



**KIBABII UNIVERSITY**

# **7<sup>th</sup> Biennial International Conference**

## **Conference Objective**

To provide a forum for academicians, researchers, entrepreneurs, students, and other stakeholders to present their research and expert opinions on harnessing sector-specific innovations to drive sustainability, enhance resilience, and promote inclusive growth in response to global trends

## **Conference Report**

**Date: June 11-12, 2025**

The 7<sup>th</sup> Kibabii Biennial International Conference offered an incredible and valuable experience both professionally and personally. The conference was multi-disciplinary and brought together a wide range of professionals and researchers which provided a unique opportunity to interact and collaborate beyond my immediate academic network. I was so interested in the topics related to renewable energy and with the engagements I was able to receive direct feedback and suggestions physically and virtually since the conference had a hybrid approach with breakout sessions being

well organized. The knowledge shared during the event will undoubtedly influence how I refine and communicate my research going forward.

The theme of the conference, “*Harnessing Innovation for Sustainable Growth*,” was timely and highly relevant given the global need for sustainable development. The conference was organized around seven critical thematic areas: **Agriculture and Food Security, Health and Well-Being, Energy and Environment, Education and Human Capital Development, Governance and Policy Innovation, and Cross-Cutting Issues**. Each thematic track brought together experts who presented forward-thinking solutions to global challenges. The diversity of topics highlighted how innovation cuts across all sectors and is central to achieving long-term resilience. The Energy and Environment theme, which I was part of, focused on renewable energy technologies, energy transition policies, and environmental resilience. In particular, the theme stressed the importance of aligning innovation with sustainability objectives.

The focus on renewable energy, especially within the Energy and Environment theme, reinforced the importance of this field in the current global context. Wind energy is growing rapidly due to its scalability and relatively low operating costs. However, challenges such as performance degradation in cold climates due to ice accretion need to be addressed. This is why continuous research and innovation in airfoil design and environmental adaptation are crucial. The importance of interdisciplinary collaboration in renewable energy research cannot be overstated. By combining expertise in engineering, climate science, and policy, we can develop holistic and long-lasting solutions. Therefore, studying renewable energy is not just a technical endeavor it is a social and environmental imperative.

My presentation, titled “*Aerodynamic Performance Comparison of Inverse Designed Airfoil and Airfoil Shape Obtained After Short Ice Accretion Time*,” focused on a highly technical investigation into how airfoil performance can be optimized in cold climates where icing is a frequent problem. I did consider ice accretion on NACA 4418 with lower LWC and MVD over a short time and found that there was an increase in the  $C_L/C_D$ . The airfoil was found to have an ice thickness of 45 mm which increased the chord length and then calculated using the NACA-4-digit formula which we obtained NACA4nxy which had 1 meter for comparison. The aerodynamic performance was done on bare conditions, and it was found that NACA 4nxy had an increased

$C_L/C_D$  at ideal conditions. The ice mass was then compared by varying LWC and MVD at varying angle of attack and was found that NACA4nxy had lower ice mass compared to NACA4418. The improvement on  $C_L/C_D$  was also found to be higher for NACA4nxy.

| SUB-THEME #2: HEALTH AND WELL-BEING |  |                          |   |
|-------------------------------------|--|--------------------------|---|
| Time                                | Chair: Dr. S. Senghor  | Rapporteur: Dr. C. Namal | Author(s)                               |
|                                     | Paper Title  |                          |   |
| 2.00 – 2.15                         | Mental Health and Realization of Sustainable Development Goals Among Catholic Religious and Priests in Kenya                                 |                          | Jacklyne Okello Alari                   |
| 2.15 – 2.30                         | Aerodynamic performance comparison of inverse designed airfoil and airfoil shape obtained after short ice accretion time                     |                          | Ibrahim K. Rotich                       |
| 2.30 – 2.45                         | Determinants of Malaria In Under 5 Children in Yala  |                          | Siebela <i>et.al</i> ,                  |
| 2.45 – 3.00                         | Telemedicine and AI in Healthcare Delivery: A Review   |                          | Salihu A.K                              |
| 3.00 – 3.15                         | Prevalence of <i>Ascaris Lumbricoides</i> Infections in Relation to Malnutrition and Risk Factors among Children Attending Kapsowar Hospital |                          | Jumbe Masafu                            |
| 3.15 – 3.30                         | Prevalence, Risk Factors, and Management of Substance Abuse among Students at Kenya Medical Training College                                 |                          | Varelian Gicuku Anyira                  |
| 3.30 – 3.45                         | Adolescents and Parents: Navigating Ethical Dilemmas in the Relationship Dynamic for mental health   |                          | Leunita M. Makila                       |
| 3.45 – 4.00                         | Assessment of Risk Factors Associated with HPV Infection Among Women 30-49 Years Attending Selected Hospitals Kilifi County, Kenya           |                          | Jane Kabo                               |
| 4.00 – 4.15                         | Birth Preparedness and Complication Readiness among Pregnant Women at Kakamega County General and Referral Hospital: A Mixed Methods Study   |                          | Kisorio <i>et.al</i> ,                  |
| 4.15 – 4.30                         | The Hidden Power of Nutrition in Safeguarding Prostate Health  |                          | Nwachukwu Francis Chukwuedozie          |
| 4.30 – 4.45                         | Predictors of Weight Status among Under-Fives in Kondole Ward  |                          | Onyango <i>et.al</i> ,                  |
| 4.45 – 5.00                         | Situation Analysis of HIV, Hepatitis B, and Syphilis among Pregnant Women: A Case of Burco General Hospital, Somaliland                      |                          | Abdirisak M. Osmana & Lucy N. Namusonge |
| Announcements<br>&                  |  |                          |   |

Based on these findings, I received constructive feedback and suggestions on how to include it in the experiment validations which I plan to work on in the icing wind tunnel at Savaria Institute of Technology. Sharing my findings at such a reputable platform validated the significance of my work. I believe this presentation was a step forward in addressing the real-world challenges of wind energy reliability in cold climates. I would like to express my gratitude to **ELTE Talent Search** for partially financing my attendance at this conference. Without this support, I would not have had the opportunity to engage with experts from different fields in renewable energy research.