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RECONSIDERATION REPORT

UNIVERSITY OF DEVELOPMENT STUDIES (GHANA)

CLUSTER WACWISA

IRRIGATION AND DRAINAGE ENGINEERING (DOCTOR OF PHILOSOPHY)

August 2024



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DECISION OF THE AQAS STANDING COMMISSION ON THE STUDY PROGRAMME

“IRRIGATION AND DRAINAGE ENGINEERING (DOCTOR OF PHILOSOPHY)

offered by University for Development Studies (Ghana)

Based on the report of the expert panel, the comments by the university and the discussions of the AQAS Standing Commission in its 22nd meeting on 26 August 2024, the AQAS Standing Commission decides:

1. The study programme “**Irrigation and Drainage Engineering**” (**Doctor of Philosophy**) offered by **University for Development Studies (Ghana)** is accredited according to the AQAS Criteria for Doctoral Programme Accreditation (PhD).

The accreditation is conditional.

The study programme essentially complies with the requirements defined by the criteria and thus the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) and the European Qualifications Framework (EQF) in their current version. The required adjustment can be implemented within a time period of twelve months.

2. The condition has to be fulfilled. The fulfilment of the condition has to be documented and reported to AQAS no later than **30 September 2025**. The confirmation of the condition might include a physical site visit within the time period of twelve months.
3. The accreditation is given for the period of **six years** and is valid until **30 September 2030**.

Condition:

1. It is essential for the programme to ensure that detailed and up-to-date information is consistently available on the relevant university and departmental websites.

With regard to the reasons for these decisions the Standing Commission refers to the attached experts' report.

**EXPERTS' REPORT
ON THE STUDY PROGRAMME**

- **“IRRIGATION AND DRAINAGE ENGINEERING” (DOCTOR OF PHILOSOPHY)**

OFFERED BY UNIVERSITY FOR DEVELOPMENT STUDIES (GHANA)

Visit to the university: 23 – 26 May 2023

Panel of experts:

Prof. Dr. Bancy M. Mati	Jomo Kenyatta University of Agriculture and Technology (Kenya), Soil, Water and Environmental Engineering Department (SWEED)
Prof. Dr. Klaus Greve	University of Bonn (Germany), Faculty of Mathematics and Natural Sciences, Department of Geography
Dr. Bob Manteaw	Founder Foresight Planners Africa (Ghana) and Senior Research Fellow at University of Ghana (Centre for Climate Change and Sustainability Studies) (Labour market representative)
Johann Bredner	Student at Otto-von-Guericke Universität Magdeburg (Germany) (Student representative)
Coordinator: Patrick Heinzer	AQAS, Cologne, Germany

Preamble

AQAS – Agency for Quality Assurance through Accreditation of Study Programmes – is an independent non-profit organisation supported by more than 90 universities, universities of applied sciences and academic associations. Since 2002, the agency has been recognised by the German Accreditation Council (GAC). It is, therefore, a notified body for the accreditation of higher education institutions and programmes in Germany.

AQAS is a full member of ENQA and also listed in the European Quality Assurance Register for Higher Education (EQAR) which confirms that our procedures comply with the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG), on which all Bologna countries agreed as a basis for internal and external quality assurance.

AQAS is an institution founded by and working for higher education institutions and academic associations. The agency is devoted to quality assurance and quality development of academic studies and higher education institutions' teaching. In line with AQAS' mission statement, the official bodies in Germany and Europe (GAC and EQAR) approved that the activities of AQAS in accreditation are neither limited to specific academic disciplines or degrees nor a particular type of higher education institution.

Accreditation procedure

This report results from the external review of the PhD programme "Irrigation and Drainage Engineering" (Doctor of Philosophy) offered by University for Development Studies.

1. Criteria

Each programme is assessed against a set of criteria for accreditation developed by AQAS: the AQAS Criteria for Programme Accreditation (Bachelor/Master) and the AQAS Criteria for Doctoral Programme Accreditation (PhD), respectively. The criteria are based on the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) 2015. To facilitate the review each criterion features a set of indicators that can be used to demonstrate the fulfilment of the criteria. However, if single indicators are not fulfilled this does not automatically mean that a criterion is not met. The indicators need to be discussed in the context of each programme since not all indicators necessarily can be applied to every programme.

2. Approach and methodology

Initialisation

The university mandated AQAS to perform the accreditation procedure in February 2022. The university produced a Self-Evaluation Report (SER). In November 2022, the institution handed in a draft of the SER together with the relevant documentation on the programmes and an appendix and statistical data on the programmes. The appendix included e.g.:

- an overview over statistical data of the student body (e.g. number of applications, beginners, students, graduates, student dropouts),
- the CVs of the teaching staff/supervisors,
- information on student services,
- core information on the main library,
- as well as academic regulations.

AQAS checked the SER regarding completeness, comprehensibility, and transparency. The accreditation procedure was officially initialised by a decision of the AQAS Standing Commission on 5 December 2023. The final version of the SER was handed in March 2023.

Nomination of the expert panel

The composition of the panel of experts follows the stakeholder principle. Consequently, representatives from the respective disciplines, the labour market, and students are involved. Furthermore, AQAS follows the principles for the selection of experts defined by the European Consortium for Accreditation (ECA). The Standing Commission nominated the aforementioned expert panel in April 2023. AQAS informed the university about the members of the expert panel and the university did not raise any concerns against the composition of the panel.

Preparation of the site visit

Prior to the site visit, the experts reviewed the SER and submitted a short preliminary statement including open questions and potential needs for additional information. AQAS forwarded these preliminary statements to the university and to all panel members in order to increase transparency in the process and the upcoming discussions during the site visit.

Site visit

After a review of the SER, a site visit to the university took place on 23 – 26 May 2023. On site, the experts interviewed different stakeholders, e.g. the management of the higher education institution, the programme management, teaching and other staff, as well as students and graduates, in separate discussion rounds and consulted additional documentation as well as student work. The visit concluded by the presentation of the preliminary findings of the group of experts to the university's representatives.

Reporting

After the site visit had taken place, the expert group drafted the following report, assessing the fulfilment of the AQAS Criteria. The report included a recommendation to the AQAS Standing Commission. The report was sent to the university for comments.

Postponement of decision

The report, together with the comments of the university, forms the basis for the AQAS Standing Commission to take a decision regarding the accreditation of the programmes. Based on these two documents, the AQAS Standing Commission took its decision on the accreditation on 21 August 2023. AQAS forwarded the decision to the university. The university had the right to appeal against the decision or any of the imposed conditions. The AQAS Commission decided to give the programme additional 18 months for the further enhancement of the quality of the programme. The deadline was the 31 March 2025.

Reconsideration

The university submitted further evidence on the 10 July 2024, and thus, in the given timeframe for the reconsideration process. These documents were forwarded to relevant key stakeholders in the expert's panel. The expert group drafted the follow-up report on the reconsideration, assessing the fulfilment of the AQAS Criteria. The report included a recommendation to the AQAS Standing Commission. The report was sent to the university for comments.

Decision

The report, together with the comments of the university, forms the basis for the AQAS Standing Commission to take a decision regarding the accreditation of the programmes. Based on these two documents, the AQAS Standing Commission took its decision on the accreditation on 21 August 2023. AQAS forwarded the decision to the university. The university had the right to appeal against the decision or any of the imposed conditions.

General information on the university

The University for Development Studies (UDS) is a public university located in Tamale, in the northern part of Ghana, and was established in 1992 following a Ghanaian law to connect and strengthen academia and the northern community in Ghana. Starting in September 1993 with the Faculty of Agriculture, the SER states that, as of 2022, UDS has around 20,000 students and approximately 2,000 permanent staff (including academic, administrative, technical and support staff). The University states to have a practically-oriented pedagogy, research, and field-based training approach. Originally, UDS was a multi-campus university. However, according to the SER, a restructuration process was established and led to the creation of four campuses: Two campuses in the northern region (Tamale and Nyankpala Campus), one in Gbayamni (North campus), and another in Yendi (Eastern campus).

The Tamale Campus entails the School of Medicine, the School of Pharmacy and Pharmacology, the School of Nursing and Midwifery, the School of Allied Health Sciences, the School of Public Health, the Graduate School, the Faculty of Education, the Faculty of Sustainable Development Studies, the Institute for Interdisciplinary Research, the Institute of Distance and Continuing Learning, Dryland Research Institute and the Central Administration. The Nyankpala Campus currently comprises the Faculty of Natural Resources and Environment (FNRE), Faculty of Agriculture, Food and Consumer Sciences (FoACS), School of Applied Economics and Management Sciences (FAEMS), Faculty of Communication and Cultural Studies (FCCS), Faculty of Biosciences, School of Veterinary Medicine and School of Engineering (SoE) as well as the West African Centre for Water, Irrigation Drainage and Sustainable Agriculture (WACWISA).

The programme is located at the West African Centre for Water, Irrigation Drainage and Sustainable Agriculture (WACWISA), established in 2019 under Ghanaian government funding in cooperation with the World Bank. The Centre aims to provide research, teaching and technical development in sustainability, water resource management, irrigation, agriculture and climate change mitigation. The programme under accreditation has a staff capacity of 21. The Irrigation and Drainage Engineering programme includes three professors, three associate professors, two senior lecturers, two lecturers, and eleven support staff.

The SER states that the programme which is subject to the accreditation procedure fit the UDS strategic plan regarding the innovation of new academic programmes in line with the current demands (Strategic goal 2), the improvement of research output for the community and the development of Ghana (Strategic goal 7), and the further development of the UDS quality management system (Strategic goal 8).

The funding of the programme is determined by the Budget Committee of UDS, a board made up of deans and directors of UDS. The SER outlines that the budgets are planned and submitted to the Director of Finance at UDS at the beginning of each academic year for approval. According to the self-evaluation report, the leading indicators for budgeting are revenues generated, the type of educational programme, the faculties and the number of enrolled students. In addition, the programme under WACWISA is funded by external funding sources.

According to the SER, WACWISA has a similar structure as schools and faculties at the UDS. WACWISA is governed by a director, assisted by a deputy, thematic area coordinators, and research team leads. In addition, the Centre is supported by an International Scientific Advisory Board (ISAB) and a Sectoral Advisory Board (SAB). It is stated that ISAB comprises international researchers with advisory services in the programme's design, and SAB consists of industry practitioners and WACWISA partners who contribute to WACWISA's Annual Implementation Plan.

The PhD programme "Irrigation and Drainage Engineering" has been introduced by the Department of Agricultural Engineering within the School of Engineering (established in 2016) and implemented the PhD

programme in 2019 under the support of the WACWISA Centre. The Department offers ten additional programmes (some introduced in the academic year 2022/23).

The SER states that UDS has four thematic research areas, namely Engineering and ICT (I), Natural and basic sciences (II), Social sciences and humanities (III), and health laboratory sciences (IV). Given that as a baseline, the WACWISA programmes focus on research six themes: Irrigation and Drainage Systems (1), Water Resources Management (2), Environmental Sustainability (3), Sustainable Agriculture (4), Climate Change (5), and Food and Nutrition Security (6).

Assessment of the study programme

1. Aims and structure of the doctoral programme

Doctoral degree

The intended learning outcomes of the programme are defined and available in published form. They reflect both academic and labour-market requirements and are up-to-date with relation to the relevant field. The design of the programme supports the achievement of the intended learning outcomes.

The academic level of graduates corresponds to with the requirements of the appropriate level of the national qualifications framework or the European Qualifications Framework.

The curriculum's design is readily available and transparently formulated.

[ESG 1.2]

1.1 General structure of the African Centre of Excellence WACWISA

The SER states that the composition of the intended learning outcomes (ILO) on the programme level is based on three main elements, namely theory (of the respective discipline), practice (through internships with the industry), and research (through the thesis writing).

It is explained that the programme follows the regulations of the Ghana Tertiary Education Committee (GTEC), which state that the curricula have to build on existing knowledge and skills of students and have to broaden their knowledge and skills from their prior education. The PhD programme under the WACWISA umbrella is designed to be practically oriented, research-focused and problem-relevant. PhD students are required to take two trimesters with the Master's students in case they have not the sufficient requirements for the PhD programmes. UDS is using the credit system recommended by the GTEC. UDS runs a trimester system, whereby the third trimester includes only practical training outside the university. The SER states that practical trimester comprise eight weeks, whereas teaching trimester comprise 14 weeks. Consequently, one academic year consists of 40 weeks.

The data sheet provided with the SER provides information on the enrolment of students (differentiated in gender and in Ghanaian and international students).

This data sheet shows that the PhD programme "Irrigation and Drainage Engineering" has enrolled students since the academic year 2019/2020. The PhD programme has 41 students enrolled (11 Ghanaian and 30 international students with a female-male ratio of 8:33).

1.2 Irrigation and Drainage Engineering (PhD)

Description

The PhD programme "Irrigation and Drainage Engineering" is a three-year programme comprising three trimesters of coursework and six trimesters of research work.

The SER overview of the programme states that students must register for the Master's courses in the first two semesters. In addition, students have to take several PhD seminars during the programme. In these seminars, students will present their progress and their preliminary findings. Consequently, an overview of the PhD programme for students who have to take these Master's courses reads as follows:

- First trimester: “Water Resources Engineering”, “Advanced Agricultural Drainage and Flood Control”, “Advanced Soil Physics”, “Agricultural Machinery and Land Development”, “Pumps and Pumping Plants”, “Irrigation Structure Construction and Civil Works”, “Advanced Statistics and Research methods”, and “Research seminar I”.
- Second trimester: “Irrigation project planning and feasibility studies”, “Crop water requirements and irrigation scheduling”, “Irrigation facility management, monitoring and evaluation”, “GIS modelling of irrigation and drainage systems”, “Agronomy of irrigated crops”, “Design of sprinkler and drip irrigation systems”, and “Research seminar II”.
- Third trimester: “Integrated assignment and field practical”.
- Trimester 4-8: Student research work and thesis plus the research seminars III-VII plus another integrated assignment and field practical in trimester six.

According to the SER, the Research seminars are essential to the PhD programme “Irrigation and Drainage Engineering”. It starts in the first two trimesters with the research proposal presentation. After that, the overview shows that each trimester includes seminars include at least three seminars in that trimester. Seminars III and IV are designed to include the progress report and the findings from the field practical. The seminars V – VII include the presentation of preliminary findings, the drafting of the thesis and research papers, the publication of journal papers and the final phase of the research article.

Experts' evaluation

a) Ex-post Situation

The PhD programme “Irrigation and Drainage Engineering” aims to provide advanced education and research opportunities for students seeking water management and agricultural irrigation expertise. The experts have learned that the department is preparing to revise the curriculum and plans to establish PhD courses in the first year. However, the discussion showed that this process is still early. In general, the experts support these plans but point out that it is essential to formulate the intended learning outcomes (ILOs) in alignment with the European Qualifications Framework (EQF) Level 8 while differentiating from the intended learning outcomes on the programme level on the master's level (level 7) first. Aligning the ILOs with EQF Level 8 ensures that the programme meets the highest academic achievement, research skills, and autonomy expected in a doctoral programme. The experts learned that the department is preparing to restructure the curriculum with its PhD courses.

Consequently, the experts state that the outlining of discipline-specific components of “Knowledge and understanding”, “Research and Innovation”, “Critical thinking and problem solving”, “Communication and collaboration”, and “professional development and leadership” will enable the department to compose an innovative curriculum, which supports the addressing of relevant issues in the discipline. Formulating the intended learning outcomes for the PhD programme “Irrigation and Drainage” in alignment with EQF Level 8 ensures that the programme meets the highest academic standards while providing students with comprehensive knowledge, research skills, and competencies required for success in the field. The experts agree that national regulations should be maintained and in line with the Ghanaian Tertiary Education Commission (GTEC).

Due to the early stage of the new curriculum, the experts could not verify the future vision of the department and, consequently, WACWISA for the PhD programme “Irrigation and Drainage Engineering” at this stage. It is key to have a curriculum established that will be subject for accreditation. However, it is believed that with

clear ownership of the department and collaboration with the centre, the PhD programme can be prepared for this essential next step. The curriculum for the PhD programme “Irrigation and Drainage Engineering” is expected to build on the knowledge and competencies of the master’s programme with advanced courses that, on the one hand, fit the centre’s vision, but, on the other hand, to the available expertise. This review process is believed to lead to a solid curriculum that fosters the programme’s quality and matches the reviewed research activities, which are meaningful and aligned with the appropriate qualification level. The latter has been verified by examining the PhD theses of the programme, which are meaningful and relevant to the discipline. The research frameworks are appropriately designed, which supports the arguments below of a close interaction between teaching staff and students.

The internship in the first year’s third trimester is done on a local or regional level. It was explained that some international students have carried out an internship in their home countries that combines the centre’s scope with relevant research topics in sub-Saharan Africa. The yet missing course description of the internship should describe the intended learning outcomes on the course level defined by the centre or the department. The experts believe that by defining the expectations for the internship, the centre/department will take more ownership of the internship, which will be useful for the further development of the programme.

b) Reconsideration Evaluation

UDS submitted a revised documentation for the PhD programme “Irrigation and Drainage Engineering”. Following the paper-based expert’s review the documentation outlines comprehensive intended learning outcomes on the relevant level for PhD study programmes. These ILOs have been crafted in alignment with the European Qualifications Framework (EQF) level 8, ensuring adherence to high academic standards, comprehensive knowledge acquisition, and advanced research skills. This design also complies with the regulations set by the Ghanaian Tertiary Education Commission (GTEC).

In the first year, the programme features carefully structured course content aimed at equipping students with the foundational knowledge required to meet industry demands. From the second year through to the final year, the curriculum includes seminars focusing on diverse research presentations, fostering a deep engagement with current issues in the field. The inclusion of an academic writing course further enhances students’ proficiency in advanced academic language and writing skills. Additionally, an introduction to grant writing is provided to equip students with the necessary skills to identify and compose competitive grant proposals.

The programme’s relevance to national development is underscored throughout the document. It aims to improve food security, generate employment, and stimulate industrial development by enhancing agricultural productivity. The programme also promotes sustainable agricultural practices, natural resource conservation, and rural infrastructure development. By reducing the physical burden of agricultural work and improving the quality of life for farmers, the programme supports the national strategy for development, focusing on uplifting rural communities and enhancing overall living standards.

Also, the documentation included course description on the internship for the programme. It becomes clear that now the internship programme within the curriculum features a well-defined course content and intended learning outcomes on the course level. These ILOs emphasize the essential knowledge, skills, and competencies that students are expected to acquire during their internship. While the programme is ideally scheduled for the third trimester of the first year, students are afforded the flexibility to complete their internship at a time that best fits their schedule, provided it does not conflict with their coursework or research commitments.

Conclusion

The criterion is fulfilled.

2. Procedures for quality assurance

Doctoral degree

The programme is subject to the higher education institution's policy and associated procedures for quality assurance, including procedures for the design, approval, monitoring, and revision of the programmes.

A quality-oriented culture, focusing on continuous quality enhancement, is in place. This includes regular feedback mechanisms involving both internal and external stakeholders.

The strategy, policies, and procedures have a formal status and are made available in published form to all those concerned. They also include roles for students and other stakeholders.

Data is collected from relevant sources and stakeholders, analysed, and used for the effective management and continuous enhancement of the programme.

[ESG 1.1, 1.7 & 1.9]

Description

UDS' quality assurance system is based on a quality assurance policy that defines the processes and tasks of the Directorate of Academic Planning and Quality Assurance (DAPQA). The current version of the SER includes the current version of the policy. It states that the core objectives of DAPQA include the quality of graduates of UDS programmes aligned with the stakeholders' expectations, a high staff output, the facilitation of a conducive teaching and learning environment, and safeguarding mechanisms for the UDS governance.

The quality assurance policy states that the quality assurance unit (QAU) was established in 2008 under the Vice Chancellor's office. Their task is to fulfil the requirements outlined by the National Accreditation Board (NAB). In 2011, the QAU was changed to the Academic Quality Assurance Unit (AQAU) and further developed into the Directorate of Academic Quality Assurance (DAQA) in February 2014, later than DAPQA.

The quality assurance policy regulates compliance with the National Council for Tertiary Education (NCTE) and the NAB accreditation requirements, the formal admission conditions and requirements, recruitment procedures, stipulations concerning the quality course contents, structure and assessment, and the examination regulations. The quality assurance policy also includes:

- student feedback,
- instruments for staff performance appraisal (academic and non-academic),
- compliance instruments with the Code of Conduct of staff and students,
- curriculum updating mechanisms, and
- the alignment of teaching methods with the courses.

The UDS policy defines the scope of the QA system on four levels (Teaching and learning, research, community service, and support services). Regarding the teaching and learning level, the QA policy specifies that a periodic review of the teaching should be carried out to ensure the alignment of the ILOs on the course level and the teaching process, the availability of human, material and financial resources, and the involvement of external stakeholders. This review should be run at least every five years. The focus on research activities includes monitoring the relevance of research priorities, the adequacy of financial allocations to activities, the proper structuring of research projects, the adequacy of research outputs, the effectiveness of the dissemination of research outputs, and the integration of research outputs into teaching and learning. The community outreach activities are monitored and evaluated by the UDS staff and students with a particular focus on the relevance of the projects, the quality of the outputs, and the assessment of the overall impact of UDS' community outreach projects. The support services at UDS are monitored and evaluated within the QA instruments by focusing on the academic and social counselling services, the teaching and learning infrastructure, health and recreational facilities, the career advisory services, and the alike. To focus on the current working

conditions at UDS, the DAPQA carries out staff satisfaction surveys. These aim to detect necessary interventions and are discussed at the units' level and the university level. The implementation of improvement strategies is monitored by the DAPQA and reported to the Vice-rectorate at UDS. Being one of the pillars of the QA scope of UDS, community outreach surveys are administered by DAPQA to determine UDS' social acceptability.

The institutional audits focus on the administrative and governance organs of UDS, while programme reviews focus on the relevance and effectiveness of the programme. DAPQA organises internal audits every five years with three team members (two people within UDS but outside the respective programme and one from a comparable programme). The results (including observations) are then discussed between DAPQA and the Vice-rectorate. DAPQA follows up on the implementation of agreed steps. The external institutional and programme reviews are arranged every five years. This includes a five-person team of external reviewers (at least three from outside Ghana).

The implementation strategies include a student satisfaction survey, an employer satisfaction survey, an alumni satisfaction survey, a staff satisfaction survey, a community perception survey, internal institutional audit and programme reviews, external institutional audits and programme reviews, improvement plans, and programme accreditation procedures. Institutional key performance indicators are composed based on this information, focusing on student progression and success rates, graduates' employability, satisfaction, teachers' effectiveness, student profiles, and improvement on learning resources.

According to the QA policy, the student satisfaction surveys strive to allow students' feedback on the individual courses and the study programme. The policy includes that DAPQA collects, analyses, and disseminates the results to teaching units and staff. As a result, strategies for specific problem areas are formulated and implemented into the programmes. On the university level, UDS collects employer satisfaction surveys every five years. However, the specific programme units may collect that more frequently. The alumni satisfaction survey is seen as valuable information for curricula enhancements and reviews. The policy states that alumni should be contacted three years after graduation. Usually, the alumni satisfaction and the employer satisfaction survey are carried out jointly every five years. However, the programme's units may carry out this activity more frequently.

All information is collected and summarised for stakeholders for the programme enhancements. This information includes year-on-year data on application, data on drop-out rates, retentions and graduates, industry feedback, student and alumni feedback.

Experts' evaluation

a) Ex-post Situation

The West African Centre for Water, Irrigation and Sustainable Agriculture (WACWISA) demonstrates a commitment to quality assurance, ensuring adherence to the university's policies and associated procedures. These evaluation tools provide, in general, valuable insights into the effectiveness of the programmes, enabling continuous improvement and refinement. During the site visit, the experts discussed with the relevant stakeholders at UDS the effectiveness of the quality assurance instruments at UDS and their application to the programmes at WACWISA.

The responsibilities and targets set within the WACWISA programme are defined and appropriate for monitoring and revising the programme. The availability of clear responsibilities for the administration and quality assurance of the doctoral programme, such as the doctoral board, doctoral commission, examination board, coordination, advisory board, and executive board, establishes a solid framework for the successful completion of postgraduate studies. It became evident that UDS' quality assurance system is based on a quality assurance policy that outlines the processes and tasks of the Directorate of Academic Planning and Quality Assurance

(DAPQA). The approach emphasises the core objectives of DAPQA, such as ensuring the quality of graduates, maintaining a conducive teaching and learning environment, and implementing governance mechanisms. The policy also regulates compliance with accreditation requirements and admission conditions, recruitment procedures, course contents, structure and assessment, and examination regulations.

Additionally, it includes provisions for student feedback, staff performance appraisal, code of conduct compliance, curriculum updating, and alignment of teaching methods. The QA system at UDS is designed to cover various aspects, including teaching and learning, research, community service, and support services. It specifies the need for periodic reviews to align intended learning outcomes with teaching processes, involves external stakeholders, and ensure resource availability. The system also monitors research relevance, funding allocation, output dissemination, and integration into teaching and learning. Community outreach projects and support services are evaluated based on relevance, quality, and impact. To address working conditions, staff satisfaction surveys are conducted by DAPQA to identify necessary interventions. Improvement strategies are monitored and reported to the Vice-rectorate. Community outreach surveys are administered to assess UDS' social acceptability.

Even though UDS' QA policy addresses most of the relevant points of a quality assurance instrument, which is to be expected, some points still need to be improved to connect the WACWISA centre (a hallmark project in the region) and the QA instruments. In quality management, the PDCA (Plan-Do-Check-Act) cycle stands as a fundamental tool for continuous improvement. Its cyclical nature suggests a closed loop, where higher education institutions analyse their processes, identify areas of improvement, and implement changes. It became evident that the PDCA cycle remains incomplete for the programmes under accreditation, with a significant oversight in the analysis of quality assurance results. This crucial step, which holds the key to refining operations and achieving excellence, is underrepresented. The discussions showed that UDS and, consequently, WACWISA programme prioritise the initial three stages of the PDCA cycle. Unfortunately, neglecting this crucial step prevents higher education institutions from reaping the full benefits of the PDCA cycle and inhibits their ability to achieve sustainable improvements. To address the incomplete loop of the PDCA cycle, UDS must prioritise the analysis phase. This involves allocating dedicated resources (time and people) for WACWISA and fostering a culture that values data-driven decision-making. By integrating comprehensive analysis, organisations can close the loop and create an accurate continuous improvement framework, amplifying their ability to adapt, innovate, and deliver exceptional quality. Consequently, the results have to be shared with internal and external stakeholders to increase the visible relevance of QA actions.

As stated above, the documentation submitted to the experts showed several relevant instruments that collect data for the student's progression, and monitoring and tracking the academic progression of students is crucial for educational institutions and programmes in general and UDS in particular. The statistical data on students' progression is systematically collected. This data provides valuable insights into student composition and exam performance. However, in the context of the West African Centre for Water, Irrigation and Sustainable Agriculture (WACWISA) project, it is essential to obtain accurate information about the average study lengths of students. Eliciting average study lengths will allow the WACWISA team to gather comprehensive data regarding the duration of students' academic programmes. This information clearly explains the time students typically spend on their studies, including potential variations. Without this data, it becomes challenging to assess student progression accurately, set realistic expectations, and design appropriate interventions or support mechanisms. In addition, eliciting average study lengths enables the WACWISA team to identify programme stages where students encounter difficulties or experience delays. This knowledge empowers the team to implement proactive measures, such as targeted support programs, mentoring initiatives, or curriculum adjustments, to address the identified issues and enhance student progression. Without this data, the team's ability to identify and intervene promptly is compromised.

The programme demonstrates commitment to continuous improvement by actively incorporating feedback from internal and external stakeholders. These stakeholders, including students, student advisory bodies/groups, labour market representatives, and alumni, play an integral role in the quality assurance process. Their feedback is collected through well-structured mechanisms, and evaluation results are efficiently shared with teaching staff and students, fostering a transparent and collaborative environment. WACWISA recognises the importance of understanding labour market requirements and collects information from various sources. By doing so, the programme ensures that its graduates are equipped with the necessary skills and knowledge the industry demands. The programme's commitment to monitoring graduates' employment sectors and tracking their further studies demonstrates a proactive approach to staying abreast of labour market trends and the needs of future graduates.

Academic integrity and preventing academic fraud are of utmost importance within WACWISA. UDS has established robust procedures to safeguard academic integrity, and the university has passed a code of good scientific conduct. These quality assurance policies effectively support the prevention of academic misconduct, intolerance, and discrimination, fostering an inclusive and respectful educational environment. The most common tool is the TurnIt software provided by the UDS library. In addition, the discussion showed that it might be beneficial to consider different instruments as artificial intelligence tools arise.

UDS uses the Ghanaian credit transfer system, which is logical. However, as the landscape of higher education continues to globalise, it becomes increasingly essential for Ghana to align and compare its credit transfer system with internationally recognised frameworks. Considering a comparing matrix to the European Credit Transfer and Accumulation System (ECTS) holds significant merit. By aligning the Ghanaian credit transfer system with the ECTS, UDS can enhance their international recognition and appeal to domestic and international students. ECTS, widely adopted across European countries, is a trusted credit transfer and accumulation standard. Embracing this system would ensure that Ghanaian qualifications are better understood and accepted worldwide, fostering academic mobility and promoting collaboration with international institutions. In addition, comparability to ECTS would greatly facilitate student mobility easier access to European study programmes. It would enable seamless transfer of credits between institutions, allowing students to pursue educational opportunities at different universities without losing progress or repeating coursework. Ghanaian students would also find it easier to participate in exchange programmes and pursue study abroad opportunities, making their educational journeys more diverse and enriching, which leads to stronger cooperation with European higher education institutions. This alignment encompasses not only credit transfer but also quality assurance mechanisms. Aligning the Ghanaian credit transfer system with ECTS would necessitate the further development and implementation of additional quality assurance practices, such as learning outcomes, workload measurement, and assessment criteria.

b) Reconsideration Evaluation

Based on the follow-up documentation it can be stated that the University for Development Studies (UDS), particularly within the School of Engineering (SoE) and the Department of Agricultural Engineering, has undertaken a comprehensive reconsideration process to enhance its academic and administrative standards. The deficiencies, described in the ex-post situation described above, posed challenges to achieving continuous improvement, and effective academic programme management.

To address these issues, UDS developed an improve Quality Assurance policy document. This framework, designed around the PDCA cycle, includes diagnostic questions aimed at integrating QA processes into the academic functions of the department. It is believed that this approach will foster a culture of continuous improvement, ensuring that academic processes are consistently aligned with the university's mission and accreditation standards. The policy emphasizes the importance of closing the PDCA loop by thoroughly analyzing quality assurance results and acting on the insights gained. This systematic approach also includes

stakeholder feedback mechanisms, ensuring that the institution remains responsive to the evolving needs of students, faculty, and industry partners.

The Department of Agricultural Engineering also recognized the need for accurate data on student progression. To this end, mechanisms have been established to collect and analyse comprehensive student data from various sources, such as student information systems and academic databases. This data includes key milestones like enrolment dates, programme start and completion dates, and other significant academic achievements. By examining these data points, the department can determine average study lengths, identify factors influencing these durations, and recognize patterns in student progression. This detailed analysis informs decision-making processes, leading to targeted improvements in curriculum design, advising strategies, and student support services. Additionally, the development of a tracer study policy document aims to capture the long-term impact of UDS's educational programs on graduates. This initiative seeks to assess how the education received has influenced their career trajectories and personal growth, providing crucial feedback for continuous curricular and policy development.

Furthermore, in response to the AQAS panel of experts' recommendations, UDS has taken steps to align its credit transfer system with the ECTS. This alignment, starting with a pilot initiative involving WACWISA, aims to enhance the international comparability of UDS qualifications, but is still pending by UDS' senior management decision. It is believed that by adopting ECTS standards, UDS will be able to allow students to participate in exchange programmes and gain recognition in European institutions.

The challenges associated with implementing these changes, such as the complexity of academic processes and resource constraints, are acknowledged by the department. Nonetheless, through careful planning, effective communication, and a commitment to collaborative problem-solving, UDS aims to overcome these obstacles and achieve sustainable improvements. The concerted efforts to integrate a comprehensive QA framework, systematically collect and utilize student data, and align with international standards demonstrate UDS's strong commitment to quality education and continuous improvement.

Conclusion

The criterion is fulfilled.

3. Learning and assessment of students

Doctoral degree

The form of supervision and/or course structure is adequate and corresponds with the intended learning outcomes.

Students are assessed using accessible criteria, regulations, and procedures, which are made readily available to all participants and which are applied consistently.

Assessment procedures are designed to measure the achievement of the intended learning outcomes.

[ESG 1.3]

Description

According to the SER the teaching and learning methods used in the programme include classroom -face to face- learning, assignments, seminars, online teaching, assignments and seminars.

The mode of assessment of students are said to be captured in students' handbook and other prescribed guidelines of the University and GTEC. Entry requirements, part time etc., sandwich programmes and online systems shall help students with special needs, nursing mothers, pregnant students, etc.`

The assessment methods are written and oral exams, quizzes, assignments, and presentations. Online exams are said to be carried out since the start of COVID epidemics to allow students to work off campus where possible.

The dissertation/thesis of the PhD candidate is submitted to Graduate School by the Head of Department. Each PhD thesis is assessed by one internal and two external examiners. The external examiners are recommended by the Department and appointed by the Registrar on the advice of the Board of Graduate School. All the examiners (i.e., the internal and external) must pass the thesis, to enable the candidate to do the oral defence of the thesis (*viva voce*). The candidate is made to present his/her work in 45 minutes, after which he/she responds to questions from the examination panel. Each panel member scores the presentation on the scale 0 - 100%. Based on consensus, the candidate is given some time to work on corrections and get these approved by the internal examiner before the final binding and submission of the thesis to the department. The grading system is as follows: A+ = 80-100 %; A = 70-79 %; B+ = 65-69 %; B = 60-64; F = below 60 % (NB: F is Fail).

A timetable for the examination periods is available at the beginning of the academic year. Particular examination dates are scheduled at least two weeks to the date of the exam and displayed on notice boards; retakes and resits of exams are possible. Examination procedures are spelt out in the examination rules and handouts. Thesis defence or *viva voce* are organised at least twice a year to enable students who have passed their thesis assessment by external and internal assessors to do their oral examination for final scoring and preparing them to graduate.

The formal procedure for student appeals is outlined in the University's Junior Members Regulation and Handbook which is available to every student. According to the SER there is also a sexual harassment policy, with provisions for reporting cases of sexual harassment in the University. An online grievance complaint and feedback system shall also offer students the opportunity to obtain guidance, counselling and other information support. The General Examination Rules and Regulations handbook provide to students the right to query how their scripts are marked.

Experts' evaluation

a) Ex-post Situation

The learning and teaching methods implemented in the programme contribute significantly to a student-centred learning environment. The programme emphasises practical application and experiential learning, allowing students to engage actively in their education. Hands-on exercises complement lectures, case studies that will enable students to apply theoretical knowledge to real-world situations, and fieldwork (in the third trimester). This approach considers the diverse needs of students and enables flexible learning paths.

The programme prioritises the transfer of knowledge to situations outside the university context. Learning and teaching methods are designed to integrate theoretical and practical aspects. Students are exposed to real-world challenges and encouraged to apply their knowledge through fieldwork, internships, and collaborative projects. Assessment formats, such as case studies and project-based assignments, facilitate interlacing theoretical concepts with practical applications.

The experts have understood that due to the different backgrounds of WACWISA students and prior experiences from various higher education systems, there is an increasing need to establish transparent regulations that provide students with a higher level of transparency in their studies. Transparent regulations empower students and foster a culture of trust, accountability, and fairness within educational institutions. By ensuring clear guidelines, accessible information, and open communication channels, transparent regulations can significantly enhance the educational experience and support students in achieving their academic goals. After having analysed several regulations of UDS, the panel of experts confirms that many regulations are in place.

However, the whole picture revealed that some regulations have to be adjusted to fully exploit the potential of the WACWISA programmes, while others are fit for purpose as they are.

The assessment regulations and procedures are generally defined and accessible to students. Examination requirements, including grading scales, are transparently communicated to ensure students understand the expectations. The responsibilities for organising exams are clearly outlined and made available to students. Timelines for exams are communicated in advance, allowing students to prepare adequately. Beyond that, the experts have learned that there is room for flexibility to cater for the specific needs of WACWISA students, e.g. because international students need more flexible examination timetables.

PhD candidates are provided with transparent information regarding examination procedures and the different modes of completing the programme. Students have the choice between monographs or cumulative dissertations. However, it was stated that the trend is towards cumulative dissertations. The timescale for publications and status are also communicated transparently to ensure clarity throughout the doctoral journey. When choosing the cumulative dissertation, the rule for PhD programmes states that at least two articles must be published in SCOPUS-indexed journals before allowing PhD students to defend their PhD thesis. The experts acknowledge that but want to express that the acceptance of an article might be sufficient in practice because it may cause delays when waiting for the publication of the article.

In this regard, clear and transparent supervision of PhD students is crucial for the success and effectiveness of an PhD programme. The role of supervisors in guiding, supporting, and mentoring doctoral candidates is pivotal in ensuring that students receive the necessary guidance, resources, and feedback to complete their research and achieve academic excellence. The experts have learned during the site visit that the theoretical framework of PhD supervision is set, but occasionally the practice might be different. In general, PhD programmes are long and intensive journeys that require students to navigate complex research processes. Clear and transparent supervision provides students with guidance and direction, sets goals, and allows them to progress in their research. Supervisors play a vital role in helping students define research questions, develop research plans, and establish milestones, ensuring they remain focused and motivated throughout their doctoral studies. Also, from a QA perspective, apparent supervision helps maintain high-quality standards in research. Supervisors provide valuable insights, expertise, and critical feedback that ensure students' work's rigour, relevance, and originality. Supervisors help students refine their research methodologies, enhance their analytical skills, and produce high-quality research outcomes through regular discussions, review of research outputs, and constructive criticism. The discussion showed that in the past, the communication between PhD students and first and second supervisors was nurtured by the close contact that WACWISA offers to its students. This caused at instances confusions between students and staff, which was solved by intensified communication on an informal basis. However, the experts believe that clear regulations on the responsibilities or the explanation thereof might be an additional adjustment to create a well-established research environment.

Furthermore, the site visit has demonstrated that the chosen assessment methods align with the learning outcomes of individual courses in the programme. Various examination formats are used, including written exams, oral presentations, research papers, and practical assessments. Students are familiarised with this variety of formats, preparing them for diverse assessment scenarios in their future careers.

The programme has documented and accessible procedures for student appeals. Students are provided with appropriate channels to voice their concerns or appeal examination results. Furthermore, opportunities to re-take exams are offered, allowing students to improve their performance.

In addition, regulations are in place to compensate for possible disadvantages, illness, or absence during exams. These regulations are clearly documented, accessible, and designed to ensure fairness and equal opportunities for all students. Students are informed about the provisions available, allowing them to seek appropriate accommodations when necessary.

As stated above, the internship component is decisive in all UDS programmes. Those internships bridge academia and the professional world, providing students with valuable hands-on experience and industry exposure. To ensure a successful internship programme, implementing clear and well-defined internship guidelines that adhere to the scope of WACWISA is crucial. These guidelines facilitate a structured learning experience and promote transparency and accountability for universities, students, and industry partners. Internship guidelines outline students' and industry partners' expectations and intended learning outcomes. By clearly defining the scope of work, responsibilities, and deliverables, these guidelines set a foundation for a mutually beneficial experience. Students gain a clear understanding of their role and the skills they are expected to develop, while industry partners can align their expectations with the intern's capabilities. Clear guidelines foster transparency and ensure that all parties agree regarding the internship's goals and outcomes. The experts have reviewed the evidence of how internships are assessed and believe that the outcomes are fit for purpose and foster the learner's progression. However, the experts believe that establishing internship guidelines will put the ownership more towards WACWISA, which in the light of the experts, will be necessary for the future with more (international) industry partners for the programme. Also, internship guidelines facilitate effective communication channels and conflict-resolution mechanisms. Guidelines outline the reporting structure, communication protocols, and procedures for addressing any conflicts or issues during the internship. By establishing clear lines of communication, universities, students, and industry partners can promptly address concerns, clarify expectations, and resolve conflicts transparently and professionally. This promotes accountability and ensures a positive and constructive internship experience for all stakeholders.

One of the key aspects of the publication culture at WACWISA is the emphasis on interdisciplinary research and collaboration. Recognising the complex and interconnected nature of water and agriculture issues, WACWISA encourages collaboration among experts from various disciplines, including hydrology, agronomy, engineering, economics, and others. This multidisciplinary approach leads to publications that offer comprehensive insights and practical solutions to the complex challenges faced in the region.

WACWISA also promotes the publication of research that aligns with sustainable development goals and supports evidence-based decision-making. Publications from WACWISA researchers often focus on innovative techniques, technologies, and management practices that enhance water efficiency, improve agricultural productivity, and foster sustainable development in the region. The centre actively seeks partnerships with local stakeholders, policymakers, and international organisations to ensure the translation of research findings into impactful actions.

Additionally, WACWISA acknowledges the importance of open-access publishing to reach a wider audience and maximise the impact of research outputs. The centre encourages researchers to publish their work in open-access journals or make their publications accessible through repositories. This approach ensures that knowledge generated by WACWISA and its collaborators can be readily accessed and utilised by stakeholders, policymakers, and fellow researchers in the region and beyond.

Overall, the publication culture at WACWISA reflects a commitment to high academic standards, collaboration, and sustainability. Through its publications, the centre continues to contribute valuable insights and solutions to the water, irrigation, and agricultural challenges faced by West Africa, playing a crucial role in shaping the future of the region's water and farming systems.

In conclusion, the teaching, learning and assessment modalities for the programme adhere to a clear structure which depends on the UDS. It provides guidance, fosters academic and professional development, gives accountability and includes ethical considerations. The experts believe that these structures benefit the learner's progression, which contributes to the overall success and well-being of PhD students, enabling them to excel in their research and make meaningful contributions to their respective fields of study.

b) Reconsideration Evaluation

The experts state that the University for Development Studies has taken significant steps to enhance its academic processes, which pertain to the transparency and structure of PhD student supervision and the establishment of comprehensive internship guidelines.

UDS recognized the need for clearer and more consistent supervision practices for PhD students. The new evidence indicates that the Department of Agricultural Engineering, in collaboration with WACWISA, is revising the postgraduate student handbook. This updated handbook will provide detailed guidance on the roles and responsibilities of both supervisors and students, thereby addressing past inconsistencies in supervision practices. It will clarify the requirements for PhD thesis submissions, specifying that while the norm is to publish at least two articles in SCOPUS-indexed journals before defending a thesis, the acceptance of an article may be deemed sufficient to avoid unnecessary delays. This revision aims to foster a structured and supportive environment for PhD candidates, ensuring they receive clear and transparent guidance throughout their doctoral studies. Additionally, the handbook will enhance the communication and understanding between students and supervisors, promoting a more effective and transparent supervision framework.

Furthermore, the development of a comprehensive internship guide is an important response. The School of Engineering has created a detailed policy document to guide postgraduate students through their internship experiences. The internship guide outlines the process for securing internships, detailing the roles and responsibilities of students, industry partners, and university supervisors. It sets clear expectations for the duration and nature of internships, typically lasting eight weeks during the third trimester of the academic year. The guide emphasizes the importance of internships in bridging the gap between theoretical knowledge and practical application, allowing students to gain valuable hands-on experience in real-world settings.

The guidelines include specific instructions for maintaining a logbook, writing detailed reports on the internship experience, and participating in assessments conducted by both industry and university supervisors. These assessments cover various aspects, including punctuality, adherence to workplace regulations, communication skills, and the application of theoretical knowledge in practical situations. The use of standardized forms for these evaluations ensures consistency and comprehensiveness in feedback, which is crucial for student development and program improvement.

The internship guide also addresses potential issues by establishing clear communication protocols and conflict-resolution mechanisms. This structure promotes transparency and accountability among all parties involved, ensuring that the internship experience is beneficial for students and aligns with the needs and expectations of industry partners. Moreover, the guide encourages students to reflect on their experiences, develop professional networks, and enhance their understanding of industry practices, all of which are critical for their future careers.

Conclusion

The criterion is fulfilled.

4. Legal status, admission and certification

Doctoral degree

The institution is entitled to award a doctorate.

Consistently applied, pre-defined, and published regulations are in place which cover student admission, progression, recognition, and certification.

[ESG 1.4]

Description

Admission

In advertising for students, the requisite qualifications are listed in addition to relevant documents required. Applicants who wish to apply for the programme purchase the University Application Form online fill and submit to the School of Graduate Studies. The Graduate School sorts all applications and send them to the relevant departments. Candidates who meet the admission requirements are invited for an interview. A panel is set up with the Heads of Departments for the programme, the Dean, Vice-Dean or both, the subject specialists and the Administrative Officer. Candidates who score 60 % and above and who prove worthy of admission are recommended and the list presented to the School of Graduate Studies for their admission letters to be written to them by the Administrative Officer of the Graduate School.

Progression

Students are assigned to supervisors who have expertise in the areas of students' research. Mostly students are assigned to supervisors within the university but in some cases external supervisors are assigned where necessary, for instance, international students have the opportunity to have home supervisors if they are conducting the research in their home country. The minimum requirement or qualification to be supervisor of a graduate student is a Senior Lecturer/Senior Research Fellow. In addition to subject-specific supervisory staff, there are Graduate Studies Coordinators at the School/Faculty levels that coordinate and organise graduate programmes. In the specific case of WACWISA, besides the Graduate Studies Coordinators, there are the Scientific and Academic Coordinator, Industrial Liaison Coordinator and Administrative Coordinators who support the coordination and organisation of graduate studies in the Centre.

There are Continuous Professional Development (CPD) opportunities for supervisors of graduate students. These include regular capacity building workshops on supervisory techniques, mentorship, coaching and methodologies. These workshops are mostly facilitated by accomplished senior academics and industry players. Besides, administrative and technical staff are supported to develop their competences through internal seminars at departmental, faculty and university levels and tailor-made professional courses organised by relevant bodies such as GTEC and AAU.

Recognition

The graduate handbook of UDS outlines how students from different universities can transfer to UDS. To apply for admission, applicants must follow the admission procedure. Students need to complete the required forms and submit them, along with their academic transcript and a confidential report from the Registrar of their previous university to the Registrar of UDS. It is important to submit these documents within the specified timeframe before the admission exercise begins. It is stated that applicants may be conditionally admitted to UDS at a level that is not higher than the level they achieved in their graduate degree program at their previous university. Additionally, they may be required to take lower-level courses as remedial courses, which must be successfully completed before graduation. According to the graduate handbook, all academic records from their previous universities will be considered when calculating the results for the degrees awarded by UDS.

Certification

The self-evaluation report includes examples of the certificates for the study programme. The UDS statutes allocated the responsibility of issuing the certificates and transcript of records at the registrar.

Experts' evaluation

a) Ex-post Situation

Admission

The experts have analysed the admission requirements for the study programme, and it can be testified that the formal requirements for admission and the specific prerequisites for the individual study programme are clearly defined and readily available to prospective students. The university ensures transparency by making this information accessible, allowing students to make informed decisions about their academic pursuits.

Regarding admission into the PhD programme, prospective candidates must either possess an M.Phil./M.Sc. by research degree in an appropriate field from a recognised university or hold an MA/MEd/MSc/MBA degree in a relevant area with a cumulative grade point average (CGPA) of 3.5 or higher, with no more than one grade of C+. Additionally, a score of B+ or higher in a research methods course is obligatory. Those individuals holding a non-research-based master's degree but having accumulated practical field experience exceeding 24 months may be admitted to those mentioned above 12-month top-up programme within the same or a related field.

The selection procedure follows well-defined criteria and steps made available to prospective students, ensuring a fair and consistent process. It became evident that WACWISA has a wide variety of different backgrounds in their student cohorts. Many of the students come from neighbouring francophone countries, which could be a struggle for some students due to transition to expressing themselves in English. However, the site visit has effectively demonstrated clear progress in language acquisition during studies. The experts commend the efforts of WACWISA in this regard. The selection requirements have been carefully designed to ensure students possess the essential skills and knowledge to excel in their chosen field of study. The university periodically reviews and updates these prerequisites to align with emerging industry trends and demands, keeping the curricula relevant and up-to-date.

The experts have been supplied with data on the admission procedures, which have been analysed to identify trends and provide comprehensive information on the cohorts. This data-driven approach allows the university to continuously refine its practices and ensure fairness in the selection of students.

Progression

Although the institutional follow-up on average lengths of studies will require improvement, the experts believe that the general progression monitoring of students is sufficiently addressed on the course level. Based on very tight monitoring based on examinations, coursework, or progress reports, students' success can be measured on the course level and consequently for the programme.

Recognition

Based on information provided during the site visit, the experts learned that recognition is a smaller factor for UDS, which is typical for the region. The same applies to the transfer of credits from other higher education institutions. Consequently, there was not much experience for that, and until now, the applicants were relatively linear students from similar disciplines and with fewer differences. However, UDS' graduate handbook includes regulations and information on the procedure. The information is outlined on the UDS main homepage and consequently accessible to externals and students. However, since the higher education systems on the African continent are further developing, the experts want to point out that UDS should closely follow these developments and the further implementation of continental recognitions conventions, which might be implemented in Ghana in the future, e.g. the Revised Convention on the Recognition of Studies, Certificates, Diplomas, Degrees and Other Academic Qualifications in Higher Education in the African States.

Certification

The experts have analysed and discussed the certification procedure that UDS provides its graduates. It became clear that the university issues up-to-date documentation that aligns with the national requirements. However, the experts believe that employers are increasingly seeking candidates with a solid educational background and diverse skill sets in today's competitive job market. The documentation of courses plays a pivotal role in showcasing a candidate's academic achievements and expertise that go beyond the programme's framework. The experts have seen that the current practice is that students may take additional courses outside their curricula. It has been stated that these courses however are not depicted in the transcript of records. The experts believe that, when there is a lack of transparent documentation for audited courses outside the curriculum, it can significantly diminish an individual's employment prospects. In addressing this issue, it is crucial to balance transparency and the consideration of national regulations because transparent documentation of audited courses enables potential employers to accurately assess an individual's knowledge base and expertise. A comprehensive record of audited courses showcases candidates' commitment to continuous learning and highlights their mastery of relevant subjects. Employers value individuals with a broad skill set, and the documentation of audited courses serves as tangible evidence of their versatility.

The University for Development Studies is one of the recognised Ghanaian public universities. As such, they are entitled to award PhD degrees. This is fostered by the national regulatory framework.

b) Reconsideration evaluation

In the follow-up process, the department has been in discussions with the Graduate School, facilitated through the faculty, to implement an option for graduate transcripts to include audited courses. This initiative is progressing well, and it is anticipated that future graduates will have the opportunity to see these courses reflected on their transcripts.

Conclusion

The criterion is fulfilled.

5. Academic level of supervisory staff

Doctoral degree

The composition (quantity, qualifications, professional and international experience, etc.) of the staff is appropriate for the achievement of the intended learning outcomes.

Staff involved with teaching is qualified and competent to do so.

Transparent procedures are in place for the recruitment and development of staff.

[ESG 1.5]

Description

The SER states that the supervision of PhD theses is according to the expertise of the teaching staff at UDS, which is aligned with the research focuses of WACWISA. Students may have external supervisors if deemed necessary, but the common way is that UDS staff members are involved. The minimum supervisor requirement is a senior lecturer or senior research fellow position. The organisation of the supervision framework is administered by the graduate studies coordinators, the scientific and academic coordinators, the industrial liaison coordinator, and the administrative coordinators.

Following the SER, UDS incorporates opportunities for the continuous professional development of staff. This includes capacity-building workshops on supervisory techniques, mentorship, coaching, and methodologies.

Senior academic or industry partners mostly facilitate the workshops. In addition, UDS offers internal seminars on the department, the faculty or the university level or tailor-made professional courses organised by the Ghana Tertiary Education Commission (GTEC) or the Association of African Universities (AAU).

The SER annexe includes the CVs of teaching staff members in the programme.

The SER provides an overview of academic staff for the programme. This information shows that six people are responsible for imparting the programme for the PhD “Irrigation and Drainage Engineering”. This includes three full professors, two associate professors, and one senior lecturer. All of them are full-time employees, are responsible for teaching and student theses supervision, and have between four and six teaching hours responsibilities.

Experts’ evaluation

a) Ex-post Situation

The teaching staff involved in WACWISA demonstrates remarkable resilience in challenging circumstances, e.g., UDS being in a more remote area in Ghana. Despite their rugged surroundings, the teaching staff and responsible persons exhibit a solid commitment to their profession and a determination to provide quality education to their students. UDS may be located in an area in strong competition in Ghana’s south, but the teaching staff finds innovative ways to overcome these obstacles. They often go above and beyond their responsibilities to ensure students receive the education they deserve. This might lead to a higher workload of staff. The teaching staff at UDS also demonstrate resilience through their unwavering dedication to their students. They recognise the potential impact of education on the lives of their students and the broader community, and this understanding drives them to persevere despite the challenges they face. They believe in the transformative power of education and are committed to nurturing their students’ intellectual and personal growth.

The teaching staff demonstrates an adequate level of competence and commitment, effectively contributing to the overall success of the programme. In the documentation, the university has provided a list of all teaching staff involved in the programme, including their academic qualifications, research experience, and other relevant qualifications, which the experts have analysed. It became evident that the human resources at WACWISA allow for personalised attention and effective mentoring. The workload for staff members, including teaching, research, and administrative duties, is high due to the extra efforts by implementing the trimester system, but manageable.

The supervisory staff for the PhD programme demonstrates methodological expertise and is well-qualified to support and advise the candidates. The UDS has regulations in place regarding the involvement of external examiners. Their roles are defined, and the university ensures they possess the necessary qualifications and are familiar with the programme’s requirements. The university has defined and transparent recruitment procedures for teaching staff, ensuring that qualified individuals are selected. This is outlined in the UDS statutes, which represent the minimum requirements for each position.

However, the experts want to encourage the University for Development Studies (UDS) to reconsider its recruitment strategy by including new expertise with people with a variety of educational backgrounds can bring numerous benefits to the institution and its students. By diversifying the background within the faculty, UDS can enhance its academic offerings, improve research capabilities, and better serve the community’s needs. The experts have learned that WACWISA is currently applying for an inter-African funding scheme to support staff exchange. The experts believe that this would be a good change towards broadening the expertise at UDS. UDS can promote knowledge sharing, collaboration, and exposure to diverse perspectives by facilitating exchange programmes with other universities or institutions across Africa. Staff exchange programmes can provide opportunities for faculty members to gain regional expertise and bring back valuable insights and

experiences to enhance teaching and research at UDS. Therefore, this initiative is strongly supported by the experts. The university is firmly rooted in the community of the Tamale region. The efforts to connect to the local and regional needs are clearly visible and meaningful. The outcome of these projects is of good quality and commendable. These efforts demonstrate the institution's commitment to addressing local needs and producing graduates with practical skills and knowledge. This can attract students, researchers, and partnerships, both regionally and internationally, contributing to UDS's recognition as a leading institution in development studies. However, the recruitment strategy could be expanded by finding industrial partners who could be involved in teaching and co-hosting research. The experts believe recruiting faculty members with industrial expertise fosters more vital collaboration between the university and the industry. These practitioners can bring first-hand knowledge of industry trends, practices, and challenges, bridging the gap between academia and the professional world.

The university has implemented a defined concept for staff development, providing opportunities for both teaching and administrative/support staff to enhance their skills. Teaching staff have access to further training in their respective subjects and teaching and assessment methods. This commitment to ongoing professional development ensures that the teaching staff remains up-to-date with the latest advancements in their fields and can deliver quality education.

b) Reconsideration evaluation

No further evidence required. The experts already saw no need for short-term changes or additions in this area in the first evaluation of the programmes. Therefore, there is nothing to add to the previous evaluation.

Conclusion

The criterion is fulfilled.

6. Learning resources and student support / Support and research environment

Doctoral degree

Guidance and support are available for students which include advice on achieving a successful completion of their studies.

Appropriate facilities and resources are available for learning and research activities.

[ESG 1.6]

Description

Learning resources

The general learning resources for students in the programme entail an office complex with study rooms, a library, laboratories (including lab and field equipment), and transport equipment for field trips. It is stated that theoretically, UDS and the Centre consider the needs of students with special needs. This includes laboratories on the ground floors and buildings equipped with disability ramps and elevators. However, as of 2022, no special-needs students enrolled in the programme. UDS states that a maintenance and replacement policy is in place. The procurement procedures focus on the material resources according to the intended learning outcomes for the programme. The process starts with a request (either by students or lecturers), which is approved by the academic advisor and forwarded to the procurement committee for final approval.

The general UDS library provides students access to subscriptions to journal databases and e-books for the discipline. Students can request to procure the material if specific literature is needed. The current SER version does not specify the amount of programme-specific literature available as hard copies or in digital form.

Student support

According to the SER, the study programme is financed by tuition fees and government subsidies. It is said that the tuition fees are lower than tuition fees at other public universities in Ghana. In addition, WACWISA provides scholarship opportunities for students. The student handbook indicates that WACWISA programme may offer scholarships under the Scholarship Award Scheme (SAS), which is supported by the Government of Ghana and the World Bank. In general, all students enrolled in WACWISA programme are eligible for scholarships. However, the target group is students under 35 years, and an African nationality and residency. The student handbook outlines that several scholarships can be offered to students. This includes:

- Full tuition fee for regional students for the whole programme,
- Stipend (starting in the first year for regional and in the second year for national students),
- Support of relevant equipment (hardware and software),
- Research funding,
- Publication fees in Scopus journals,
- Sponsorship for national and international conferences,
- Housing for international students,
- English courses for students coming from Non-English speaking countries.

Research environment

The SER states that the baseline for the research environment is set out to provide the necessary framework for the future research careers of WACWISA students. This includes the necessary reading materials, equipment and capacity-building opportunities through conferences, seminars, webinars and workshops. It is stated that students are familiarised with the UDS Research Ethics Policy that strives to ensure good academic practice and conduct. Also, the SER includes that some PhD students may be granted teaching assistants positions. According to the SER, students at WACWISA have the opportunity to follow already established research paths and ongoing projects. If the research outputs are relevant to specific courses in the curricula, these specific research outputs may serve as a case study in the respective course. The student's handbook shows a typical PhD student study timeline with clear indications of when to undertake industry attachments, internship reports, the submission of progress reports, or data collection.

Experts' evaluation

a) Ex-post Situation

Learning resources

The University for Development Studies (UDS) has made significant strides in establishing laboratories that support basic research aligned with its practical approach. These state-of-the-art facilities provide researchers and students with the necessary infrastructure and equipment to conduct impactful studies across the disciplines under accreditation. While some laboratories are still under procurement, UDS remains committed to providing cutting-edge infrastructure and resources to support practical research across disciplines. These facilities contribute to the university's mission of promoting sustainable development and finding practical solutions to real-world problems.

The UDS Experimental Farm catalyses research advancement, which is commendable. This facility accelerates agricultural research by providing a dedicated space for experiments and collaboration. Equipped with relevant technology and diverse agricultural landscapes, UDS researchers can test innovative farming practices and optimise crop yields. The farm pushes the boundaries of knowledge through interdisciplinary

collaboration and partnerships and drives scientific progress. Additionally, by leveraging its resources and expertise, the UDS Experimental Farm has the potential to generate income through entrepreneurial initiatives and industry partnerships.

As a direct reaction to the pandemic, UDS implemented a broader e-learning platform for students and staff. During the site visit, the experts learned that this platform is no longer active. However, given the increasing need for flexibility in learning approaches, the experts believe that UDS should consider re-activating its e-learning platform even after the pandemic for several compelling reasons. While the pandemic forced many educational institutions to transition to online learning as a temporary measure in general, the discussion showed that there are numerous benefits to maintaining and leveraging e-learning platforms in the long term, in particular for WACWISA, e.g. flexibility in terms of when and where learning takes place, and accommodating diverse learner's needs. The experts believe that a blended learning approach that combines both online and in-person teaching will be supported by re-activating the e-platform. The experts have seen that currently, WACWISA has several informal communication instruments available that are fit for purpose in the short term but less in the long run. However, the experts also acknowledge that UDS is currently struggling with a consistent provision of its ICT system, making it necessary to switch to informal communication. Despite that, the experts state that the re-activation of an e-learning platform positions WACWISA to better respond to future challenges and disruptions that may arise. By maintaining an established digital infrastructure, institutions can quickly pivot to online learning modes during unforeseen circumstances, ensuring minimal disruption to the educational process. This adaptability strengthens institutional resilience and continuity. Therefore, the re-activation should be envisaged promptly.

The experts have understood that the Ghanaian government primarily pays teaching staff salaries while facilities have to be covered by the universities themselves in Ghana. Therefore, alternative sources have to be found by UDS. From the expert's perspective, establishing entrepreneurship and innovation hubs clearly located at UDS could be a possibility to provide support services to students, faculty members, and researchers. These hubs can attract funding from investors and donors interested in supporting innovative ideas and startups. Such initiatives can promote entrepreneurship, technology transfer, and economic development, generating additional university revenue. In addition, UDS could seek international collaborations and secure grants from global funding agencies and foundations. Collaborative research projects and capacity-building initiatives with international partners can provide access to funding, expertise, and resources supporting various university activities. As outlined above, the importance of the e-learning platform might play an important role here because embracing digital technologies and e-learning platforms can provide cost-effective solutions for expanding access to education and generating revenue. This might lead to a somewhat blended approach to learning, including distance learning or massive open online courses (MOOCs), which can develop income reinvestment into university development. In total, sustainable financial management is vital here, but the experts have no doubts that effective financial management practices are implemented at UDS and WACWISA.

Student support

The University for Development Studies (UDS) deserves commendation for its commitment to student support and establishing a robust institutional framework that prioritises the well-being and success of its students once enrolled at UDS and, respectively, at WACWISA. Through its comprehensive range of support services, UDS has consistently demonstrated its dedication to nurturing a conducive environment for academic growth, personal development, and overall student satisfaction.

One of the notable aspects of UDS's student support system is its emphasis on academic guidance, especially at the beginning of the studies. The university recognises that every student is unique, with diverse needs and aspirations. To address this, UDS offers personalised academic counselling, ensuring students receive tailored

guidance throughout their educational journey. This approach enables students to make informed decisions about their course selection, engage in research opportunities, and maximise their academic potential.

UDS also excels in providing a nurturing environment for holistic development. Recognising that student success extends beyond the classroom. The university offers various extracurricular activities, clubs, and societies that cater to diverse interests and passions. These platforms enable students to explore their talents, develop leadership skills, and foster social connections. UDS promotes a well-rounded student experience and prepares individuals for life beyond graduation by encouraging active participation in non-academic pursuits.

Furthermore, UDS places significant importance on the well-being and welfare of its students. The university maintains a comprehensive health and counselling centre that provides medical care, psychological support, and counselling services. This commitment to student welfare ensures students access the necessary resources to maintain their physical and mental well-being, promoting a thriving student community.

The institutional framework at UDS is designed to promote effective communication and student engagement. The university organises regular forums, town hall meetings, and student-led initiatives to encourage dialogue between students, faculty, and administrators. This open and inclusive approach allows students to express their concerns, contribute to decision-making processes, and actively shape the policies and programs that affect their lives. UDS values the voice of its student body, making them integral partners in the institution's continuous improvement and development. The experts have learned that the WACWISA programme currently do not include exchange opportunities for students in the programme, but institutionally the framework allows for recognition mechanisms, as outlined above.

In summary, the University for Development Studies has created a commendable student support system and institutional framework that prioritises the needs and success of its students. By providing academic guidance, fostering holistic development, prioritising student well-being, and promoting student engagement, UDS has established an environment that enables students to thrive academically, personally, and professionally. The university's commitment to student support sets an exemplary standard for higher education institutions. It reinforces UDS's reputation as a leading institution in nurturing the next generation of leaders and change-makers. In consequence, students have confidence in the system of UDS.

Research environment

The PhD programme "Irrigation and Drainage Engineering" provides PhD students with comprehensive and familiar guidance and support arrangements, ensuring a conducive research environment. PhD students are offered personalised supervision and mentoring to assist them throughout their research journey. This support extends to aiding students in publishing their work and providing valuable insights on effective publication strategies.

Regarding practical placements and internships, students receive substantial support from the programme, while others have contacts in their home countries. Thus, assistance is given to help students identify and secure practical placements that align with their research interests and career goals. The programme facilitates connections with relevant organisations and institutions, enabling students to gain hands-on experience and apply their theoretical knowledge in real-world settings.

The programme emphasises student diversity and consider it a vital aspect of the learning environment. Resources and support services are allocated and planned in a manner that considers the students' diverse backgrounds and needs. The programme fosters an inclusive and supportive atmosphere where all students can thrive and excel.

To promote national and international academic exchange, PhD students are provided with sufficient and appropriate opportunities. They are encouraged to attend workshops and participate in conferences, both nationally and internationally when funding is available. This enables students to broaden their horizons, establish connections with scholars in their field, and gain exposure to diverse perspectives and research methodologies. The site visit has shown that WACWISA recognises the importance of equipping doctoral students with the necessary skills for a future research career, and the programme actively supports their skill development. However, the experts believe that a precious instrument could strategically include the PhD students in teaching undergraduate programmes at UDS.

The experts believe that allowing PhD students to teach in undergraduate programmes brings numerous benefits for both the university and the students involved. PhD students possess deep knowledge and expertise in their respective fields, making them valuable resources for high-quality instruction. Moreover, PhD students bring fresh perspectives and cutting-edge research insights to the classroom, enhancing the learning experience for undergraduates. Being up-to-date with the latest developments in their fields, they contribute to a more dynamic and engaging educational environment. PhD students also may serve as mentors and guides to undergraduates, sharing their experiences and offering valuable advice on research, graduate studies, and career paths. This mentorship fosters a supportive academic community and inspires and motivates undergraduate students to pursue their educational and professional goals. The proximity of PhD students to their undergraduate education and their current advanced research makes it easier for them to connect with undergraduates. This connection allows them to better understand the challenges undergraduates face and provide relatable guidance and support.

Allowing PhD students to teach undergraduate courses benefits the students and provides valuable teaching experience for the PhD students themselves. Teaching is a crucial skill for academic and research careers, and this opportunity enables PhD students to develop their teaching abilities, communication skills, and pedagogical techniques. Lastly, involving PhD students in teaching also helps reduce the teaching workload for faculty members, allowing them to focus on their research, mentoring graduate students, and other academic responsibilities. This redistribution of teaching responsibilities ensures that high-quality instruction is maintained while providing faculty members more time to excel in their areas of expertise.

Overall, the reality of the research environment for the programme is characterised by guidance and support arrangements. The programme strives to create an inclusive and enriching research environment that nurtures students' academic and professional growth.

b) Reconsideration evaluation

The experts believe that UDS has demonstrated a proactive approach in addressing the findings from the accreditation review.

In the initial assessment the experts identified the need for a comprehensive e-learning platform to support diverse learning modalities and ensure continuity in education. Although the dedicated e-learning platform at UDS remains inactive, this has not hindered the delivery of education. Instead, the university has successfully utilized alternative digital tools such as Zoom, Google Meet, and Microsoft Teams. These platforms have been integrated into the university's educational infrastructure, providing a flexible and responsive approach to online learning. The university has gone a step further by providing a dedicated Zoom account for all staff members, facilitating seamless access to virtual classrooms and meetings. The adoption of these alternative tools has proven effective, offering the flexibility needed to cater to the diverse needs of learners, thereby enhancing institutional resilience and continuity. Despite the current success with these tools, there is a recognition of the potential benefits of reactivating the e-learning platform to provide a more comprehensive and unified digital learning experience.

Furthermore, the experts focused on the involvement of PhD students in teaching, which was previously optional. Building on the recommendations from the expert's panel, the university plans to implement 'Graduate Teaching' as a mandatory component for all PhD students. This initiative is designed to provide PhD students with valuable teaching experience, thereby enhancing their pedagogical skills and promoting professional development. The introduction of this requirement aims to enrich the undergraduate learning experience by leveraging the advanced knowledge and fresh perspectives that PhD students bring.

To support this initiative, UDS has developed a detailed document outlining the guidelines for graduate teaching. According to these guidelines, PhD students will be required to teach at least two undergraduate courses, chosen based on their expertise and preferences, across any department or faculty within the university. The guidelines also stipulate that the teaching performance of PhD students will be systematically evaluated by academic staff. An evaluation form, to be completed and signed by the PhD students, will provide a structured assessment of their teaching effectiveness and professional growth. This evaluation process not only ensures the maintenance of high teaching standards but also offers constructive feedback for PhD students, fostering their development as educators.

Conclusion

The criterion is fulfilled.

7. Public information

Doctoral degree

Impartial and objective, up-to-date information regarding the programme and its qualifications is published regularly. This published information is appropriate for and available to relevant stakeholders.

[ESG 1.8]

Description

The dissemination of relevant information on the study programme is located at the UDS Public Relations unit at the university level. The SER states that the primary source of information for the advertisement of the programme is the university's homepage, social media, and newspaper publications. It is stated that on the relevant homepages for the programme, information on the intended learning outcomes can be accessed via the student handbooks. WACWISA also has a communications officer, mainly in charge of the programmes within the centre. The admission requirements and selection procedures are accessible in the relevant calls for applications.

Experts' evaluation

a) Ex-post Situation

Public information plays a crucial role in the functioning and growth of African universities. It serves as a vital means of communication and engagement with various stakeholders, including prospective students, parents, researchers, funding agencies, government bodies, and the general public. Accessible and up-to-date information helps build trust, transparency, and accountability within the academic community and fosters an environment conducive to academic excellence and development.

The experts observed that in the case of the University for Development Studies (UDS), ownership of public information is currently an issue, and the representation of up-to-date information available to externals underscores the significance of accurate and accessible information. The ownership issue, specifically regarding the UDS main homepage/departments and its association with the West Africa Centre for Water, Irrigation, and

Sustainable Agriculture (WACWISA) homepage, poses challenges in providing up-to-date information to external stakeholders. Although the experts learned that students inform themselves instead via social media, the experts still believe that the UDS main homepage is currently under further development, hindering the dissemination of accurate and timely information to prospective students, researchers, and other interested parties.

First and foremost, accurate and up-to-date public information is crucial for student recruitment. Prospective students rely on accessible information to make informed decisions about their education. UDS can attract and enrol qualified students by providing comprehensive details about programmes, faculty profiles, admission requirements, and campus facilities. However, in the case of WACWISA, the need for up-to-date information poses challenges in effectively communicating with potential applicants. Currently, the homepage does not offer any information on the application requirements. This can lead to confusion and missed opportunities for the university to showcase its offerings and attract suitable candidates.

In addition to student recruitment, public information is vital for fostering collaboration and research partnerships. External researchers, institutions, and funding agencies rely on accurate and current information to identify potential collaborations with UDS faculty and researchers. UDS can attract external researchers and institutions interested in collaborative ventures by providing detailed information about ongoing research projects, areas of expertise, and available resources. However, the presence of outdated information on the WACWISA homepage can hinder these partnerships, as it may create uncertainties about UDS's research capabilities and hinder the university's growth in development studies.

Furthermore, public information plays a crucial role in accessing funding opportunities. Universities rely on public information to showcase their achievements, research breakthroughs, and potential for impact. Accurate and up-to-date information is vital in attracting funding from governmental and non-governmental organizations, philanthropists, and private sector entities. Funding agencies and donors often rely on this information to assess the credibility and potential impact of the university's projects and initiatives. However, suppose UDS fails to provide accurate and timely updates regarding its ownership issue. In that case, it may miss out on valuable funding opportunities that can support its growth and contribute to its mission of promoting sustainable development. Therefore, this matter has to be addressed soon.

b) Reconsideration Evaluation

The follow-up review of the broader UDS digital platforms, including the main university homepage and departmental websites, shows a notable difference in the level of detail and accessibility of information. While the WACWISA resources are exemplary, similar comprehensive content is not consistently available across the UDS web page. The lack of uniformly detailed information across all platforms may challenge presenting a cohesive and transparent image of the university. Accurate and accessible online information is crucial for prospective students and collaborators when making decisions. Therefore, it is recommended that UDS review and enhance its public information dissemination strategy. This should include expanding detailed and up-to-date information on the main university homepage and departmental websites. Aligning all content with the high standard set by WACWISA will enhance UDS's transparency and reliability (**Finding 1**).

Conclusion

The criterion is partially fulfilled.

Findings

1. It is essential for the programme to ensure that detailed and up-to-date information is consistently available on the relevant university and departmental websites.