

Report on SDG 7

Progress Towards Sustainable Energy



**Ensure access to
affordable, reliable,
sustainable and
modern energy for all**

Daffodil International University



Daffodil
International
University

August 2023

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SDG7:

Sustainable Development Goal 7 is one of 17 Sustainable Development Goals established by the United Nations General Assembly in 2015. It aims to "Ensure access to affordable, reliable, sustainable and modern energy for all."

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DIU's Contributions and Progress:

Total Energy used	14,65,000 KWH
Total Renewable Energy Produced on campus	5,000 KWH
Number of Solar projects	2
Number of Biogas plant	1
National Building code followed	Bangladesh National Building Code 2020
% of energy efficient/smart building	80%+
Carbon reduction initiatives	Yes
Implementation of Automated energy monitoring & management system	Yes
Zero emission vehicles on campus	20 e-cars & 250+ bicycles
Initiative to increase renewable energy production on campus	Agreement with Pasific Solar organization to install "3 Mega watt" solar system at DIU campus

Energy efficient building



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Policy strategy for reducing carbon emission:

DIU has been following a policy strategy for reducing carbon emission on campus along with a net zero emission target.

<https://sustainability4d.daffodilvarsity.edu.bd/environmental-sustainability-strategy>

DIU's Contribution to the "Development of a Solar Based Electricity Model for Public University of Bangladesh and its advocacy for Solar PV Electricity Promotion Research Project"



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The team of EEE Department of DIU successfully conducted the inaugural session of "Development of a Solar Based Electricity Model for Public University of Bangladesh and its advocacy for Solar PV Electricity Promotion Research Project", organized by the University Grants Commission of Bangladesh (UGC) Auditorium where Prof Dr. Mohammed Alamgir, Chairman, UGC was the chief guest and Prof Dr. M Shamsul Alam, Advisor, Consumers Association of Bangladesh (CAB) and Dean, Faculty of Engineering, DIU Chaired the session. The EEE team, Mohammad Shihab, Nusrat Chowdhury, Tasmia Baten, Kanij Ahmad, Intekhab Alam and Sampad Ghosh has been working on the project for Development of a Solar Based Electricity Model for Public University of Bangladesh.

Collaboration with Pacific Solar for ensuring full solar energy-based campus



An MoU has been signed between "Pacific Solar" and DIU on OPEX based solar system for DIU. Under the agreement the Pacific Solar is going to install "3 Mega watt" solar system at DIU campus.

An OPEX solar system is a solar energy setup where a third party owns and maintains the solar panels, and the property owner pays for the electricity generated at an agreed rate, reducing upfront costs and maintenance responsibilities.

Inauguration of the Renewable Energy Research Laboratory and Training Center

A momentous occasion unfolded on June 3, 2023, as Mr. Nasrul Hamid, MP, Minister of Power, Energy, and Mineral Resources, GoB inaugurated the Renewable Energy Research Laboratory and Training Center of Daffodil International University. This state-of-the-art facility is set to drive innovation and research in renewable energy technologies, enriching the educational experience and advancing sustainable solutions for the community and beyond.

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At inaugural ceremony of "Solar Electricity Laboratory and Training Centre" Honorable State Minister, Ministry of Power, Energy & Mineral Resources, Mr. Nasrul Hamid, MP was present as the Chief Guest. Mr. Nahim Razzaq, MP Convenor of Climate Parliament Bangladesh and Member of the Parliamentary Standing Committee on Ministry of Foreign Affairs and honorable Vice-Chancellor, Daffodil International University, Professor Dr. M Lutfar Rahman joined as special guest.

Collaboration with Sustainable and Renewable Energy Development Authority" (SREDA) in Bangladesh

Solar net metering is a billing arrangement that allows solar panel owners to receive credit for the excess electricity their panels generate and feed back into the grid. This credit can offset the electricity they draw from the grid when their panels aren't producing enough power, effectively reducing their overall energy costs.



A brief workshop organized by EEE was conducted by "Sustainable and Renewable Energy Development Authority" (SREDA) in Bangladesh. SREDA is a government agency responsible for promoting and regulating renewable energy initiatives and projects in Bangladesh. It aims to facilitate the development and utilization of sustainable and renewable energy sources to meet the country's growing energy needs while reducing environmental impacts.

Contributions to Knowledge:

The researchers of Daffodil International University conducted research and subsequently published the research results in reputed journals that contributed to the knowledge domain of SDG-7. Below is a highlight of such contribution:

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SL	Article Title
1	Energy-Saving Load Control of Induction Electric Motors for Drives of Working Machines to Reduce Thermal Wear
2	Strain-driven tunability of the optical, electronic, and mechanical properties of lead-free inorganic CsGeCl ₃ perovskites
3	Going away or going green in NAFTA nations? Linking natural resources, energy utilization, and environmental sustainability through the lens of the EKC hypothesis
4	How do green energy technology investments, technological innovation, and trade globalization enhance green energy supply and stimulate environmental sustainability in the G7 countries?
5	Toward next-generation green solar cells and environmental sustainability: impact of innovation in photovoltaic energy generation, distribution, or transmission-related technologies on environmental sustainability in the United States
6	Electric Vehicle-to-Grid (V2G) Technologies: Impact on the Power Grid and Battery
7	Roadmap for achieving energy sustainability in Sub-Saharan Africa: The mediating role of energy use efficiency
8	A time series forecasting analysis of overall and sector-based natural gas demand: a developing South Asian economy case
9	Exploring renewable energy, financial development, environmental quality, and economic growth nexus: new evidence from composite indices for environmental quality and financial development
10	Exploring the nexus between fiscal decentralization and energy poverty for China: Does country risk matter for energy poverty reduction?
11	Does the utilisation of new energy and waste gas resources contribute to product innovation from the perspective of a circular economy? Evidence from China
12	Prospects and challenges of renewable energy-based microgrid system in Bangladesh: a comprehensive review
13	Recent progress in emerging hybrid nanomaterials towards the energy storage and heat transfer applications: A review
14	The impacts of renewable energy, financial inclusivity, globalization, economic growth, and urbanization on carbon productivity: Evidence from net moderation and mediation effects of energy efficiency gains
15	Design and analysis of GaAsN based solar cell for harvesting visible to near-infrared light
16	Power Laws in altmetrics: An empirical analysis
17	China's 2060 carbon-neutrality agenda: the nexus between energy consumption and environmental quality
18	A path towards environmental sustainability: The role of clean energy and democracy in ecological footprint of Pakistan

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19	Challenges of Electric Vehicles and Their Prospects in Malaysia: A Comprehensive Review
20	Pathways to securing environmentally sustainable economic growth through efficient use of energy: a bootstrapped ARDL analysis
21	Decarbonization pathways: the roles of foreign direct investments, governance, democracy, economic growth, and renewable energy transition
22	Modeling Awareness as the Crux in Solar Energy Adoption Intention through Unified Theory of Acceptance and Use of Technology
23	Green Synthesis of Lead Sulphide Nanoparticles for High-Efficiency Perovskite Solar Cell Applications
24	The roles of energy efficiency improvement, renewable electricity production, and financial inclusion in stimulating environmental sustainability in the Next Eleven countries
25	Exploring the nexuses between nuclear energy, renewable energy, and carbon dioxide emissions: The role of economic complexity in the G7 countries
26	Does structural transformation in economy impact inequality in renewable energy productivity? Implications for sustainable development
27	Design of hexa-wheel sectored photonic crystal fiber for soybean biodiesel sensing
28	Analysis of Traction Power of Electric Three Wheelers in Bangladesh
29	Feasibility Analysis of Floating Solar PV Project in Catchment Area of Kaptai Dam
30	Tidal Power Plant Exploration: Low Head Water Turbine in Barrage System
31	Predictive Model Techniques with Energy Efficiency for IoT-Based Data Transmission in Wireless Sensor Networks
32	Repercussions of Hydroelectricity use on Carbon Emissions in Bangladesh: Evidence using Novel Fourier-Bootstrapped ARDL and Fourier-Gradual Shift Causality analyses
33	Design and Techno-economic Analysis of a Grid-connected Solar Photovoltaic System in Bangladesh
34	Optimization and cost-benefit analysis of a grid-connected solar photovoltaic system
35	A Real-Time IoT and Cloud System for Carbon Dioxide Monitoring in Dhaka City's Buildings with Rooftop Garden and without Rooftop Garden
36	A Dynamic Study on Energy Forecasts and The Potential of Renewable Energy Sources
37	Impact of Using Electricity for Rural Warehouse Moisture Control System
38	Can intra-regional trade, renewable energy use, foreign direct investments, and economic growth mitigate ecological footprints in South Asia?

Activities and Events

Conducted outreach academic seminar on Renewable Energy

Mr. Dipto Biswas, Faculty of DIU conducted an outreach academic seminar on Renewable Energy as supported by the Consumer Association of Bangladesh (CAB) at the Begum Badrunnesa Government Female College.



Sustainable Environment Colloquium: Focus on Bangladesh



HRDI
HUMAN RESOURCE DEVELOPMENT INSTITUTE

Daffodil University

Colloquium on Sustainable Environment:
**Energy and Groundwater
in the Context of Bangladesh**

Speakers -

 DR. FAJRUL AMIN Sr. Assistant Professor, Civil & Environmental Engineering, Tennessee, USA	 DR. FAJRUL AMIN SARKHER Professor, School of Engineering and IT, University of New South Wales, Canberra Campus, Australia	 DR. MD. MOWAR HOSSAIN PhD., Lecturer in Engineering, University of Queensland, Australia	 DR. SHAMSUZZAMAN FAROOQ Professor, Department of Chemical and Biotechnology Engineering, National University of Singapore
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16 January 2023

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Daffodil International University (DIU) is hosting a colloquium on January 16, 2023, to address sustainable environmental concerns in Bangladesh. This event features experts discussing energy and groundwater sustainability, aligning with Sustainable Development Goals 6 and 7. Renowned speakers from international institutions will share insights, contributing to environmental awareness and collaboration in Bangladesh.