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Lessons Learned From the International Accreditation of ACEWM Graduate Programs
By Prof. Feleke Zewge

The primary goals of ACEWM are to bolster AAU’s capabilities in water science and technology for both teaching and research. It aims to train a substantial number of skilled individuals to meet the developmental needs of the nation and region. The program also focuses on enhancing the faculty and student’s ability to conduct advanced research and scholarly activities to address regional challenges related to water management and climate change. Additionally, it aims to produce trained research scientists and engineers to support national and regional development objectives. ACEWM strives to promote best practices in teaching, research, academic administration, and management through collaborations with regional and international partners, including the involvement of African Diaspora scientists.

As quality assurance systems in Africa, particularly in Ethiopia, are still in the early stages, ACEWM has been working towards meeting international standards and guidelines. The program considers accreditation as an ongoing process to ensure that higher education institutions in Ethiopia and their academic programs adhere to specific quality standards in their operations and educational delivery.

To achieve international accreditation, ACEWM mandated the Agency for Quality Assurance (AQAS) in Germany through a competitive process in December 2021. The program prepared a Self-Evaluation Report (SER) and submitted it along with the relevant documentation for the programs. Following evaluation and site visits by the AQAS Panel of Experts, ACEWM received conditional accreditation for three Ph.D. and five Master's programs in December 2021. Through dedicated efforts, ACEWM fulfilled all the conditions set by AQAS within the stipulated timeframe, resulting in the unconditional accreditation of all programs. The graduate programs offered by ACEWM meet the requirements defined by the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) and the European Qualifications Framework (EQF). The accreditation is valid until September 30, 2027.

As a result of this accomplishment, ACEWM/AAU is now registered in the European Quality Assurance Register for Higher Education (EQAR). The MSc. and Ph.D. programs in water management offered by ACEWM are the first and only internationally accredited graduate programs in Addis Ababa University and Ethiopia, making them among the very few in Africa. This achievement sets a significant precedent for higher education institutions in Ethiopia and contributes to elevating the quality and relevance of education in the country. The accreditation process has guided ACEWM in ensuring educational learning outcomes’ quality and has improved the center’s and university's reputation. It has also fostered trust and confidence among stakeholders, positively impacting teaching, research, and outreach practices. The process was characterized by teamwork, cooperation, coordination, and creativity. ACEWM acknowledges that such engagement is beneficial and enjoyable when the results are seen in daily educational practices. Maintaining high-quality practices after obtaining accreditation becomes a daily habit, motivating the program to strive for excellence and creativity in all aspects. The successful accreditation experience should be shared with other higher education institutions in Ethiopia to inspire and encourage similar efforts.
The Africa Center of Excellence for Water Management, Addis Ababa University (ACEWM, AAU), in collaboration with the International Association for Hydro Environmental Engineering and Research (IAHR), organized the International Workshop on climate change and technology innovation in Hydro-environmental Engineering. The workshop took place in Addis Ababa from July 2, 2023, to July 6, 2023. Prof. Feleke Zewge, the Director of ACEWM, emphasized that hosting such an international workshop aligns with the Center’s strategic efforts to foster global research and academic partnerships. He highlighted the Center’s remarkable progress over six years, exemplifying excellence in learning-teaching, research, innovation, community service, and organizational capacity development.

One of the main objectives of ACEWM’s thematic Water Research Agenda is to facilitate evidence-based implementation of water programs and projects through multidisciplinary and interdisciplinary research. This approach aims to address the region’s challenges effectively. Prof. Feleke showcased the abundant research efforts undertaken by the Center, which can serve as valuable evidence for policymakers and practitioners.

During the successful three-day workshop at Capital Hotel, Addis Ababa, participants presented and discussed six research works:

1. "The Urban Water and Wastewater Challenges in Ethiopia" by Prof. Dr.-Ing. Esayas Alemayehu.
5. "Recent Advances on Harmful Algal Blooms (HAB) and Fisheries Management: Monitoring, Prediction, and Control" by Joseph Hun-wei Lee.
6. "Sudden Occurrence and Evolution Mechanism of Hypoxic Black Water Events in Reservoirs Under Meteorological and Hydrological Complex Driving in Eucalyptus plantation Forest Area" by Prof. Li Yiping.

The international delegation, mainly consisting of esteemed academicians and researchers from renowned universities in China, visited ACEWM facilities. The delegation acknowledged the significance of ACEWM being an accredited institution by AQAS, the Agency for Quality Assurance through Accreditation of Study Programs, an independent non-profit organization dedicated to accrediting higher education institutions in Germany.
ACEWM has become a member of the Technical Advisory Group (TAG) to actively participate in the WASH Sector Learning and Dissemination efforts. Since 2017, USAID Transform WASH (T/WASH) has conducted various research studies to enhance learning within the sector and improve its internal operations. With the support of USAID, T/WASH, in collaboration with the Water and Energy Sector Working Group (WESWG) and the National WASH Coordination Office (NWCO), plans to expand and localize these efforts by involving universities, professional associations, and private sector entities.

To effectively lead, facilitate, and coordinate these initiatives, T/WASH, WESWG, and NWCO have established a strong National Technical Advisory Group. This group consists of representatives from various stakeholders, including government bodies, donors, CSOs, academic institutions, and the private sector.

As a member of the TAG, ACEWM will serve as a platform for stakeholders in the WASH sector to share practical and usable knowledge to enhance evidence-based WASH approaches. The TAG’s strategic guidance will assist policymakers in providing culturally acceptable, scalable, equitable, and effective WASH and market-based sanitation services while establishing a sustainable and responsive system. Moreover, the group will work to improve the efficiency and effectiveness of WASH programs by providing advice on best practices and shortening the learning curve.

Additionally, the TAG will utilize research findings to inform the planning, design, and evaluation of programs aimed at improving access to affordable WASH products and services.

The group’s preliminary list of members includes ACEWM and other entities such as the Federal Government of Ethiopia, Ministry of Water and Energy (MoWE)/NWCO/WESWG, Ministry of Health (MoH), National WASH Coordination Office, Water and Energy Sector Working Group Institutes, Professional Associations, Ethiopian Water Technology Institute, Ethiopian Public Health Institute/Ethiopian Public Health Association. From the donor side, UNICEF, World Bank, and USAID are members of the group. Partner organizations and CSOs like Transform WASH (PSI, IRC, and SNV) are also part of this national advisory group. An international nongovernmental organization, WaterAid, is also listed under this TAG. Depending on the situation, the TAG members may invite new organizations and individuals to join the team.

The Advisory Group will have its own Chair, Vice-Chair, and Secretary, each with clearly defined roles and responsibilities. These individuals will be selected from within the Advisory Group itself.
Dr. Aster Tesfaye Hordofa is a young female researcher who has a strong passion for studying the impact of climate change on water resources and agriculture. As a hydrologist and water resources engineer, she recently completed her Ph.D. work at ACEWM.

Dr. Aster's childhood was in a rural region of the Oromia area, where she observed the challenges farmers faced due to climate-related issues such as recurrent droughts, floods, pests and pestilences. These environmental stresses negatively affected crop yields, increased food insecurity, and jeopardized the livelihoods of millions of people.

These experiences inspired her to pursue a career focused on addressing environmental issues that particularly affect food security and livelihoods in developing countries, where climate change poses a significant threat. Her doctoral research centered on analyzing climate change trends and variability's effects on winter wheat production and water balance components in the Ziway Lake Basin, Ethiopia. The research was funded by ACEWM and Arbaminch University.

Winter wheat plays a crucial role in ensuring food security and income generation for Ethiopia's smallholder farmers. However, it is highly susceptible to climate change, requiring appropriate water and temperature conditions for optimal growth. Dr. Aster employed various statistical, programming, crop modeling, and hydrological modeling techniques to investigate how different climate scenarios impact crop yield, evapotranspiration, soil moisture, and surface water components. Additionally, she explored potential adaptation strategies for farmers to cope with changing climate conditions, such as adjusting planting dates, using improved crop varieties, implementing irrigation practices, and adopting conservation agriculture methods.

The findings from her research hold significant implications for policymaking and planning to achieve sustainable water management and agricultural development in the region. Dr. Aster has published four peer-reviewed articles and contributed to two collaborative papers in reputable journals. Furthermore, she presented her work at international conferences. Throughout her research journey, she acknowledges the support and guidance of her Ph.D. mentors, Dr. Olkeba Tolessa, Dr. Abebe Demissie, and Dr. Tena Alamirew, who helped her discover her hidden intelligence and talents.

Dr. Aster takes pride in her achievements as a female researcher and aims to serve as an inspiration for other young women interested in pursuing careers in science and engineering. She firmly believes that women have much to offer the scientific community and can overcome any challenges or barriers they encounter along the way. She also emphasizes the importance of diversity and inclusion in fostering innovation and collaboration in research. Dr. Aster encourages more female researchers to share their stories and experiences while supporting each other in their endeavors. As someone who rose from a rural background, she aspires to empower girls and women who dream of pursuing science or any other field they are passionate about. She firmly believes that they have the potential to achieve anything they set their minds to and have the right to pursue their passions wholeheartedly.
ACEWM and the Regional Research Observatory on the Environment and Climate have identified potential areas of collaboration as they aim to establish a strategic partnership.

ACEWM took part in a workshop titled "Towards Long-term Partnerships for Climate Adaptation and Environmental Sustainability: The Priority Adaptation and Innovation Workshop Areas" held in Djibouti from May 23 to May 26, 2023. Dr. Dessie Nidaw represented ACEWM in the workshop, which aimed to identify collaborative opportunities between ACEWM and the newly launched Regional Research Observatory on the Environment and Climate.

During the workshop, Dr. Dessie Nidaw presented various areas of cooperation between ACEWM and the Research Observatory, highlighting the regional focus of ACEWM's programs, the successful completion of studies by students from different African countries, and ACEWM's strong research capabilities. The unique strengths and attributes of ACEWM caught the organizers' attention, leading to an agreement on future partnerships, particularly in hosting Djiboutian and other African Ph.D. and MSc students in the field of water management.

Furthermore, ACEWM has conducted its first Graduate Tracer Study (GTS) to evaluate the effectiveness and relevance of its educational programs. The GTS aims to track the career outcomes and experiences of graduates, enabling data-driven decisions to align programs with sector needs, prepare students for the job market, and maintain the programs' value and relevance.

The GTS covered all graduates from the Center and students who fulfilled the requirements of the AAU and the Center for completing their studies. The survey was sent to 12 Ph.D. and 68 MSc graduates, and responses were collected from 10 Ph.D. graduates and 55 MSc graduates, resulting in an 82.5 percent response rate. The study showed that ACEWM is equipping graduates to the desired level and highlighted the need for additional resources, such as accommodation, recreational facilities, and medical services. The findings also indicated a demand for specialized short courses to continuously upgrade graduates' skills in accordance with the requirements of their work areas.

For more detailed information, please visit ACEWM's website at https://acewm-aau.org.
Meet Our Ph.D. Candidate Mrs Birtukan Abebe

Mrs. Birtukan Abebe Hirpa is pursuing a PhD in Hydrology and Water Resource Management at ACEWM, with guidance from esteemed experts Prof. Asfawossen Asrat and Dr. Dessie Nedaw. She credits her husband, Mr. Girma Berhe, as a crucial figure in her academic journey, providing day-to-day coaching and support.

As a mother of two children, Birtukan faces numerous challenges balancing her roles as a researcher, field worker, data analyst, manuscript writer, university lecturer, and Ph.D. student. Despite these difficulties, she acknowledges the exceptional support of her advisors and research collaborators, which enabled her to publish three significant articles in reputable indexed journals. Her first publication appeared in the prestigious water resource journal, the Journal of Hydrology, following rigorous revisions over 18 months. This achievement boosted her morale, inspiring her to pursue further publications in other journals.

Prof. Asfawossen’s encouragement to start with the most difficult and prestigious journal provided Birtukan with valuable experience, facilitating subsequent publications in another impactful journal. She also submitted a fourth manuscript and presented her work at two international conferences in 2022 and 2023.

Currently, Birtukan is organizing her published works in dissertation format and preparing manuscripts for publication on water scarcity, a pressing issue in Africa. As a lecturer at Haramaya University-Institute of Technology, she expresses deep gratitude to her advisors for their continuous encouragement, remarkable follow-ups, and invaluable feedback throughout the entire dissertation process. Birtukan also extends her appreciation to ACEWM staff members and professors for their support and moral encouragement.
The Ethiopian Climate Change Working Group (ECCWG) held its launching workshop in Addis Ababa, Ethiopia, at the International Livestock Research Institute (ILRI) on January 26, 2023. The event was organized by the African Center of Excellence for Water Management (ACEWM), Addis Ababa University, with support from ILRI-Ethiopia. The workshop aimed to officially commence and establish successful partnerships with key stakeholder institutions, enabling the ECCWG to fulfill its vision, mission, objectives, and implementation plans through a strong and collaborative approach. The inaugural ceremony, presided over by Prof. Abebe Getahun representing the dean of the College of Natural and Computational Sciences, at Addis Ababa University, welcomed attendees and emphasized the importance of the workshop as an opportunity for sharing experiences. Climate change was recognized as a severe threat, particularly to developing nations like Ethiopia, and it was emphasized that a collective effort from various entities is essential in managing climate change risks.

During the workshop, Prof. Feleke Zewge, the executive director of ACEWM and chair of ECCWG, provided an overview of the working group’s objectives, highlighting its mission to address the multifaceted challenges and opportunities presented by climate change. Dr. Mensur Dessie, representing H.E Dr. Getahun Garedewu, Director General of the Environmental Protection Authority, emphasized Ethiopia’s proactive measures in adapting to climate change, including National Adaptation Plans (NAPs) and Climate Resilient Green Economy (CRGE) strategies. A keynote and plenary session by Dr. Zewdu Eshetu covered the causes and consequences of climate change, global warming, climate anomalies, climate policies, and the Paris Agreement.

The workshop featured presentations on adaptation to climate change in the water and energy sector, climate change’s impact on agriculture and food security, and climate change’s effects on the environment and natural resources.

The presentations sparked discussions among participants in the workshop. In the concluding session, Prof. Feleke Zewge thanked all participants for their active engagement in the workshop and highlighted the importance of the discussions and exchanges for understanding the ECCWG’s purpose and future activities.

The ECCWG plans to develop a detailed action plan, organize a stakeholder workshop to discuss the proposed plan and seek funding to support problem-solving projects that reduce vulnerability to climate risks. Effective leadership and coordination of the ECCWG’s thematic areas were stressed to ensure a meaningful impact on climate change adaptation and mitigation in Ethiopia and the region. Participants were thanked, and the promise of future meetings to discuss ECCWG action plans.
ACEWM Faculty and MSc. Students Attended Summer School at the University of Venda (UNIVEN) in South Africa

The ACEWM is collaborating with several universities, including the Norwegian University of Science and Technology (NTNU), the Kwame Nkrumah University of Science and Technology (KNUST) in Ghana, University of Venda (UNIVEN) in South Africa, The Nelson Mandela African Institute of Technology (NM-AIST) in Tanzania, National School of Engineering Bamako (ENIBAT) in Mali, and Kampala International University in Uganda, on a project called the North-South Alliance for Inclusive WASH (All4WASH). This project is financially supported by NORAD through the NORPART Program.

The main objective of the All4WASH project is to enhance inclusive education and research on sustainable water supply and sanitation in both Norway and the Global South through academic cooperation and mutual student/staff mobility.

One of the key activities under this project is organizing a summer school for MSc. students. The most recent Summer School was hosted at the University of Venda (UNIVEN) in South Africa. The purpose of this summer school is to contribute to the UN 2030 Agenda and the achievement of SDGs, particularly "Goal 6 - water and sanitation: ensure access to sustainable management of water and sanitation for all" by 2030.

The Ethiopian team participating in the project was led by Dr. Alemu Tadesse Alemu, along with two female MSc. students, Ayesha Nuredin Seid and Rukeya Hassen Mohammed. During the summer school, Dr. Tadesse presented a country report on drinking water management in Ethiopia and the current state of water resources in the country.
Strategic Agreement Marked New University Collaboration

On July 5, 2023, Addis Ababa University and Macau University of Science and Technology signed a memorandum of understanding to establish a strategic partnership. The agreement was signed by Prof. Tassew Woldehanna, President of Addis Ababa University (AAU), and Prof. Joseph Hun-wei Lee, President and Chair Professor of Macau University of Science and Technology (MUST). Both institutions agreed to strengthen academic cooperation, facilitate exchange programs for academics, administrators, and students, collaborate on research projects, promote cultural initiatives, and enhance their joint scholarship programs.

Prof. Joseph emphasized the importance of collaborating with Ethiopian academic institutions, highlighting the shared values between Macau University of Science and Technology and Addis Ababa University. He mentioned that MUST encourages academic excellence by providing full scholarships to outstanding students.

During the meeting with the delegation, Prof. Tadesse Fetahi, representing the President of Addis Ababa University, elaborated on the university’s journey from its inception to its current esteemed national and global standing. He also mentioned the university's aspiration to become the first Autonomous University in the country and emphasized the need to strengthen international cooperation to realize this vision. Prof. Tadesse expressed interest in learning from the experience of Macau University of Science and Technology, which attained autonomous status ten years ago.
In the current quarter of the year, six Ph.D. candidates from ACEWM successfully defended their dissertations. The first candidate, Dr. Wondimu Tadiwos, successfully defended his Ph.D. dissertation on June 23, 2023. His research focused on understanding hydro-climatological variability, drought characteristics, and future climate changes over the Central Main Ethiopian Rift Valley Lakes Basin. The thesis was supervised by Prof. Tenalem Ayenew and Dr. Sirak Tekleab from Addis Ababa University, and the thesis defense was evaluated by a board consisting of Prof. Feleke Zewge, Dr. Alemseged Tamiru, and Dr. Semu Ayalew.

The third candidate, Rebecca Walugembe, successfully defended her dissertation on June 29, 2023. The title of her thesis was "Assessment of Anthropogenic Activities and their Impacts on Fish Breeding Habitats and Fish Catches on Lake Kyoga, Uganda: An Approach to Sustainable Fisheries Management.” Her dissertation was supervised by Prof. Abebe Getahun and Prof. Muyodi Fredrick, and the board of examiners consisted of Prof. Feleke Zewge, Prof. Brook Lemma, and Dr. Glenn Wilson.

The second candidate, Clarance Paul, defended her dissertation on June 26, 2023. Her research centered on groundwater resource evaluation and its application in assessing flow dynamics of the Makutupora Basin in Dodoma, Central Tanzania. The thesis was supervised by Prof. Tenalem Ayenew and Dr. Ibrahimu Chikira, and the board of examiners included Prof. Feleke Zewge, Dr. Dessie Nedaw, and Prof. Seifu Kebede.
Hailay Zeray was the fourth candidate to successfully defend his dissertation on June 30, 2023. His research focused on the evaluation of factors affecting the quality of citizen science rainfall data in Akaki Catchment, Addis Ababa, Ethiopia. The dissertation was supervised by Dr. Alemseged Tamiru and Prof. Assefa Melese. The board of examiners included Prof. Feleke Zewge, Dr. Adane Abebe, and Dr. Fasika Atanaw.

Admasu Adamu was the fifth Ph.D. candidate at ACEWM who successfully defended his dissertation on July 7, 2023. His research focused on the Adsorption Characteristics of Spent Coffee Grounds Biochar for the Removal of Dyes from Aqueous Solution. Prof. Feleke Zewge, the Director of ACEWM at Addis Ababa University, and Dr. Yonas Chebude from the same university supervised his dissertation. The examination committee for Admasu’s dissertation included Dr. Ahmed Mustafa and Dr. Beteley Tekola from Addis Ababa University, along with Prof. and Doctor Engineer Esayas Alemayehu from Jimma University.

Hirpo Gudeta was the sixth ACEWM Ph.D. candidate who successfully defended his dissertation on July 12, 2023. His research focused on the Catchment-Scale Hydrological Regimes Response to Landscape Climate Descriptors in Awash River Basin, Ethiopia. Hirpo’s dissertation was supervised by Prof. Tenalem Ayenew and Dr. Tena Alamirew from Addis Ababa University. The board of examiners for his dissertation included Dr. Beteley Tekola, the Deputy Director of ACEWM at Addis Ababa University, along with Dr. Mihret Dananto from Hawassa University and Dr. Adane Abebe from Arbaminch University.
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