Project number:	101128931
Project name:	Development of Aqua-Culture Education in Higher Educational Institutions in Kenya
Project acronym:	AQUADEVBUS
Call:	ERASMUS-EDU-2023-CBHE
Topic:	ERASMUS-EDU-2023-CBHE-STRAND-2
Type of action:	ERASMUS-LS
Service:	EACEA/A/04
Project starting date:	1st January 2024
Project duration:	36 months

Deliverable D5.1 – Open eyes events and publications

Deliverable Number	D5.1	**Lead Beneficiary**	RONGO University
Deliverable Name	**Open eyes events and publications**		
Type	R — Document, report	**Dissemination Level**	SEN - Sensitive
Due Date (month)	24	**Work Package No**	WP5
Version	2		

"Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or [name of the granting authority]. Neither the European Union nor the granting authority can be held responsible for them."

24th August 2026

AQUADEVBUS Project Overview

The AQUADEVBUS Project is a landmark initiative designed to transform the future of aquaculture education, research, and industry engagement in Kenya and the East African region. Grounded in the principles of integrated aquaculture, sustainability, and digital innovation, the project provides a holistic and future-ready model for training the next generation of aquaculture professionals and researchers. At its core, AQUADEVBUS seeks to modernize aquaculture curricula, empower educators with advanced pedagogical tools, link students with real industry challenges, and promote cross-continental collaboration that strengthens the entire aquaculture ecosystem.

The project draws on decades of experience from partner institutions in Finland, Norway, and Kenya ensuring implementation is informed by both global perspectives and local realities. Its three cornerstones; aquaculture education development, pedagogical enhancement, and digital twins for value-chain innovation, are carefully interlinked to support effective, sustainable, and long-term capacity building in Higher Education Institutions. Running from December 2023 to December 2026, and supported by close to €800,000 in funding, AQUADEVBUS positions aquaculture as a strategic discipline for rural development, food security, job creation, and environmental resilience.

By embedding modern, green, and forward-looking concepts, the project ensures that aquaculture education remains aligned with global sustainability agendas, including the EU Green Deal, SDGs, and climate adaptation frameworks.

Key Aims

AQUADEVBUS moves beyond conventional curriculum revision by adopting a comprehensive, technology-driven, and industry-responsive approach to aquaculture education. The project is designed to strengthen capacity across the full spectrum of aquaculture training, including academic programmes, practical and experiential learning, business development, and institutional governance. Through this integrated framework, AQUADEVBUS ensures that aquaculture education remains relevant, future-oriented, and closely aligned with sector and labour-market needs.

A key focus of the project is the modernization of undergraduate and postgraduate aquaculture curricula. Existing programmes are being updated to incorporate integrated aquaculture systems, circular bio-economy principles, climate-resilient production models, and value-chain management. In parallel, AQUADEVBUS introduces short courses, professional certification pathways, and summer schools to broaden access to aquaculture education and support lifelong learning for students and professionals.

The project also places strong emphasis on strengthening pedagogical competence within Higher Education Institutions. Student-centered and competence-based learning approaches, including Multi-Competence Learning, Problem-Based Learning, and Challenge-Based Learning, are actively promoted. These approaches encourage critical thinking, collaboration, and practical problem-solving. Academic staff are supported in transitioning into roles as coaches, mentors, and facilitators who connect teaching with research and industry practice. In addition, AQUADEVBUS enhances administrative and project-management capacities to ensure that institutions can sustainably deliver interdisciplinary programmes beyond the project lifespan.

Digital transformation is central to the AQUADEVBUS learning model. The integration of digital twins provides interactive virtual environments in which students can simulate fish production systems, feeding regimes, logistics operations, environmental changes, and business models. These tools enhance experiential and applied learning, encourage data-driven decision-making, and expose learners to modern aquaculture technologies used internationally.





"Universities, as centers for the dissemination of new knowledge, must play this key role..."

Recognizing the close relationship between aquaculture and rural livelihoods, AQUADEVBUS explicitly links education to business development and rural economic growth. The project promotes entrepreneurship, investment readiness, cost–benefit analysis, market-access strategies, and effective logistics and transport planning.

This holistic approach ensures that graduates are well equipped to contribute meaningfully across all stages of the aquaculture value chain, from production and processing to marketing, enterprise development, and sector innovation.

Partners & Collaborative Network

AQUADEVBUS is implemented through a strong, interdisciplinary partnership spanning East Africa and the Nordic region. This diverse consortium brings together higher education institutions, research organizations, and vocational partners whose combined academic, scientific, and industry expertise creates a dynamic and collaborative learning ecosystem.

In Kenya, Rongo University serves as the lead implementing partner, playing a central role in curriculum transformation, staff capacity development, and student engagement. Great Lakes University of Kisumu contributes specialized expertise in community engagement, public health linkages, and applied field research, strengthening the project's connection to local development priorities. The Kenya Marine and Fisheries Research Institute provides scientific leadership through its research facilities, field-based aquaculture data, and national-level sector insights, ensuring strong alignment with national policies and industry needs.

The Nordic partners complement this expertise with advanced knowledge and innovative practice. UiT – The Arctic University of Norway contributes internationally recognised research capacity and expertise in cold-water aquaculture systems. Turku University of Applied Sciences, Finland, brings strengths in applied sciences, sustainable technologies, educational innovation, and pedagogical excellence. Peimarin Koulutuskuntayhtymä (Livia), Finland, adds valuable vocational education models, farm-level management expertise, and environmental and sustainability-focused training.

The cross-continental collaboration enables transfer of pedagogical innovation, research capacity and applied business development in aquaculture.

Through this international cooperation, AQUADEVBUS benefits from diverse climatic and production contexts, access to advanced Nordic aquaculture technologies, localized Kenyan knowledge, and well-established industry and community networks. This balanced partnership structure ensures effective knowledge transfer, contextual relevance, and sustainable impact across education, research, and industry engagement.





EU AQUADEVBUS project team meeting in Turku, Finland to evaluate midterm performance of the project and discussed the next steps in August 2025

Curriculum & Teaching Innovations

This project delivers a multi-layered, modernized, and industry-relevant curriculum that integrates theoretical knowledge with hands-on, experiential learning. The curriculum is designed to respond to current and emerging sector needs while equipping learners with the technical, digital, and entrepreneurial competences required in a rapidly evolving aquaculture industry.

Teaching innovations under AQUADEVBUS emphasize competence-based and learner-centered approaches. Multi-Competence Learning links academic content with real-world skills across technical, entrepreneurial, digital, and social domains. Project-based and challenge-based learning methodologies engage students in collaborative problem-solving on practical issues such as fish health management, water quality control, climate adaptation, and market access challenges. In parallel, the teacher-as-coach model supports a shift in pedagogy, enabling academic staff to act as facilitators and mentors who guide learners through exploration, experimentation, and innovation rather than traditional instruction.

Curriculum enhancements include the introduction of new and revised modules covering integrated aquaculture systems, aquaculture–livestock–bioenergy integration, value-chain optimization, aquaculture business management, logistics and transport, sustainability and environmental protection, green technologies, farm management, and investment planning. These modules are reinforced through the use of digital learning tools such as simulations, digital twins, remote monitoring technologies, and virtual farm tours,





enabling flexible and technology-enhanced learning experiences.

Collectively, these curriculum and teaching

innovations prepare students for skilled employment, entrepreneurship, and leadership roles, ensuring graduates are well positioned to contribute effectively to sustainable and competitive aquaculture systems.

Infrastructure & Research Focus

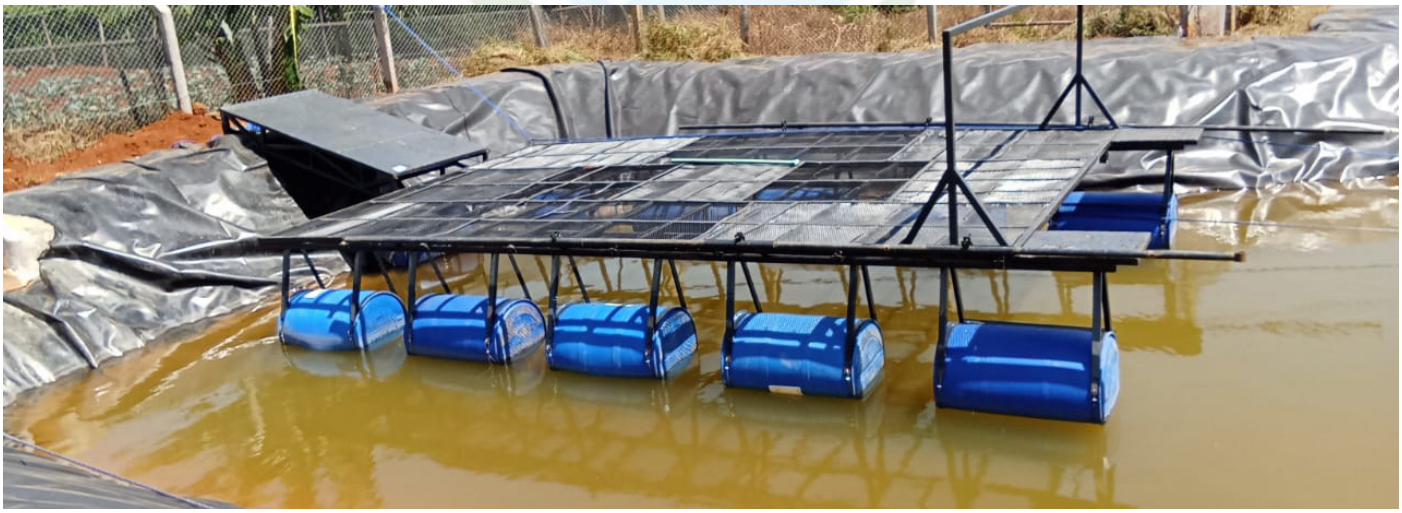
To support high-quality teaching, learning, and applied research, AQUADEVBUS is investing in the upgrading and enhancement of laboratory, field, and digital infrastructure across partner institutions. These improvements include modern aquaculture production facilities, fingerling and hatchery systems, and fully equipped water quality laboratories. In addition, the project is establishing integrated aquaculture demonstration units alongside upgraded ICT infrastructure to support digital twins, simulation-based teaching, and virtual learning environments. Pilot greenhouse and bioenergy system prototypes are also being developed to strengthen the integration of sustainability and renewable energy concepts within aquaculture training and research.



In parallel, AQUADEVBUS promotes applied research aligned with sector needs and policy priorities. Research activities focus on integrated multi-trophic aquaculture systems, climate-resilient production models, and circular bioeconomy approaches that increase resource efficiency and reduce environmental impact. Additional emphasis is placed on value-chain efficiency, market analysis, and comprehensive environmental monitoring and sustainability assessments. Collectively, these research and infrastructure investments aim to support the development of smart aquaculture systems that are sustainable, efficient, and scalable, particularly within rural and community-based contexts.







Industry Engagement & Value Chains

AQUADEVBUS engages directly with aquaculture producers, small and medium-sized enterprises, and cooperatives to strengthen participation across the aquaculture value chain. Through targeted capacity-building activities, the project supports enterprise development, financial literacy, market access, and product diversification, while promoting the adoption of environmentally sustainable, green, and circular production practices.

In addition, AQUADEVBUS facilitates business-to-business linkages and provides specialized training in logistics, cold-chain management, and fish transport to improve efficiency and reduce post-harvest losses. The project also promotes policy engagement and enhances regulatory awareness, enabling stakeholders to better understand and operate within existing governance frameworks.

Collectively, these interventions ensure that farmers, processors, traders, and students are equipped with the knowledge and skills required to effectively navigate, contribute to, and influence the wider aquaculture ecosystem.







Student & Staff Mobility

The project promotes international exposure and structured knowledge exchange through a range of mobility and collaboration activities. These include cross-institutional teaching, summer schools hosted in Kenya, Finland, and Norway, academic credit-bearing student mobility, joint supervision of research projects, and staff exchanges combined with professional development visits. Together, these activities strengthen international cooperation, enhance institutional capacity, and support the transfer of expertise across partner organizations.

Through participation in these initiatives, students and staff gain first-hand experience with aquaculture systems operating in diverse climatic and production environments. Participants deepen their understanding of sustainable and innovative production techniques while expanding their professional and academic networks across continents, thereby enhancing intercultural competence and long-term collaboration within the global aquaculture community.







"Students will gain in-depth knowledge of green strategies and embed a culture of sustainable development in their studies."

Sustainability & Impact

Sustainability is embedded across all AQUADEVBUS activities and serves as a guiding principle for project design, implementation, and outcomes. The project promotes resource-efficient aquaculture systems, supports the adoption of renewable energy technologies, and places strong emphasis on environmental protection, biodiversity conservation, and climate resilience. Sustainability considerations are systematically integrated into curricula development, applied research, and community outreach initiatives to ensure long-term relevance and impact.

Over the long term, AQUADEVBUS is expected to contribute to improved food security and nutrition, strengthened rural and coastal economies, and the development of a skilled workforce prepared for green and sustainable employment.

Additional impacts include increased innovation capacity and research output within partner institutions, enhanced competitiveness of the aquaculture sector, and stronger collaboration between universities, industry, and local communities, reinforcing a holistic and resilient aquaculture ecosystem.







Reflections from the Field

Early project feedback indicates high levels of stakeholder engagement and tangible positive impact across education and industry. Students report enhanced practical skills, increased hands-on learning opportunities, and stronger motivation to pursue careers within the aquaculture sector. Academic staff highlight the value of pedagogical training and international collaboration, which have contributed to more innovative and learner-centered teaching approaches. Industry partners, in turn, recognize the benefits of improved knowledge exchange, targeted technical support, and the development of new market-oriented strategies arising from project activities.

Key lessons emerging from implementation underscore the importance of context-specific solutions that respond to local production and socio-economic realities. The project also highlights the need to strengthen linkages between academia and industry, promote entrepreneurial and innovation-driven learning pathways, and integrate field-based experience and digital tools at an early stage of aquaculture education to maximize relevance and learning outcomes.









Project team at Rongo University

On 25th January 2024, the AQUADEVBUS project team visited Rongo University as part of the project's activities in Kenya. The visit included engagement with university stakeholders and a visit to a local fish farm involved in fish hatchery and fingerling production.

The activity provided an opportunity to introduce the project, discuss its objectives and document local aquaculture practices. The visit was subsequently featured on the AQUADEVBUS project website as part of the project's public dissemination activities.

Between 24th and 31st January 2024, Rongo University participated in the official AQUADEVBUS project launch and kick-off activities in Kisumu. The event brought together representatives of the European Union, Kenyan institutions, county government and participating universities.

The launch provided an important platform for creating awareness of the project, its objectives, partners and expected contribution to aquaculture education in Kenya. The activities were documented and disseminated through the AQUADEVBUS project website and partner communication channels.



Project launch and kick-off

Between April to July 2024, Rongo University staff and students participated in AQUADEVBUS field engagements involving staff and students at various sites. The programme included meetings with Rongo University staff and students as well as visits to fish farms, aquaculture facilities and fish-feed producers. The activities provided an opportunity for practical learning, exchange of experiences and interaction between Kenyan and European partners.



Project team at the Mwitoko Fish Hatchery and Aquaculture training



Project staff and students at Rannenville Aquaculture Farm

On 28th August 2024, Rongo University staff and students also participated in AQUADEVBUS field visits involving the Dunga Beach Management Unit in Kisumu and other aquaculture stakeholders.

The activities brought together Rongo University, Great Lakes University of Kisumu, KMFRI and European partners. The field activities demonstrated the project's practical approach to aquaculture education and industry engagement and were disseminated through LinkedIn and other partner communication platforms





Project staff and students at a meeting with the Dunga Beach Management Unit

Between 2nd and 6th September 2024, representatives of Rongo University participated in AQUADEVBUS project activities and a study visit in Northern Norway. The programme included visits to aquaculture training institutions, fish-processing facilities, aquaculture farms and related service providers.

The participation of Rongo University in the international study visit demonstrated the University's engagement in knowledge exchange and international collaboration in aquaculture education. The activities were subsequently publicized through the University of Tromsø and professional social-media platforms.

From 6th to 8th February 2025, AQUADEVBUS participated in the Nyanza International Investment Conference (NIIC) held in Kisumu and exhibited some of the ongoing project initiatives. We also participated in the 9th Devolution Conference, held in Homa Bay County from 12–15 August 2025, under the theme "For the People, For Prosperity: Devolution as a Catalyst for Equity, Inclusion and Social Justice.

AQUADEVBUS also participated in the Agricultural Society of Kenya (ASK) Migori Show, held at the Lichota Showgrounds, Migori County, from 25–27 September 2025, under the theme "Promoting Climate-Smart Agriculture and Trade Initiatives for Sustainable Economic Growth." The University exhibited innovative technologies, research outputs, and sustainable agricultural solutions while engaging prospective students, farmers, industry stakeholders, and development partners.



Project team at Pwani University



Project team at Finland Embassy



Project team at Devolution Conference

The project also held collaborative meeting at Pwani University, Technical University of Mombasa, Lake Basin Development Authority (LVBDA) and at the Finland Embassy. These activities featured in the University's December 2025 institutional bulletin, demonstrating that the project was incorporated into the University's wider institutional dissemination and visibility activities.



Project team meeting staff at KMFRI



Project dissemination at NIIC



Project team visiting LBDA



Project team at dissemination meeting in one of the farmers' fields in Bondo

Great Lakes University of Kisumu (GLUK)



GLUK staff, student and AQUADEVBUS team on an information session on AQUADEVBUS

GLUK took part in the AQUADEVBUS project as a Kenyan higher education partner, contributing to aquaculture education, digital learning, and skills development. GLUK's dissemination work aimed to raise awareness of the project, share its progress and outputs, engage staff and students, and connect its results to Kenya's aquaculture and blue economy ecosystem. The communication and dissemination activities done included:

GLUK held internal information sessions introducing AQUADEVBUS to staff and students, explaining its relevance to aquaculture education and outlining opportunities for institutional and student participation. This positioned the

project within GLUK's wider research, innovation, and digital transformation agenda.

GLUK displayed AQUADEVBUS at a branded exhibition booth alongside its other research and innovation initiatives, giving visitors and stakeholders a direct, face-to-face introduction to the project's goals and its focus on aquaculture education in Kenya. The booth signage visible below places this dissemination activity at the Africa Smart Cities & Townships Alliance (ASCA) Summit, held in Kisumu City on 11–13 September 202 indicating GLUK used the ASCA Summit as one of its exhibition dissemination platforms for AQUADEVBUS.



GLUK AQUADEVBUS exhibition booth, featuring ASCA Summit (Kisumu, Sept 2025)

AQUADEVBUS was also promoted during a GLUK student recruitment drive in Mbita, reaching prospective students, parents, and community members with information on aquaculture education and sustainable livelihood opportunities.



GLUK AQUADEVBUS exhibition booth, featuring ASCA Summit (Kisumu, Sept 2025)

What's Next / Upcoming Events

Between 2025 and 2026, AQUADEVBUS will scale up its implementation through a range of strategic activities aimed at consolidating results and strengthening long-term impact. Planned actions include the deployment of advanced digital twin-based teaching tools, the expansion of summer and winter schools, and the organization of field-based student challenge competitions designed to enhance applied learning and innovation. The project will also deliver hands-on training workshops for aquaculture producers, supporting skills development and technology uptake at the industry level.

In addition, AQUADEVBUS will convene a major Industry Academia Aquaculture Symposium in Kenya to foster dialogue, collaboration, and knowledge exchange among key stakeholders. Joint publications and research dissemination events will further strengthen the project's academic and policy impact, while enhanced mentorship structures and entrepreneurship hubs will support innovation and business development.

New and revised aquaculture modules will be piloted across selected universities, deepening institutional ownership and ensuring sustainable curriculum transformation beyond the project's duration.







List of publications

1. **Research work (Undergraduate Thesis) Manninen, N. & Puhakka, N.**
   https://www.theseus.fi/bitstream/handle/10024/873773/Manninen_Puhakka.pdf?sequence=2&isAllowed=y

2. **TUAS article Puhakka, N. & Heikkinen, H.**
   https://talkbystudents.turkuamk.fi/logistiikka/hankintaosaamisen-nykytila-ja-kehittamiskohteet-vesiviljelyalalla-keniassa/

3. **3 TUAS article Jari Hietaranta**
   https://talk.turkuamk.fi/report/overview-of-educational-needs-and-next-steps-for-kenyas-fish-farming-sehcttoprs-a:/n/u-ernd.ufic/UaRtioNn:aNl-BaNp:pfir-ofea2c0h/241209100593

4. **7 Peruzzi, S., Thorarensen, H., Sæther, B.-S.**
   https://uit.no/nyheter/artikkel/kortnytt?p_document_id=846198

5. **Peruzzi, S.**
   https://uit.no/nyheter/artikkel/kortnytt?p_document_id=862350

6. **Peruzzi, S., Thorarensen, H., Sæther, B.-S.**
   https://uit.no/research/aquaculture/project?pid=869804&p_document_id=869795

7. **NEWSLETTER 1 (November 2025) Project Team**
   https://drive.google.com/file/d/1L57E-h7qLcQv4VuC-vKK70YjkFGlVzUL/view?usp=drive_link

Are you a student, faculty member or industry stakeholder

interested in joining the AQUADEVBUS network?

Contact Us:

Website: aquadevbus.org
LinkedIn: AQUADEVBUS Project (Kenya) (LinkedIn Kenya)
Facebook presence: AQUADEVBUS Project (Facebook)

Disclaimer:

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or [name of the granting authority]. Neither the European Union nor the granting authority can be held responsible for them

Co-funded by the European Union