Renewable Energy Technology (ICDRET 2024) – from March 7 to 9. Jointly organised by the Department of Electrical and Electronic Engineering and UIU's Centre for Energy Research (CER), the conference aimed to address pressing issues in the global renewable energy landscape.

The importance of renewable energy in mitigating climate change was emphasised at the conference's inauguration on March 7. With 2023 being the warmest year in human history, there is an increasing urgency to realise that the temperature rise within 1.5 degrees Celsius by the year 2050 will be extremely difficult to contain. Keynote speakers emphasised the importance of accelerating efforts to cut carbon emissions, establishing ambitious goals such as reaching net-zero emissions by 2050 and transitioning to zero-emission vehicles by 2040.

Throughout the conference, discussions focused on increasing the use of renewable energy to minimise emissions from traditional energy sources. Exploring new renewable sources, creating innovative technologies, and designing corporate structures with financial incentives to increase renewable energy feasibility were among the key areas of concentration.

Prof. Dr M. Rezwan Khan, Organising Chair of ICDRET 2024 and Executive Director of the Institute for Advanced Research (IAR) shared, "It is very encouraging that the cost of renewable energy is coming down at a significant

rate and has become cheaper than fossil fuel-generated grid energy. The main challenge of the cost of storage devices like batteries or hydrogen remains. The recent development of battery technologies indicates that the cost of batteries will be reduced by at least 25 percent in the next three years. This will help to replace the fossil fuel craze in power plants."

The conference featured Dr Tawfiq-e-Elahi Chowdhury, BB, Advisor (Minister) to the Bangladeshi Prime Minister for Power, Energy, and Mineral Resources Affairs, as the Chief Guest. The inauguration was presided over by UIU Vice-Chancellor Prof. Dr Md Abul Kashem Mia.

During the programme, Prof. Dr M. Rezwan Khan, alongside Prof. Dr Hasan Sarwar, Dean, School of Science and Engineering, UIU, and Shahriar Ahmed Chowdhury, Organising Co-Chair, ICDRET 2024, and Director, CER, UIU, spoke to the audience, highlighting the significance of the conference and its potential impact on renewable energy research and policymaking.

Prof. Dr Intekhab Alam, Head of the Department of Electrical and Electronic Engineering at UIU and Technical Chair of ICDRET 2024, gave the welcome speech and the vote of appreciation.

"In the context of Bangladesh, we are still progressing at a rate that needs to be accelerated to keep pace with the other countries. We are the first academic institution in Bangladesh to establish a footprint and I believe we are the only one with an operating renewable energy research centre that contributes to country-level policymaking and project implementation. The conference's scope can be expanded in the future to



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include other artificial intelligence or machine learning subjects, like constructing a smart city or smart campus," emphasised Prof. Dr Hasan Sarwar.

Shahriar Ahmed Chowdhury said, "With ICDRET, we aimed to create a platform where academicians, scientists, engineers, experts, policymakers, technicians, researchers, and students could share and learn from research from all over the world in the field of renewable and sustainable energy. Currently, our renewable energy lab is totally powered by solar energy. Huawei has just stepped in to support us in the development and testing of solar photovoltaic (PV) panels and inverters."

Dr Tawfiq-e-Elahi Chowdhury stressed the importance of developing a unique narrative for Bangladesh's energy policy and encouraged engineering innovation to address societal and cultural needs.

The conference was supported by partnerships with globally renowned institutes such as Oldenburg University in Germany, Kathmandu University in

Nepal, the Centre for Energy and Global Environment at Virginia Tech in the USA, Micro Energy in Germany, TERI in India, BERG and OREL in the USA, Seris, and the National University of Singapore in Singapore. The Institute of Electrical and Electronics Engineers (IEEE) also maintained its technical sponsorship, as it has for prior conferences.

This year, apart from Bangladesh, the ICDRET received research papers from several other countries including Canada, Türkiye, the Philippines, Nepal, and Bhutan. This year's conference included five keynote addresses and one invited talk session. Throughout the three days, the conference included many technical talks on scientific research into renewable energy technology.

"In each conference, we receive around a hundred interesting, relevant, rigorous, and thought-provoking research articles. The best of them are selected for publication and also for presentation. The selected papers (this year) will also be published in IEEE Xplore," added Shahriar Ahmed Chowdhury.

Parag Kumar Paul, Senior Research Engineer, CER, UIU, shared, "Many of our research projects serve as real-world examples showcasing effective and feasible solutions in the renewable energy sector. By piloting these projects, we can validate our key findings and create interest in incubation support from industry and government stakeholders. We envisage that our research work will be showcased through various training programmes for industry professionals, technologists, and policymakers, as well as university-level curricula for students. This ensures that the knowledge gained from research is used in real-world solutions."

On the final day of the conference, recommendations and proposals were presented during a roundtable discussion on government policy-making levels. The conference was officially concluded with the formal end of voting for the presented proposal.

Dr Ijaz Hossain, former Dean, Faculty of Engineering, Bangladesh University of Engineering and Technology (BUET); Dr Badrul Imam, Professor of Geology, Dhaka University; Dr Khandaker Golam Moazzem, Research Director, Centre for Policy Dialogue (CPD), and Monowar Mustafa, Country Lead of the Tara Climate Foundation, all addressed the roundtable on the final day of the conference.

Md Habibur Rahman, Senior Secretary, Power Division, Ministry of Power, Energy and Mineral Resources, served as the Chief Guest at the roundtable discussion. Md Mahbubur Rahman, Chairman of the Bangladesh Power Development Board (BPDB), Edwin Koekkoek, Team Leader of Green Inclusive Development at the Delegation of the European Union (EU) to Bangladesh, and Alamgir Morshed, CEO of Infrastructure Development Company Limited (IDCOL) also spoke at the roundtable.

The presence of faculty members, officials, academicians, energy experts, researchers, and distinguished visitors from domestic and international institutions underscored the conference's significance as a platform for collaboration and knowledge sharing in the field of renewable energy.

Prof. Dr Md Abul Kashem Mia extended his sincere gratitude to all the international partners, congratulated the participating authors, session chairs, and conference organisers, and wished the ICDRET great success.

In conversation with Prof. Dr M. Rezwan Khan, Organising Chair of ICDRET 24, and Executive Director of the Institute for Advanced Research (IAR)

Campus (C): ICDRET has been one of UIU's longest-running conferences, since 2009. What is the purpose behind the university's continued commitment to discussing and shedding light on the renewable energy (RE) sector?

Prof. Dr M. Rezwan (R): In 2009, renewable energy and its prospects were not widely known. We aimed to raise awareness amongst the policy-makers and implementation agencies. Since there were no conferences primarily focused on RE at the time, we played a pioneering role. We continue to do so because we anticipate more challenges and research opportunities in the future.

C: Could you tell us how the ICDRET conference and the papers being presented here will be of use to those who are looking to work in the RE sector?

R: Not all research immediately translates into practical implementation. It often requires further investigation and refinement before reaching field-level application. Therefore, while the papers presented at the ICDRET conference offer valuable insights, their direct usefulness to those seeking employment in the RE sector may vary. However, it's essential to recognise that the outcomes of the conference extend beyond mere application; attempting to confine its impact solely to practical use would be unjust.

C: Do you believe that academia-industry collaboration is a must when it comes to ensuring development in the RE sector?

R: While academic research typically prioritises theoretical exploration over immediate implementation, collaboration between academia and industry is essential. Without such collaboration, academia may remain unaware of the practical challenges faced by the industry in applying research findings. Failure to bridge this gap between theory and application can result in unresolved issues within our research. Thus, field application is crucial to ensuring that our research moves beyond the confines of theory and paper. It is worth mentioning that the Centre for Energy Research (CER), UIU although involved in research and development in the RE sector has a very good link with the industry and so far, close to 70 percent of the solar PV-related large projects are designed by CER.

C: How do you think universities in the country can contribute to the RE sector? Can UIU be the trailblazer in this regard?

R: I've noticed a tendency among researchers to shy away from addressing the challenges associated with implementing their findings in the field. Researchers must confront these difficulties head-on. Building strong partnerships with industry is essential for universities to bridge the gap between theory and practice. At UIU, we are committed to fostering collaboration not only within our institution but also with other universities. Our research centre, the Institute for Advanced Research (IAR), provides funds for technically sound proposals. We are proud to have collaborations with esteemed institutions like BUET, SUST, NSU, ULAB, SEU, AIUB, and many others. We welcome all universities to join us in advancing research and innovation in the RE sector.

C: Do you have any advice for those looking to build a career or do research in the RE sector?

R: Given the rapid evolution of this sector, staying up-to-date is crucial. It's also important to closely monitor the activities and initiatives of key players in the field. Replicating technology in the RE sector can be challenging due to variations in natural conditions from one location to another. Nevertheless, research opportunities in this field are abundant and ongoing. Researchers should pay attention to the specific issues and constraints faced by each country.