Appendix 2.2

Report of International Conference Presentation

Presentation 1

Name: (Presenter)	Assoc. Prof. Dr. Kok Hwa YU
Affiliation:	Universiti Sains Malaysia
Project Title:	ICT-Driven Water Quality Monitoring Systems: Enhancing Precision and Sustainability under Climate Change
Name of International Conference: (Link to website)	The 5th International Conference on Environmental Technology and Innovations (ICETI 2025) https://iceti2025.tdtu.edu.vn/
Title of Research Paper:	Calibration of Low-Cost IoT Turbidity Sensor using Neural Network Regression Model
Name of all Co-authors (if any)	Ying Nie, Choe Peng Leo, Kin Sam Yen, Mou Leong Tan, Narimah Samat

Comments or feedback received at the conference and your answers:

Q: What is the advantage of the machine learning calibration as compared to the conventional techniques.

A: The machine learning calibration can learn the relationship between the output voltage and the turbidity values. For conventional technique, it is more complex to comprehend the nonlinear relationship between output voltage and turbidity value.

Q: What is the area of application of the machine learning calibration turbidity sensor.

A: The machine learning calibrated turbidity sensor can be employed in clean water treatment and environmental monitoring

Contribution to the project:

The presentation sessions in this conference also give insights on the water quality monitoring for river and lake which also important on the water turbidity measurement. Apart from the water turbidity, research works on the deep learning-based detection on the floating plastic bottle and assessment of nitrification rate in the estuary also can be explored to gain more insights on the water quality measurements in these applications.

Photos

[Required Documents]

A) Presentation Materials (e.g., PPT slides)

B) Final Program of the conference

Reporter: ___Kok Hwa Yu_____

Date: ____8/12/2025_____

Presentation 2

Name: (Presenter)	Prof. Ir. Dr. Choe Peng Leo
Affiliation:	Universiti Sains Malaysia
Project Title:	ICT-Driven Water Quality Monitoring Systems: Enhancing Precision and Sustainability under Climate Change
Name of International Conference: (Link to website)	The 5th International Conference on Environmental Technology and Innovations (ICETI 2025) https://iceti2025.tdtu.edu.vn/
Title of Research Paper:	Water Quality Dynamics under Climate Change: Challenges in the Carbon Footprint Reduction of Water Treatment
Name of all Co-authors (if any)	Kok Hwa Yu, Kin Sam Yen, Mou Leong Tan, Jiashen Teh

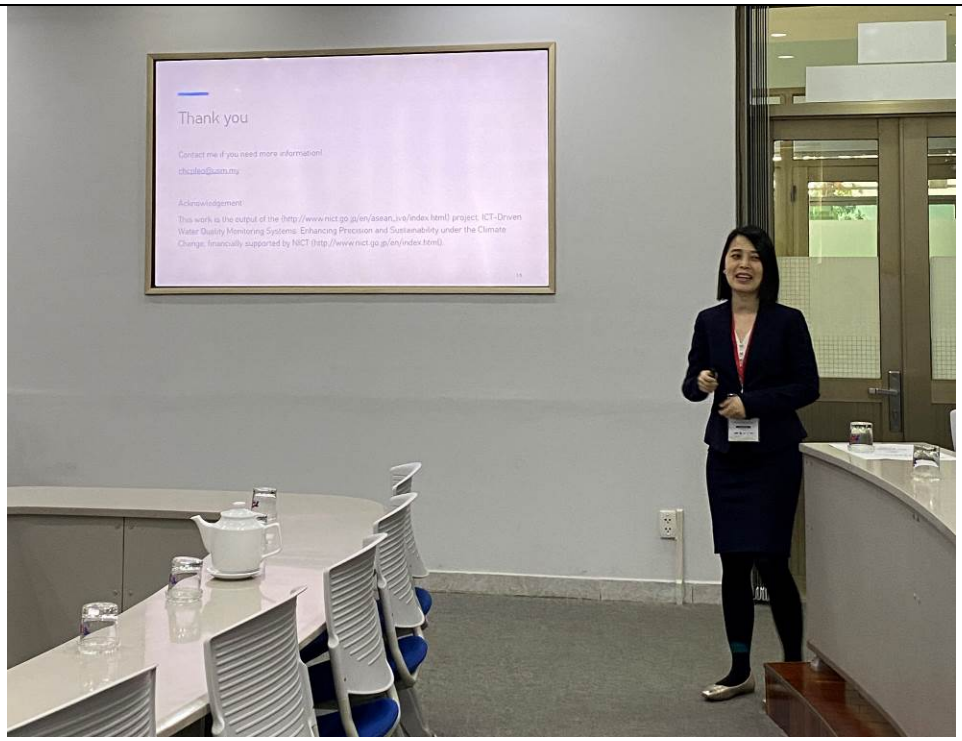
Comments or feedback received at the conference and your answers:

1. Recommendations to reduce carbon footprint in water treatment plants.
2. Software for conducting LCA of water treatment plants.

Contribution to the project:

The presentation helps the project members to understand the effects of climate change on the water parameters. Climate change is altering the hydrological cycle, intensifying extreme weather events, and exacerbating both water scarcity and water quality deterioration. Increased frequency of floods, droughts, and heatwaves influences pollutant loading, pathogen survival, and nutrient cycling in surface and groundwater systems. At the same time, efforts to treat and supply safe drinking water and manage wastewater contribute significantly to greenhouse gas (GHG) emissions, primarily through energy-intensive treatment processes, chemical use, and infrastructure operations. This presentation reviewed the scientific evidence on climate-induced water quality shifts, covering physical, chemical, and biological parameters—and assesses the carbon footprint of conventional and advanced water treatment systems. The review identified synergies between climate adaptation and mitigation strategies, including energy-efficient treatment technologies, renewable-powered systems, and nature-based solutions.

Photos



[Required Documents]

C) Presentation Materials (e.g., PPT slides)

D) Final Program of the conference

Reporter: ___Choe Peng Leo_____

Date: ____8/12/2025_____

Presentation 3

Name: (Presenter)	Assoc. Prof. Dr. Jiashen Teh
Affiliation:	Universiti Sains Malaysia
Project Title:	ICT-Driven Water Quality Monitoring Systems: Enhancing Precision and Sustainability under Climate Change
Name of International Conference: (Link to website)	The 5th International Conference on Environmental Technology and Innovations (ICETI 2025) https://iceti2025.tdtu.edu.vn/
Title of Research Paper:	Dynamic Line Rating for Enhancing Power System Reliability Under High Wind Penetration
Name of all Co-authors (if any)	Xi He, Kok Hwa Yu, Choe Peng Leo, Mou Leong Tan

Comments or feedback received at the conference and your answers:

1. Recommendations to reduce carbon footprint in power grid
2. Expansion of renewable consideration to consider solar power.

Contribution to the project:

High penetration of wind power introduces significant uncertainty into power system operations due to its stochastic and non-dispatchable nature. Accurate representation of wind speed and its impact on power output is critical for assessing system reliability under renewable integration scenarios. Dynamic Thermal Rating (DTR) has emerged as a viable approach to enhance the utilization of transmission assets by adjusting line ratings based on real-time environmental conditions such as ambient temperature, wind speed, and solar radiation. This paper develops a comprehensive reliability assessment framework incorporating wind generation and DTR within a Sequential Monte Carlo Simulation (SMCS) environment. A modified IEEE 24-bus system is employed, with wind penetration levels set at 20 %, 30 %, and 40 %. Simulation results demonstrate that DTR significantly reduces loss of load expectation (LOLE), achieving up to 57 % reduction at 20% penetration levels, while also decreasing expected energy not supplied (EENS) by up to 15.7 % under moderate integration. Despite its widespread adoption, LOLE exhibits limitations in reflecting the dynamic operational flexibility enabled by DTR, particularly under fluctuating renewable conditions. The findings highlight the effectiveness of DTR in enhancing grid resilience under varying wind conditions and support its adoption as a practical strategy for improving operational reliability.

Photos

[Required Documents]

E) Presentation Materials (e.g., PPT slides)

F) Final Program of the conference

Reporter: __ Jiashen Teh_____

Date: ____8/12/2025_____