

ANNUAL REPORT 2024

RWESCK MANAGEMENT



ANNUAL REPORT 2024

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DECEMBER, 2024



EXECUTIVE SUMMARY

The Regional Water and Environmental Sanitation Centre Kumasi (RWESCK) has over the past two to three decades been steadily building capacity and rapidly establishing itself as one of the emerging beacons of hope for training essential human resources to serve the WASH sector within the region. From humble beginnings in the early years of the millenium, the Centre has undergone a radical transformation, churning out astute leaders and innovations across various organizations.

Established as an Africa Centre of Excellence under the Department of Civil Engineering at KNUST, RWESCK continues to teach and conduct research on various programmes outlined in this report, while undertaking impactful, problem-solving research and developing innovation and technologies that help address pressing WASH-related challenges. In the year under review, aside from academic pursuits, greater efforts were made and assiduous/strategies implemented to strengthen existing industrial collaboration while also the same time creating new linkages.

To promote the sustainability of the Centre, as the World Bank financial support package draws to a close, both academic and administrative taff members are being enrolled professional development workshops and training programmes to upgrade the Centre knowledge base. Other vigorously pursued measures include building the capacity of laboratory staff, with the aim of equipping them with the diagnostic and analytical skills required to operate the top-notch equipment procured, and preparing them for the commercialization of the laboratories. Training sessions with the Ghana Standard Authority(GSA) are also being actively pursued to achieve recognition as an ISO registered and compliant laboratory. Achieving this status will enhance improve our visibility and contribute to our Internally Generated Funds (IGF) through consultancies.

RWESCK strategizes to equip the next generation with essential innovative and entrepreneurial skills and knowledge. To facilitate this, the Centre organized an innovation challenge and entrepreneurial incubation workshop to instill in participants knowledge and mechanisms for translating academic innovations into enterprises and limited liability start-ups. In all its pursuits, the Centre remains focused on ensuring that its vision for a future initiatives aligned with both the Sustainable Development Goals and the African Union Agenda 2063 is not sidetracked.

At the beginning of the academic year, there were six outstanding DLIs that remained to be maxed. The leadership of the Centre relentlessly implemented functional measures, which eventually paid off and resulted in five out of the six outstanding DLIs being maxed. All documentation required to max the remaining DLI (i.e. DLI 7.5), which depended largely on the ratification of certain policies and directives by the University Council had been prepared. However, with the change in government in the county on December 7th, 2024, the existing Council was dissolved, and a new one had not been constituted, thus causing the delay in maxing that particular DLI.

RWESCK in collaboration with AgroParisTech, organized the 5th 'Water for all' chair International Scientific Workshop in Accra at the Alisa Hotel from the 5th - 6th, June 2024. Centred on the theme "Rethinking Water and Sanitation Services in the Light of Accelerating Climate Change - A focus on African Cities; the event brought together internationally reputed resources persons and personnel from WASH organisations to share their knowledge and experiences related to the theme,

Other collaborative activities with equally esteemed organizations such as UNICEF, EAWAG, HOHAI University, CWSA, JOSPONG GROUP, CLAFLIN University, were also hosted at the Centre. The Centre' participated in various workshops, country round table meetings and workshops that were organized by AAU and GTEC. These meetings were typically held to upgrade the knowledge of Centre personnel, monitor work progress and provide an ecosystem for networking. Emerging trends of environmental, economic, agricultural, health and social challenges pertinent to the region and continent as well as and functional feasible solutions and innovations were deliberated and disseminated for the benefit of stakeholder countries.

Another overarching goal that RWESCK continues to pursue is the attainment of ISO certification for its laboratories, reflecting its dedication to quality and standards. Partnerships have been established with entities such as the Community Water and Sanitation Agency (CWSA), focusing on the development of a Packaged Water System to remediate pollutants from drinking water. In another development, research on the creation of a robotic system to detect and monitor leakages within water distribution networks has been progressing steadily, and the pilot phase of the project will soon commence. In the field of sanitation, the team working on incorporating of digital technology to produce and deploy smart litter bins for solid waste collection has already begun the pilot phase of that project.

Going forward, RWESCK aims to forge ahead in its effort to establish itself as a hub and a repository of vital data and information, as well as a leading resource in the Water and Environmental Sanitation sector. Key areas of focus for 2025 will include, but are not limited to: enhancing research initiatives, strengthening the analytical acumen and capabilities of the laboratory workforce, and further improving the teaching environment, and fostering industry and academic partnerships. The Centre also plans to strategize and strengthen its financial resource mobilisation to ensure sustainability.

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1. Introduction

RWESCK has been a reputable Centre, building capacity in the water and sanitation sectors, conducting research on environmental challenges and producing impactful findings and knowledgeable, graduates equipped to tackle national and regional issues related to freshwater scarcity, water resources management, climate change impacts on the water - food -energy nexus, water supply and remediation; environmental sanitation, and hygiene.



Vision

RWESCK seeks to advance knowledge in water supply and resources, environmental sanitation, and hygiene for sustainable development. The Centre aims to be a recognized as the hub for advancing new knowledge, innovations and high-quality training in water resources, water supply and environmental sanitation for the sustainable development of West Africa



Mission

To provide an environment for teaching, research, mentorship and skill training in water and sanitation. The Centre intends to create a conducive and convenient atmosphere and ecosystem for advancing knowledge and expertise to address challenges for the industrial and socioeconomic development of Ghana and Africa as a whole, To nurture high calibre early-career researchers, provide high quality postgraduate education and conduct cutting-edge and innovative research in water resource, water supply and environmental sanitation

1.2 THE WASH PROBLEMS AND BRIEF HISTORY OF RWESCK

Water is the bedrock of healthy living, biodiversity, food production and security, energy generation and most industrial processes. A lack of access to safe water translates into slower economic growth. Some regions in Africa could see their GDP decline by as much as 6% by 2050 due to water-related stress. Rising populations, expanding economies, and shifting consumption patterns have intensified the demand for water resources at a time when 36% of the world's population lives in water-scarce regions. More than 2 billion people live in highly water stressed countries, and about 4 billion people experience severe water scarcity for at least one month each year (WWAP 2019).

Water stress is expected to worsen as global demand for water continue to rise. In fact, water consumption has increased sixfold over the past 100 years

and continue to grow. (UNESCO and UN-Water 2020). Projections indicate that by 2050, global demand for water will increase by 20% to 30% has increased unless consumption patterns change significantly (WWAP 2019). In Africa, it is well known that 15-20% of deaths are linked to water excreta related diseases. Addressing this crisis requires urgent actions to bridge human resources capacity gaps and improve infrastructure to train high-calibre professionals to tackle WASH-related challenges. The region also faces limited capacity for integrated water resources management, alongside pressing issues such as irrigation development, which is vital for climate change adaptation and food security. Solid and liquid waste management remains a major challenge, with insufficient technological capacity to support waste-to-energy, briquettes production, composting, and other useful transformations. Fecal sludge management and waste handling continues to be significant burdens. Another critical deficiency is the lack of digitized applications for waste management and computing systems. Compounding these challenges are the mismanagement of utility services, poor handling of waste from garages and mining operations, siltation of water bodies, and uncontrolled sand weaning- all of which worsen the state of water and sanitation in the region.

In the early 1990s, the Environmental Engineering section of the Department of Civil Engineering conceived and initiated the Water Supply and Environment Sanitation project with the primary aim of developing capacity in Ghana's WASH sector. At the time, the sector was burdened by very limited capacity and resources – critical infrastructure was virtually non-existent, and there was a lack of financial support to establish well-equipped laboratories capable of conducting multidisciplinary, sector-relevant research.

RWESCK is one of the eighty (80) Africa Centres of Excellence (ACE), located across more than fifty universities in twenty countries across the continent. These Centres deliver quality education, foster regional specialization and provide outstanding mentorship and internship opportunities. RWESCK specifically focuses on addressing water resources and environmental sanitation challenges in Ghana and Sub-Saharan Africa.

As a flagship research centre within the Department of Civil Engineering at KNUST, RWESCK benefits from and leverages strong collaborative linkages with other research centres and departments within the College of Engineering. This multidisciplinary collaboration enriches its academic delivery and enhances the integration of classical engineering principles- especially those related to water purification, infrastructure, water supply systems and water engineering into practical applications. In this context, the Centre has championed initiatives related to the water-Food-Energy-Health nexus, conducting research and hosting events aimed at promoting the national socio-economic development,

enhancing the sustainability of our water-related infrastructure, and addressing the pressing challenges of climate variability and change currently facing the continent.

1.3 The Dutch initiative

In 1996, the Water Supply and Environmental Sanitation Project (WSESP) was established with financial support of 2 million Euros from the Government of Netherlands. In 2004, the WSESP revised its operations and structure and was renamed the Water Resources and Environmental Sanitation Project (WRESP). During this period, an additional 1.5 million Euros was provided by the same source, with the overarching goal of expanding operations and broadening the scope of capacity development and mentorship.

A new phase of WRESP emerged through a collaborative initiative between the Government of Ghana and the World Bank, leading to the transformation of WRESP into the Regional Water and Environmental Sanitation Centre, Kumasi (RWESCK) which operated under the first phase of Africa Centres of Excellence (ACE) project from 2014 - 2019.

Under the second phase of the ACE project, RWESCK received an unprecedented US\$8 million in financial support from the World Bank. This support was a game-changer, significantly boosting infrastructural development, including the construction and improvement of laboratories, lecture theatres, auditorium, library, computer rooms, conference halls, a cafeteria and office spaces. Beyond infrastructure, the funding also enhanced professional training for faculty, strengthened research and customized training programmes, and introduced several new postgraduate programmes. The academia-industry interface was also intensified to provide students with increased opportunities for industrial exposure and internships.

Recognizing the Centre's positive progress, the World Bank provided additional funding of US\$5.4 million under the ACE IMPACT phase, which spanned from 2019 to 2024.

Over the years, key questions that has continued to fuel enthusiasm for the Centre's programmes remains:

What drives technological capacity building?

What inspire creativity regularly?

What motivates innovation?

What will promote consistently Academia - Industry partnership?

What will enhance entrepreneurship in all sphere of the Centres activities?

1.4 With these questions in mind a number of thematic areas were couched for the Centres academic programmes.

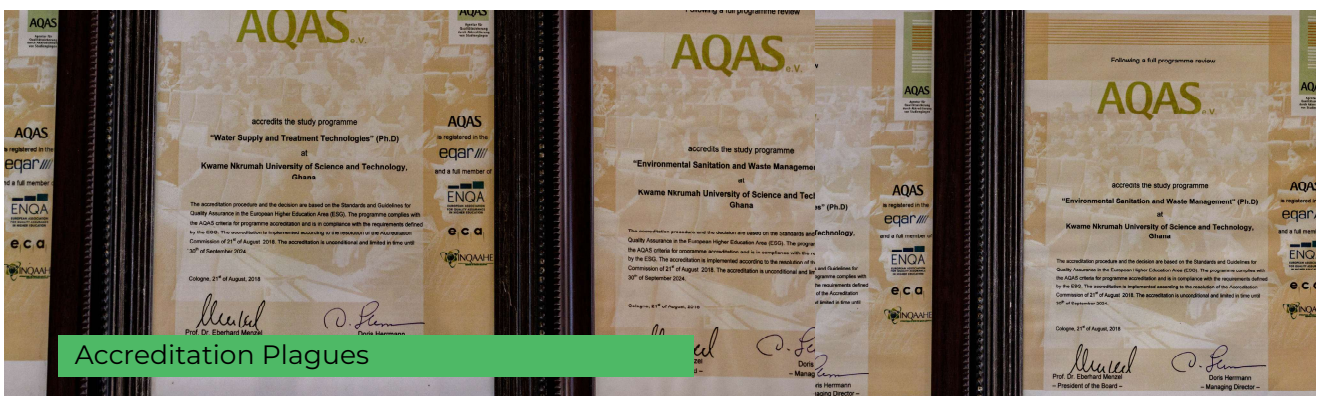
KEY THEMATIC AREAS

- Theme 1: Innovative Water Treatment Technology
- Theme 2: Innovative Water Distribution and Digital Technology
- Theme 3: Environmental Sanitation and Waste Management Technology
- Theme 4: Climate Resilience and Water Resources Management
- Theme 5: Water and Sanitation Governance

Over the years, Ghana and Sub-Saharan Africa have witnessed a rise in environmental adversities, ranging from acute freshwater shortages and , deteriorating raw water quality to complex, challenges in water resources management, climate-induced urban and peri-urban flooding and persistent concerns about water-food-energy security. Nation wide, significant efforts have been peddled to improve up sanitation and hygiene; however, the coverage, as stipulated in the Sustainable Development Goals (SDGs), calls for a doubling of efforts to accelerate progress towards achievement.

Our meticulously crafted programmes equip students with the necessary skills and expertise to spearhead initiatives that address these pressing challenges while contributing to the realization of the SDGs and the African Union Agenda 2063.

PROGRAMMES ACCREDITATION



The graduate programmes run at the Centre include PhD, MPhil, and MSc in the stated disciplines/ specializations. All the programmes are internationally and nationally accredited. In the year under review, re-accreditation documents were submitted to the Ghana Tertiary Education Commission for assessment and/ evaluation, seeking and reaccreditation for the programmes listed below. The current accreditations are set to expire by the end of 2025.

PhD:

Water Resources Engineering and Management
Environmental Sanitation and Waste Management
Water Supply and Treatment Technology

MPhil:

Water Resources Engineering and Management
Water Supply and Environmental Sanitation

M.Sc:

Water Resources Engineering and Management
Water Supply and Environmental Sanitation
Environmental Sanitation and Waste Management (weekend)
Water Supply Engineering & Management (weekend)
Disaster Prevention & Management (weekend)
Water Engineering (weekend)
Water Resources Engineering & Management (weekend)

2. Participants Enrolment for 2023 /2024 Academic Year

2024 ENROLMENT

In the year under review, the Centre enrolled a total of 36 students across various programmes. The 36 (Thirty-six) participants comprised 25 males and 11 females. Thirty (30) were enrolled in the Masters programmes while 6 (Six) comprising 4 (four) males and 2 (two) females, were admitted to the PhD programmes. The details of the admissions are provided below:

Table 1 Enrolment Statistics.

Programme	2023/2024 Enrolment	Regional Students	Ghanaian Students
Doctoral Programmes			
PhD Water Resources Management	4	-	
PhD Environmental Sanitation and Waste Management	2	-	-
PhD Water Supply and Treatment Technology	0	0	0
	6	0	6
Masters Programmes			
M.Sc. Environmental Sanitation and Waste Management	8	0	8
M.Sc. Water Supply Engineering and Management	8	-	8
MPhil. Water Resources Engineering and Management	8	-	8

Programme	2023/2024 Enrolment	Regional Students	Ghanaian Students
MPhil. Water Supply and Environmental Sanitation	12	-	12
Total	36	-	36

ADMISSION LISTS

PHD WATER RESOURCE ENGINEERING AND MANAGEMENT

Atakorah Edward
 Ayer Joseph Tawiah
 Amprofi Ampah Amproche
 Kumah Mabel (Miss)

PHD ENVIRONMENTAL SANITATION AND WASTE MANAGEMENT

Senya Lawrence Mawumenyo Kwashie Rev.
 Donkor Afua Adobea

MPHIL WATER RESOURCES ENGINEERING AND MANAGEMENT

Annan Lilly Christine (Miss)
 Bekoe Blessing Serwaa Nyamekye (Miss)
 Djokoto Keli Mawutor
 Sackey Magdalene (Miss)
 Agyei Kelvin Darko
 Danban Mario Kugre
 Gyamfi Kwadwo Simpe
 Mensah- Osei Kelvin Bonsu

MPHIL WATER SUPPLY AND ENVIRONMENTAL SANITATION

Marfo Sampson Yaw
 Abu-Bakari Tanko Mohammed
 Ngaaso Melody (Miss)
 Nyantakyi Emmanuel
 Opoku Daniel
 Affran Alfred
 Boateng Comfort (Miss)
 Lokko Carl Nii
 Owusu Henry Gyekye
 Boakye Samuel Nana Kofi

Amoah Felix Amponsah
Ramde Epiphane Gael

12.

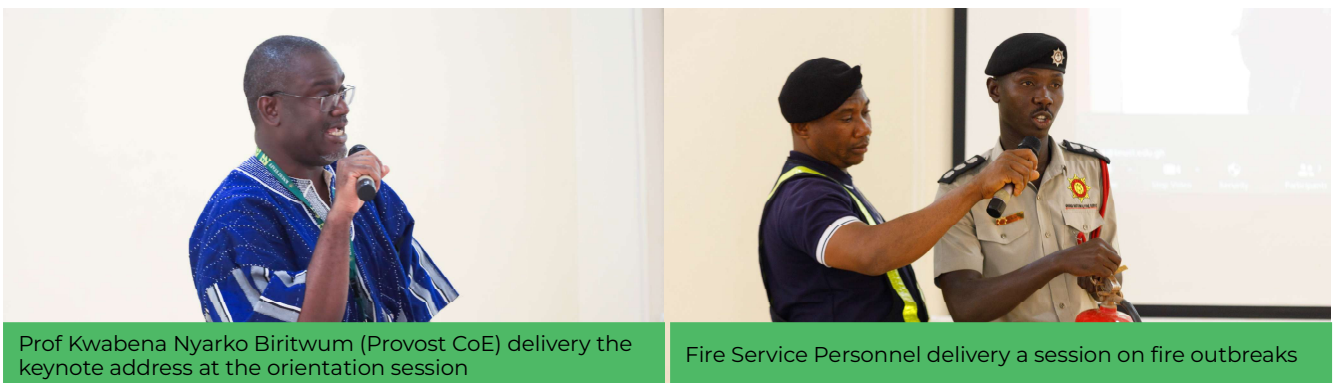
MSC. WATER SUPPLY ENGINEERING AND MANAGEMENT

Quayson Samuel Junior
Salah Evans Kwame
Doku Seth Osabu
Addai Frimpong Akwasi
Dzotefe- Mensah Ernest Kafui
Nti Lois Bonah
Millicent Kyeremah Agyei
Desmond Boakye Ansah

MSC. ENVIRONMENTAL SANITATION AND WASTE MANAGEMENT

Aboagye Nathaniel Akwesi
Adu-Gyamfi Daniel
Akorfu Monica Dzifa Yawa
Boye Vincent
Gyimah Alex
Obeng Michael
Taiye Emeliaadde
Yeboah Bismark Kofi

FRESHMEN ORIENTATION



In January 2024, RWESCK welcomed students from across the sub-region. The orientation, held at the Centre’s Auditorium, featured distinguished faculty members, including the Centre Director, Prof. Richard Buamah and Prof. Geophrey Anornu (Deputy Director), who introduced the students to RWESCK’s vision and research themes. The freshmen actively participated engaged in a Q&A, expressing both their enthusiasm and curiosity about academic journey ahead.



The College Librarian (Mr... presenting an exposition on use of the College Library resources)



Sessions of the New Post graduate participants



Some faculty members (Prof G. Anornu, far left) – Deputy Centre Director

3. Quality of Education and Research (DLI 4)

PHD, M.SC.AND MPHIL GRADUATION

A total of 7 (seven) PhDs, 27 (Twenty-seven) MSc and 6 (Six) MPHIL students were graduated ion March 2024 and November 2024 during the 57th and 58th KNUST Congregation ceremonies respectively.

Table 2: Ph.D. Graduates

S/N	NAME
PHD - Environmental Sanitation and Waste Management	
1	Adjei-Boateng Augustina (Mrs)
2	Ahmed Issahaku
3	Obeng Panin Asirifua (Mrs)
PHD - Water Resource Engineering and Management	
4	Acheampong Albert
5	Adam Ayuba Bene
6	Appiah Boamah Linda (Mrs)
7	Kouacou Boadu Adjei Carl Auguste
MPHIL - Water Resources Eng. And Management	
8	Kusi - Afrakoma Zenobia (Ms)
9	Owusu-Korkor Asante

S/N	NAME
MPHIL. Water Resources Engineering and Management	
10	Anno-Onuamah Jeremiah
11	Kloe Eunice Mawuena
MPHIL. Water Supply & Environmental Sanitation	
12	Addai-Yeboah Beatrice (Mrs)
13	Tetteh, Deborah Ayerkwor (Ms)
MSc. Water Resources Engineering and Management	
14	Annan Kevin Buah Kofi
15	Dogoli Antaba Richmond
16	Gyampoh Juliet (Mrs)
17	Zubair Usman Anuhi
18	Mensah Gloria Mame Bedu (Ms)
19	Obenewaa Benedicta (Ms)
MSc. Water Supply and Environmental Sanitation	
20	Abudu Yussif Kwabena
21	Adotey Maame Afua Chardey (Ms)
22	Amidu Ambadi
23	Appiah Gifty (Ms)

S/N	NAME
24	Fordjour Jephter
25	Mensah - Bonsu, Emmanuel Alexander Kofi
26	Mwinlaaru, Ivon Dekumwin
27	Okletey, Christabel Larko (Ms)
28	Thompson, Ebenezer
29	Twum, Francis Adu
30	Agangiba Simon
31	Apo-Nartey Sylvanus Teye
32	Baah Godfred Kwaku
33	Badger Gabriel Nii Noi
34	Brakye Bernard Fosu Yaw
35	Yeboah Emmanuel Kwabena
MSc. Water Supply Engineering and Management	
36	Acquah Thomas Yoofi
37	Annor Adjei Emmanuel
38	Kwarteng Kwame Agyei
39	Nkrumah Daniel
40	Sampson David Kwesi

GRADUATION RATE

Table 3: Graduation rate

S/ No.	Programmes	Year of Enrolment	Total No. enrolled	Number Graduated	Percentage (%)
1	MSc - WREM & WSTT & ESWM (All programmes) MPhil - WSES & WREM	2015 / 2016	25	25	100
2		2016/ 2017	47	47	100
3		2017/2018	39	38	100
4		2018/2019	46	46	100
5		2019/2020	43	39	88.37
6		2020/2021	31	30	93.54
7		2021/2022	46 (30, 16**)	30	65.22-
8		2022/2023	42 (30, 12**)	12	-
9		2023/2024	31 (19, 12**)	-	-
10		2024/2025	36 (16, 20**)	-	-

S/ No.	Programmes	Year of Enrolment	Total No. enrolled	Number Graduated	Percentage (%)
1	PhD - WREM & WSTT & ESWM (All programmes)	2015 / 2016	18	18	100
2		2016/ 2017	10	10	100
3		2017/2018	16	11	68.75
4		2018/2019	10	5	50
5		2019/2020	20	11	55

6	PhD - WREM & WSTT & ESWM (All programmes)	2020/2021	16	1	6.25
7		2021/2022	27	-	-
8		2022/2023	13	-	-
9		2023/2024	6	-	-
10		2024/2025	6	-	-

Research and Publications (DLI 4.2)

With regard to the dissemination of scholarly research findings, the Centre has produced eighteen (18) scientific publications. Currently, there is ongoing research, supported through collaboration with the Africa Environmental Sanitation Consult (AfESC) aimed at addressing the financing gaps and cost recovery challenges associated with Solid waste management. In addition, the Centre is working with the Community Water and Sanitation Agency to improve utility management.

Teaching and Learning Environment

The Centre has purchased twenty (20) new laboratory equipment items to bolster innovative research. Some key equipment such as the AAS and GC, which were supplied and installed by WAGTECH were and had been found to have some compatibility issues and are currently being addressed/tended to by WAGTECH for rectification.

Training Of Laboratory Personnel

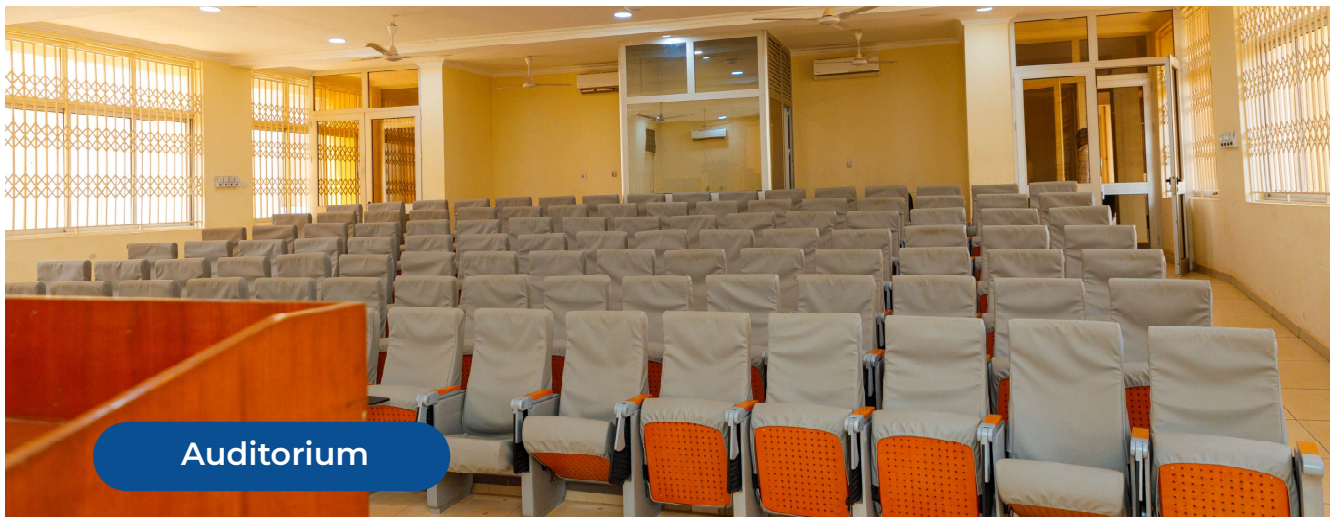
One of the major facilities earmarked for commercialisation is the Centre's laboratories, which houses state-of-the-art equipment, including a scanning electron microscope (SEM) and X-ray diffractometer (XRD). To pursue this goal for income generation, core laboratory personnel Mr. Mandela Toku (Lab Manager) and Ms. Agnes Tutuwaa (Lab Assistant) have been supported to participate in national, regional, and international training programmes to upgrade their diagnostic, analytical, and reporting skills for XRD and SEM operations. Training programmes completed in 2024 include: X-TechLab Training sessions on "Introductory Course in X-ray Crystallography" and "Material science and X-ray imaging" held from 21st to 31st May and 18th to 29th November, respectively, both in Benin. Additionally, they attended the 59th Course of the International School of Crystallography on "Powder Diffraction: Advancing Real Materials in the Information Era" held in Erice, Italy from 31st May to 8th June. The laboratories are targeting ISO certification in the near future. To support this goal, relevant GSA training sessions for the laboratory personnel were initiated in 2023 and are scheduled to span two years.

4. Infrastructure Development, Renovations and Maintenance

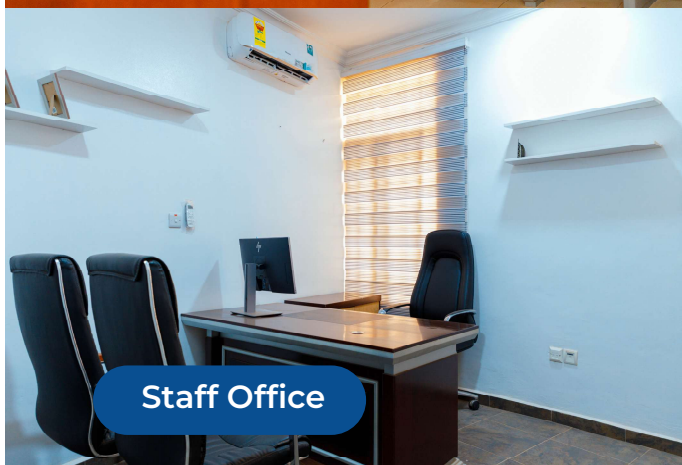
Several facilities at the Centre were upgraded during the year. The reception area received a facelift with improved furniture. The computer hall was retiled, with broken and dislodged tiles replaced. Electrical fittings were installed, and full complement of computers and electronic gadgets was set up.

All installed Air conditioners were all serviced, and malfunctioning units were either repaired or replaced. Identified Roof leakages in parts of the Centre's buildings were fixed. The auditorium and conferences rooms were also included not left out in of the upgrade and maintenance efforts. Electrical fittings, curtains, additional furniture, and painting were undertaken to enhance the Centre's overall image. To reflect the Centre's commitment environmental integrity, the compound surrounding the Centre was beautified with ornamental plants and rock gardens.





Auditorium



Staff Office



Laboratory



Computer Lab



Cafeteria



Conference Room

5. Relevance of Education and Research (DLI 5)

5.1 Delivery of Impactful Education and Research - Short Courses (DL 3.3)

The financial support from the World Bank, along with the operational directives outlined under DLI 3, facilitated the delivery of several short courses in recent years. Most Participants of these courses were sponsored. Fortunately, the requirements for the DLI 3.3 have been fully satisfied, associated revenue has already been accredited to the Centre' accounts.

With the World Bank's sponsorship expected to end in 2025, there is a pressing need to implement strategic measures to sustain the momentum. A committee has been established to identify demand driven, market-relevant short courses to be run subsequently and ensure that resource persons are appropriately remunerated. The leadership of the Centre is also opined to facilitate the identification of flagship projects for sustained in-depth research. The latter decision is envisage to help develop data banks and comprehensive detailed information on vital subjects and topics bothering on relevant national, regional and global issues. This initiative will boost further our branding, visibility and relevance for industrial partnerships.

Externally Generated Funds (DLI 5.1)

To equip both students and staff with practical knowledge in entrepreneurship and encourage them to align their research activities with entrepreneurial pursuit, two insightful webinars were organized featuring distinguished resource persons. The invitations for these seminars are provided below.

RUESCK
 Kwame Nkrumah University of Science and Technology
 Here2Grow
 COSMETICS & HOMECARE LABS

Join Our **Webinar**

Different Paths to Product Development


 Speaker
Dr Henry Brew
 CEO, Here2Grow

MONDAY
 25TH MARCH, 2024
 14:00 GMT
 Click or Scan to Register
<https://rebrand.ly/0mycaza>


Fire Service Personnel delivery a session on fire outbreaks

RUESCK
 Kwame Nkrumah University of Science and Technology

Webinar

Topic:
Technology Development Process and Commercialization


 Speaker
Prof. Bob Andoh
 Technology Consultant -AWD
 Consult Inc., USA
 Visiting Professor, Kwame Nkrumah University, School of Engineering and Built Environment

MONDAY
 18TH DECEMBER, 2023

Students' Internship (DLI 5.2)

In keeping with RWESCK's commitment to offering holistic education and bridging the gap between academic knowledge and practical industry experience, the Centre has continued with its annual internship program. The goal remains unchanged: to equip our future scientists, researchers, and policymakers with real-world experience that complements their rigorous academic training.

In line with this, 17 participants from the PhD, MSc and MPhil programmes were offered opportunities to undertake industrial internship during the year. The Centre facilitated these internships by securing placements in various industries. In some cases, support were sought from alumni who currently occupy influential positions within their organizations to help secure placements for current students.

Table 4: Internship Placements

S/N	NAME	PROGRAMME	PLACE OF INTERNSHIP
PHD			
1.	Addo Emmanuel Yaw	PhD Water Resource Engineering and Management	Ghana Water Limited, Koforidua
2.	Amihere-Ackah Paul	PhD Water Resource Engineering and Management	Tullow Ghana Limited, Takoradi
3.	Apafo Solomon Tawiah	PhD Water Resource Engineering and Management	Ghana Water Limited, Kumasi
4.	Yachori Bashiru	PhD Water Resource Engineering and Management	Clean Team Ghana, Kumasi
5.	Asare Danquah Justice	PhD Environmental Sanitation and Waste Management	Clean Team Ghana, Kumasi
6.	Juanah Mohamed Sahr Egbenda	PhD Environmental Sanitation and Waste Management	Agryhmet Regional Training Centre, Sierra Leone
MPHIL			
1.	Agbekey Bright Kwaku	MPhil Water Supply and Environmental Sanitation	Ghana Water Limited, Ashanti Production Region, Kumasi
2.	Kobi Samuel	MPhil Water Supply and Environmental Sanitation	Ghana Water Limited, Ashanti Production Region, Kumasi
3.	Arthur Emmanuel	MPhil Water Supply and Environmental Sanitation	Ghana Water Limited, Cape Coast

S/N	NAME	PROGRAMME	PLACE OF INTERNSHIP
4.	Osei Frank Nana	MPhil Water Supply and Environmental Sanitation	Ghana Water Limited, Takoradi
5.	Bonsu Joshua Anane	MPhil Water Supply and Environmental Sanitation	Community Water and Sanitation Agency, Kumasi
6.	Graham Ebenezer Kurtis Amoa	MPhil Water Supply and Environmental Sanitation	Community Water and Sanitation Agency, Cape Coast
7.	Mwinsuubo Albert Kaabieredomo	MPhil Water Supply and Environmental Sanitation	Community Water and Sanitation Agency, Cape Coast
8.	Nukornu Felix	MPhil Water Supply and Environmental Sanitation	Community Water and Sanitation Agency, Ho
9.	Kokloe Faustina	MPhil Water Supply and Environmental Sanitation	Kumasi Compost and Recycling Plant (KCARP)
10.	Mackin Phillis Esi	MPhil Water Supply and Environmental Sanitation	Water Research Institute-CSIR, Accra
11.	Saine Badou Ousainou	MPhil Water Supply and Environmental Sanitation	National Water and Electricity Company (NAWEC) Waste Stabilisation Pond, Gambia

Innovation Challenge (DLI 5.3)

To stimulate interest in developing innovations from the Centre' numerous technological research projects and to encourage start-ups by both faculty and participants, an innovation challenge competition was organized. This platform enabled participants to showcase their innovations. The innovations challenge sessions, held over a period of 12 days (26th August 2024 – 6th September 2024), brought together expert facilitators, RWESCK leadership and management. After a rigorous evaluation process, the team named: “Myco Substitutes” was adjudged the winner and recognized as the “ 2024 RWESCK Innovator of the year”. This decision emerged from a competitive pool of six innovative pitches (refer to: Appendix D for a google link containing concept notes from all six teams).

To support the winning team, tailored training modules were curated and delivered to adequately equip them with the necessary skills to manage a start-up that address pressing WASH (Water, Sanitation, and Hygiene) challenges.



Participants of the innovation workshop and resource personnel



Leadership of RWESCK and participants of the innovation/incubation workshop



Mr. Makafui (The College innovation officer) delivery a lecture doing the incubation workshop

Table 5: Externally Generated Funds

Funding Source	Amount	Purpose	PI/Co-PI
CWSA	GHS 332, 560.80	Development of Package Water Treatment plants and Innovations for Addressing Supply Network Challenges	Centre Director
Jospong Group of Companies	GHS 150,000.00	Solid waste management research	Prof. Sampson Oduro-Kwarteng

RECEIPTS AND PAYMENTS AS OF 15TH MAY, 2024**KWAME NKURUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY**

Regional Water and Environmental Sanitation Centre, Kumasi

RECEIPTS AND PAYMENTS FOR THE YEAR 2024**RECEIPTS**

TUITION FEES FROM POST GRADUATE PROGRAMMES	4,387.76
RECEIPTS-WORLD BANK	211,914.68
OTHER INCOME	25,057.48
TOTAL RECEIPTS	241,359.92

PAYMENTS

GOVERNANCE AND ADMINISTRATION	240,429.29
LEARNING AND TEACHING ENVIRONMENT	30,170.71
REGIONAL CAPACITY TRAINING	22,399.93
CENTRE VISIBILITY	10,365.33
ACADEMIC PARTNERSHIP	9,312.10
REGIONAL RESEARCH CAPACITY BUILDING	3,540.61
INDUSTRIAL PARTNERSHIP	1,130.61
TOTAL PAYMENTS	317,348.58
EXCESS OF INCOME OVER EXPENDITURE	(75,988.66)

6. Institutional Impact (DLI 7)

PARTNERSHIPS AND DEVELOPMENT IMPACT (DLI 2)

INSTITUTIONAL COLLABORATIONS

The Centre has partnered with a number of industries and institutions primarily in the WASH sector to undertake research projects, organize workshop, conferences, short courses, summer schools training sessions, community engagements and webinars aimed at addressing pertinent societal issues. The industries engaged in the year under review include CWSA, JOSPONG Group of Companies, etc. Other sister institutions and Non-Governmental Organisations that are our collaborators include: i) AgroParisTech, ii) EAWAG iii) UNICEF, iv) CLAFLIN UNIVERSITY v) WACWISA AND DJIBOUTI UNIVERSITY vi) HOHAI UNIVERSITY

COMMUNITY WATER AND SANITATION AGENCY (CWSA)

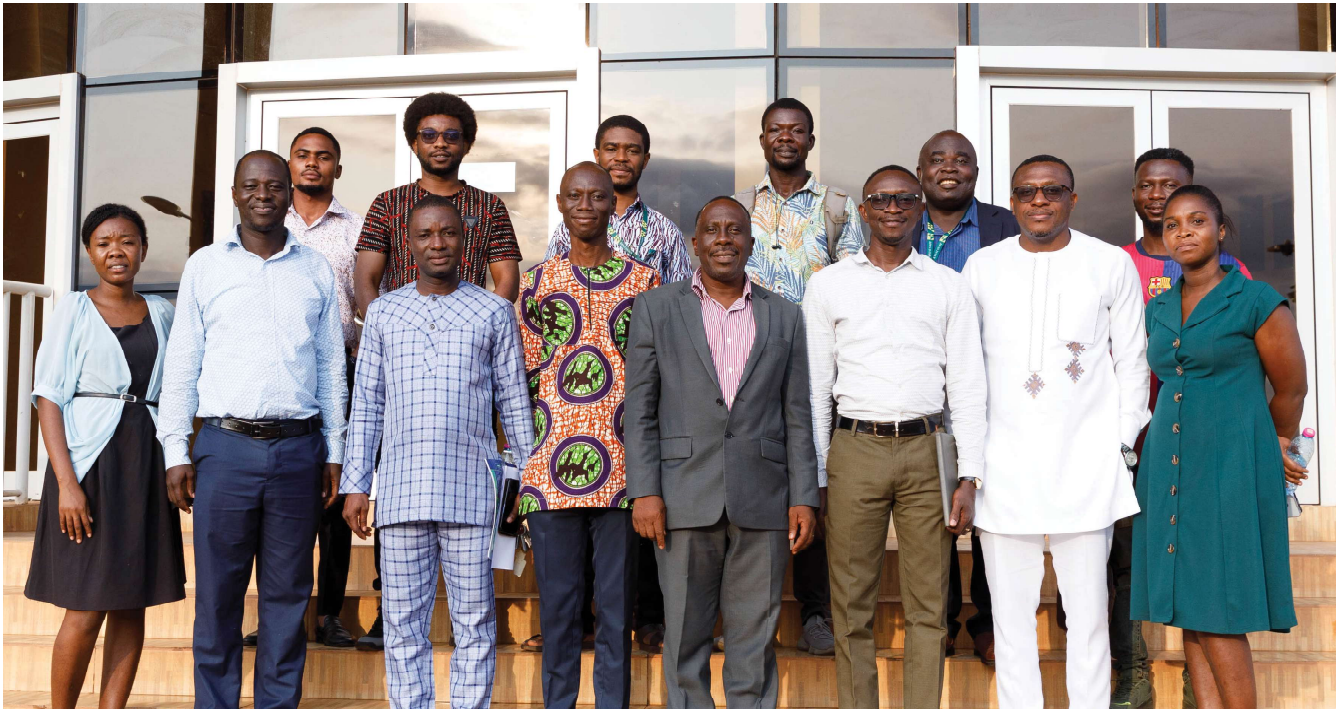
CWSA has the mandate of supplying water to small towns, peri-urban communities and rural areas. Across the country CWSA has played a vital role in supporting the livelihood of people in the low-income communities. CWSA provides drinking water using groundwater sources. However, in some of the regions ground water contain heavy metals and needs remediation. CWSA has been partnering with the Centre to research and develop a Packaged water treatment plant capable of removing toxic heavy metals and other harmful ions, in order to provide potable water for rural population. The research is progressing steadily; bench scale experiments have yielded promising trends that will ultimately lead to the development of a pilot scheme.

In another development, a project involving robotic technology for water loss detection and management is also gaining traction at the Centre.

JOSPONG GROUP OF COMPANIES

The Jospong Group of companies continues to be a beacon of hope in the Country's sanitation industry. Over the past two years, collaborative research aimed at executing various work packages related to the development of econometric cost and cost recovery models for solid waste management

services have been initiated. In addition, digital twin simulation tool for solid waste management services is also being developed. The research packages are being hosted at RWESCK, and graduate students have been assigned to carry out the associated activities.



Leadership and the Research Team working on the Solid Waste Project being sponsored by Josping Group Companies



Dignitaries that graced the graduation ceremony in Paris-France

Our collaboration with AGROPARISTECH dates back to 2022 when an MOU was signed, and partnership activities focusing on building capacity of personnel at the leadership level of WASH sector were prioritized. Pursuing that agenda, AGROPARISTECH in 2023 launched a customized 12- months programme named “International Executive Master - Water for All (IEM-OPT)” Cycle 2023-2024 (MS OPT). This training aimed to equip urban water and sanitation executive managers with strategic and operational skills to ensure a quality, sustainable and accessible service to all the people in their city or region. The training program which started in September 2023, had several sessions in 2024 and was organized around tools and expertise in general management, operational tools, strategic planning, and knowledge on water and sanitation management. The training is structured to support the trainees on three dimensions:

- Development of managerial and operational expertise
- Development of water and sanitation sectoral knowledge
- Personal transformation to become or support Leaders in your industry and company. The training had participation by top level WASH Industrial personnel from about 21 countries worldwide and the training centres were pitched in Ghana, France and others . One of the modules of the programme was held from 13th - 30th September, 2023 by experts from RWESCK and other Departments in KNUST. At the end of the training, participants were graduated in a grand ceremony in France in March,2024. The Centre was invited to deliver a keynote address at the graduation ceremony.



A section of the graduands of the AgroParisTech organised “International Executive Master-Water for AU IEM-OPT Cycle 2023-2024 MS,OPT”

The graduation meeting took place in Paris from the 14th to 16th March 2024. Participants included representatives from Ghana (represented by RWESCK DIRECTOR - PROF. Richard A. Buamah), Senegal (University of Cheikh Anta Diop), Benin (Abomey Calavi), representative of Bill and Melinda Gates foundation, a representative from the African Water Association (former Director, Mr. Ulsher Silvain), the Chair of SUEZ - France, the Director of UN SDG Champions, and representatives from AgroParisTec and representatives from Cambodia (ITC).



Prof. R. Buamah (RWESCK DIRECTOR) delivering an address during the Graduation Ceremony in Paris

The event began with a cocktail hosted by the Chair of SUEZ on the evening of 14th March. Graduating participants of AGROPARISTECH, who were due to be conferred their certificate on the 15th, were invited to interact and share their experiences from the one year managers training programme that they had undergone at AGROPARISTECH. Participants recounted several valuable lessons learnt but also expressed concerns regarding the implementation of the concepts upon returning to their home institutions or organizations. They noted that they had acquired skills, expertise and innovative ideas that are capable of driving significant change, these contributions might be rejected if they do not align with the strategic or operational priorities of their institution. In such instances the impacts of the training may not be fully realized, and the essence of the programme could be diminished.

The 15th March began with a meeting held at the headquarter of SUEZ, chaired by the Director of SUEZ. Representatives from the various institutions mentioned earlier participated in the three hour session. The main agenda focused on the challenges encountered in the training and capacity building within the Water and Sanitation Services sector. Discussions covered national and regional issues affecting the delivery of quality services in the water and sanitation industries across Sub-Saharan Africa and parts of Asia. Key topics included funding for training programmes, the sustainability of regular training programmes, and the design and implementing of customized short courses tailored to meet specific needs. Participants identified mechanisms, strategies and potential funding sources for supporting training activities as critical areas requiring focused attention. It was also recommended that opportunities for revenue generation through consultancy services be explored.

Additionally, the impacts of climate change which are already affecting the socio-economic development countries, particularly Sub-Saharan Africa and Asia were highlighted as requiring urgent consideration in the planning and

delivery of water and sanitation services.

In the light of the above, the forth-coming conference on Climate Change, scheduled for the 5th and 6th of June at the Alisa Hotel in Accra, Ghana, was announced and briefly discussed.

On the evening of the 15th March, a graduation ceremony was held at the AGROPARISTECH institute for 51 managerial participants who had successfully completed the Managers Training programme. Dignitaries from the countries represented in the graduating class were invited to grace the occasion and deliver congratulatory speeches to motivate and advise the new graduates.

In another development, AGROPARISTECH partnered with RWESCK to organize the “WATER FOR ALL” Chair international scientific workshop from 5th to 6th June, 2024. The theme for the workshop was “Rethinking Water & Sanitation Services in the light of accelerating Climate Change - A focus on African Cities”. The international workshop brought together urban water utilities managers, experts, scholars, and NGOs to explore appropriate research directions and actions required to stay on track in achieving the SDGs. Climate change has heightened uncertainties, with increasing incidences of floodings, drought and wildfires leading to population displacements and potentially contributing to political instability. Aside numerous presentations on climate change issues, the workshop featured poster presentations and social events designed to promote networking among participants.



Participants of the “5th Water for All” chair Scientific Workshop organised at Alisa Hotel in Accra.



A workshop session at Alisa Hotel

Crowning our linkage with AGROPARISTECH for the year under review, the Dean of AgroParisTech, Mr. Laurent Buisson paid a visit to the RWESCK on 6th November 2024. During his visit possible areas for effective collaboration between his companies, RWESCK and other departments in the University were explored.



Centre Director superintending Questions and Answers session during the workshop



Mr. Laurent Buisson (Dean of AGROPARISTECH) pays a courtesy call on Prof. Mrs. Rita Akosua Dickson – the Vice Chancellor of KNUST
Diane Brami and Julien Lecas, Representatives from French Embassy

EAWAG SUMMER SCHOOL

EAWAG works with the Centre to engage in collaborative workshop, season schools, seminars, access thematic laboratories for research, supervise summer schools, disseminate science communication and course material and conduct socially impactful projects. Over the year, a faculty member and a team of 13 PhD participants travelled to Switzerland to participate in a summer school organized with the theme “Accelerating SDG 6 in Sub-Saharan Africa: Scaling Solutions for the UN Water Action Agenda”.

Fourteen students were brought from Ghana and ten from Switzerland. It happened from 6th to 19th, April 2024. The seasonal school focused on water resources, sanitation and hygiene where participants were introduced to emerging trends in WASH and discussed concerned frameworks applied by organisations in the sector and to establish the intercultural exchange of ideas. To the end, the seasonal school provided participants with hands on learning opportunity to participants where they had the chance to interact with other people and extended stay of three months. Guidelines and support on research questions were offered and were also taken through presentation skills.



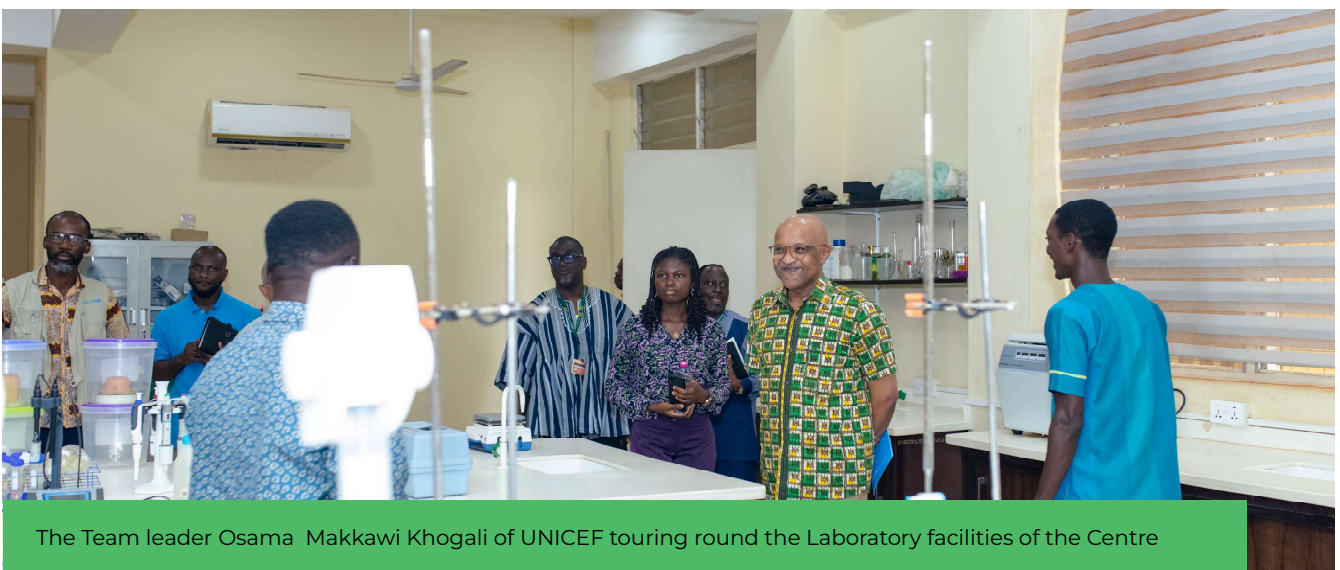
Team of post-graduate students and some faculty members in EAWA

UNICEF



The Provost, Centre Director, Management Team member hosted the Management Team of UNICEF led by Osama Makkawi Khogali the new Country representative

As a global major advocate for the rights and welfare of children, UNICEF has continued to be a champion and major player in the WASH sector. Going down the memory lane, it is worthy of note that some faculty members of the Centre has served as consultants for the esteemed organisation on projects such as CLTS, WASHTEC, Compendium of Sanitation and Hygiene Technologies, Development of District Level Spatial Planning Tools etc. In all these projects. UNICEF and consultants sought to leverage expertise, resources, and innovation to create lasting positive impact in communities throughout the country. In the year, the UNICEF Country Director, Mr Osama Makkawi Khogali paid a courtesy call on the Centre to fraternize with the faculty and discuss other areas for collaborations and familiarize himself with the facilities of the Centre



The Team leader Osama Makkawi Khogali of UNICEF touring round the Laboratory facilities of the Centre

CLAFLIN UNIVERSITY

In the 2023, a cordial linkage was established with one of the Universities in the Diaspora, specifically Claflin University. To garner more collaborative ideas and initiatives, staff exchange and correspondence dwelling on our common interest was ignited. In the light of this Prof. Wright visited the Centre in 2024 and a follow-up visit by Prof. Gloria McClutcheon in 28th June 2024 came off with the intention to cement the relationship, widening the scope of the relationship to make room for other disciplines in the College of Sciences specifically Department of Environmental Science and College of Agriculture to look at the problem of the fall army worm that tend destroy maize plantations. The Claflin University has expressed interest in working with the Centre and WASCAL to look at various issues of Climate Change and Climate variability. Going forward the Centre leadership would foster the linkage by initiating programmes for staff exchange, internships drafting of proposal with Claflin to seek funding for multidiscipline problem-solving research.



Prof Wright with Centre Management Team

Prof. Gloria McClutcheon, Prof R. Buamah, Prof Eric Forkuo and Prof. Agyare all of WASCAL after their Collaborative engagements

WAGWISA AND DZIBOUTI UNIVERSITY

In November, .2023, at the annual conference organized by AAU & World Bank in Cote d'Ivoire, a team of faculty members (from University of Djibouti spearheaded by the president of the institution, Prof. Djama Mohammed Hassan) that participated in the conference offered an invitation to RWESCK and WACWISA to visit Djibouti for discussions to explore possible grounds for collaborative capacity building projects in Water resources management and Agriculture. On 21st, January 2024, a Ghanaian team made of Prof. Richard Buamah (RWESCK), Prof. Geophrey Anornu (RWESCK), Prof. Abagale (WACWISA) and Dr. Thomas Apusiga Adongo (WACWISA), arrived in Djibouti

for the collaborative venture. The team met with the under listed top-level personnel from key educational and industrial establishments:

- i. Dr. Souleiman Omar Hoch and Dr. Gouled Abdi Miganeh (all of the Directorate of African Centre of Excellence in Logistics and Transport - CEALT),
- ii. Dr. Hassan Ali Barkad (Director of PhD Programs at University of Djibouti),
- iii. Dr. Julladin Mohamed (The Director General of the Centre for Studies and Research of Djibouti - CERD),
- iv. Mr. Mohamed Fouad Abdo (Director General of ONEAD)
- v. Mr. Egal Meiraneh (Director of Sanitation),
- vi. Mr. Ali Walib Mohamed (Manager of Desalination Plant),
- vii. Mr. Adabo Houmed Adabo (Head of Department, Douda Wastewater Treatment Plant),
- viii. Mr. Youssouf Ahmed (Head, Network Distribution Service).

The team engaged and assessed the needs of stakeholders in water, sanitation and agriculture sectors leading to capacity building within the sectors. The Ghanaian Team met with several stakeholders from Monday, January 22nd to Thursday, January 25, 2024, at their respective establishments and also undertook relevant field visits to solicit the necessary information. This was to unearth the human resource and infrastructure gaps necessary to support training in the sectors. The preliminary assessments of these resources were aimed at supporting teaching and learning as well as research when the study programs are finally developed. The Team held discussions with the various stakeholders focusing on the needs of the country – based on its vision/agenda for development especially relating to the water and agricultural sectors. The identified drivers and limiting factors relevant for growth and development of the Country were noted as climate change impact, water resources availability, agriculture expansion and the necessary human resources.

Variously, the sources of water discussed were drilled wells (boreholes) in Djibouti, desalination plant and drilled wells (boreholes) from Ethiopia. The Ethiopia wells are located about 300 km from the Djibouti City, appreciable high level of salt concentration in drilled wells of Djibouti whilst the cost of desalination is also high. Also, mention was made of the existence of earthen dams dotted round the country primarily for flood control.

The scarcity of water makes agriculture and potable water supply very difficult coupled with the environmental challenges of the Country especially evapotranspiration, stone and rock outcrops in the fields, and low interest levels in agriculture as a livelihood system.



RWESCK and WACWISA... Djibouti

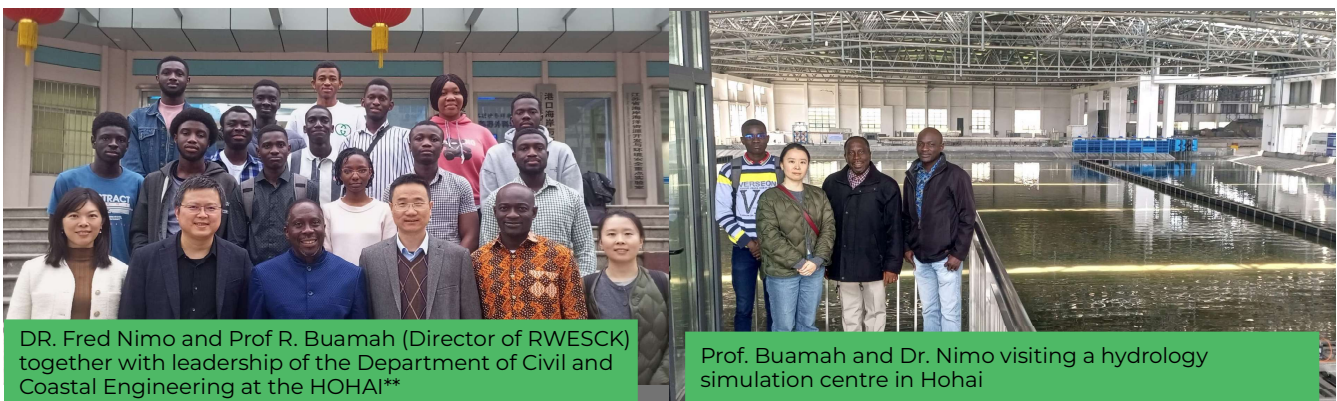
Discussions with the stakeholders indicated that, the water sector in Djibouti needs individuals with expertise at the master's and PhD levels to drive education and research. Tailor-made technical refresher trainings were also necessary to boost the skills and capacity of practicing technicians. Some of the course modules suggested for consideration were:

1. Water Treatment Systems
2. Pumps and Pumping Systems
3. Rural Water Supply
4. Drilling and Well Management
5. Material Science
6. Water Harvesting Systems
7. Crop Science
8. Animal Production Systems
9. Irrigation Science
10. Horticulture
11. Greenhouse Technology
12. Climate Change
13. Atmospheric Sciences/Meteorology/Weather Studies,
14. Electromechanical Systems
15. Laboratory and Water Quality
16. Geoinformatics/GIS
17. Water Systems Management/Water Production and Distribution Systems
18. Dam Construction & Management
19. Flood Management and Control
20. Groundwater Supply and Management
21. Hydrochemistry

22. Hydrology/Hydrogeology
23. Water Losses and Water Safety Planning
24. Water Governance
25. Solar and Solar Systems
26. Geophysics, etc.

HOHAI UNIVERSITY

In pursuance of our bid to foster more academic collaborations and partnering with recognized institutions of high standing, the Centre travelled to China, precisely HOHAI University, one of the esteemed Universities in Asia that has reputable Civil and Water Resources / Harbour / Offshore Engineering programmes. This institution currently has an MOU with KNUST Civil Engineering Department to run a double degree programme. From April 1st to 8th, 2024, the director (Prof. Richard A. Buamah) and Coordinator for the Double Degree programme (Dr. Frederick Owusu-Nimo) visited the HOHAI University at the invitation of the Leadership of HOHAI Coastal and Offshore Engineering. The mission of the visit was to interact with the Ghanaian Civil Engineering Undergraduate students currently domiciled in China and explore possibilities of partnering with HOHAI to run Water Resources and Offshore Engineering Programme at the master's level for our Ghanaian students. Possibilities of getting scholarship / sponsorship for the proposed programmes was also explored.



DR. Fred Nimo and Prof R. Buamah (Director of RWESCK) together with leadership of the Department of Civil and Coastal Engineering at the HOHAI**

Prof. Buamah and Dr. Nimo visiting a hydrology simulation centre in Hohai

On the 3rd of April after a brief meeting with the students, the HOD and Coordinator were taken round for a Campus tour and followed by a meeting with the Management team of HOHAI. The HOHAI team comprised Mr. Hongsheng Chen (Dean of International School), Prof. Yongxin WU (Vice Dean of Civil and Transportation Engineering), Ms Yan Li (Sectional Head of Admission Office - International School) and Ms Junyu Li (Sectional Head of Academic Office - International School). Issues deliberated upon included the following:

1. General Welfare and Grievances /concerns of the students - After brief introduction by the management of the HOHAI University, a presentation of the University of HOHAI was made to raise the curtain for the discourse.

2. At the first meeting it was explained to the host department runs only Coastal Engineering programmes and that another department host programmes in Civil and Geotechnical Engineering. A third Department, also in the same institution has the mandate of running Water Resource and Transportation. There for our dream of running Water Resources and Offshore Engineering Programme to come true, we need to engage with all the 3 stakeholder departments for inputs into the programme.
3. Academic feedback from management on the performance of the undergraduate students.

Generally, the students have been performing well and feedback from their tutors were positive and upbeat. The visit proved very positive, and management of the Centre is to devise and prepare the appropriate curriculum for the proposed Master's programme.



NORPART

The 2024 NORPART Summer School, part of the All4WASH initiative, took place from July 1st–14th at NM-AIST in Arusha, Tanzania. The theme was “Climate Resilient On-site Sanitation Systems for Sub-Saharan Africa Towns and Cities.” The program brought together 14 students, 10 facilitators, and 7 coordinators, along with researchers and professionals from around the world. It focused on building practical skills, encouraging innovation, and fostering collaboration in the Water, Sanitation, and Hygiene (WASH) sector.

Led by the Norwegian University of Science and Technology (NTNU), the All4WASH project partners with:

- Addis Ababa University (Ethiopia)
- RWESCK at KNUST (Ghana)
- NM-AIST (Tanzania)
- And universities in Mali, Uganda, and South Africa

Participants explored key sanitation challenges, gender impacts, on-site treatment technologies, urban planning, and the use of AI in sanitation systems — through lectures, field visits, lab work, and team projects.

This intensive program aimed to develop future leaders in inclusive and sustainable sanitation solutions for Africa and beyond.



(plates A,B and C)
RWESCK team of students that participated in the NORPART Summer School in Norway

ACE WATER III PROJECT

A dedicated committee at KNUST has been actively engaged in aligning the structures of RWESCK and other ACEs with the university’s overall administrative framework. This integration will further promote academic excellence and create a conducive environment for impactful research and teaching.



Dr. Charles Gyamfi and the IGAD Climate Prediction and Applications Centre (ICPAC), Kenya continues with collaborative effort for capacity building

DLI Achievement, by Centre

At the beginning of 2024, the remaining DLIs that remained to be maxed include: DLI - 2, 5.2, 5.3, 6.1, 6.2 and 7.5. The corresponding % that has been achieved for each of the mentioned remaining / outstanding DLI Were respectively: 50%, 98%, 0%, 84%, 84%,0%. The Table below is the results of funds disbursement information circulated by the World Bank and AAU during the regular periodic organized round table meetings.

Table 6

DLRsCC	DLI 2 (Development Impact)	DLR 3.1 (PhD Students)	DLR 3.2 (MSc Students)	DLR 3.3 (Short Course Students)	DLR 4.1 (Programme Accreditation)	DLR 4.2 (Publications)	DLR 4.3 (Teaching & Research Environment)	DLR 5.1 (Revenue)	DLR 5.2 (Internships)	DLR 5.3 (Entrepreneurship)	DLR 6.1 (Timely fiduciary reporting)	DLR 6.2 (Functioning Audit Committee & Unit)	DLR 6.3 (Web transparency)	DLR 7.1 (University-wide Regional Strategy)	DLR 7.2 (Competitive Selection)	DLR 7.3 (Institutional Accreditation)	DLR 7.4 (PASET Regional Benchmarking)	DLR 7.5 (Institutional Impact)	Total % (All DLRs including)
WAGMC	50%	53%	100%	91%	100%	100%	50%	100%	40%	0%	77%	15%	88%	100%	100%	100%	50%	100%	83%
TRECK	50%	98%	100%	88%	0%	100%	50%	100%	96%	0%	80%	80%	99%	100%	100%		50%	100%	80%
ACECOR	38%	98%	100%	100%	100%	100%	50%	100%	66%	68%	68%	73%	88%	100%	100%	100%	50%	0%	88%
WACWISA	50%	100%	84%	100%	100%	100%	50%	100%	45%	0%	73%	58%	84%	100%	100%	0%	50%	0%	83%
WACCI	50%	100%	100%	100%	0%	100%	50%	100%	100%	0%	96%	84%	100%					36%	86%
WACCBIP	50%	100%	80%	100%	100%	100%	100%	100%	22%	0%	87%	92%	100%					0%	88%
RCEES	50%	100%	100%	93%	100%	100%	50%	100%	98%	0%	92%	69%	100%	100%	100%	100%	50%	100%	91%
RWESCK	50%	100%	100%	100%	100%	100%	100%	100%	98%	0%	84%	84%	100%			100%		0%	92%
CoE_KEEP		100%	100%		100%		100%	100%	76%		84%	77%	100%						98%
Total %	48%	95%	96%	97%	82%	100%	68%	100%	73%	9%	79%	70%	95%	100%	100%	78%	50%	34%	87%

DLIs Achievements

OUTSTANDING DLIs

DLI INSITUTIONAL REPORT AS AT DECEMBER 2024

DLR Indicators	Current Status (%)	Remark
DLI 2: Development Impact of ACE	50	
2.1 Progress to impact	50	
2.2 Development impact	0	Awaiting Directives and template
DLI 3: Quantity of students with focus on gender and regionalization	100	

DLR Indicators	Current Status (%)	Remark
3.1: New PhD students	100	
3.2: New Masters Students	100	
3.3: New Prof. Short Course Students	100	
DLI 4: Quality of Education & research through international accreditation, research publications and improved teaching and research infrastructure	100	
4.1: Program Accreditation	100	
4.2: Research Publications	100	
4.3: Teaching & Research Infrastructure	100	
DLI 5: Relevance of Education and Research through externally generated revenue, internships, and entrepreneurship		
5.1: External Revenue	100	
5.2: Internships	98	Awaiting verification and payment
5.3: Entrepreneurship	70	Awaiting verification and payment
6.1		
6.2		
7.5		

In the tables below are the details of the activities and measured implemented to max the outstanding DLIs.

	Critical Achievements	Issues / Challenges	Next Steps and Recommendations
1	Establishment of a Sustainability Investment & Endowment Fund and Institutionalization and integration of the centre activities and regularization of staff appointments.	Financial constraints for sustained international re-accreditation	Diversify funding sources and create other revenue channels through the establishment of limited liability enterprises / spin offs from our innovation initiatives.
2	Remarkable increase in post-graduate enrolment, graduation, upgraded capacity of faculty for enhanced performance and consultancy services. The enrolment has enlisted an increase in female admissions; recording a thirty percent proportion of the total graduate admissions.	With the emerging environmental pollution trends and climatic challenges, there is the need to further upgrade firmware, database, laboratory equipment, technical skills set. Limited funding and resources are barriers to acquisition of these relevant resources.	Forster collaborations with more industrial partners and other centres of excellence and creation of technology parks for prototyping and piloting.
3	Gradually flourishing and fostered industrial collaborations geared towards undertaking impactful research projects, development of several technologies for treatment of water, wastewater and management of solid waste in the water and sanitation sector and address challenges. Some of the notable research include creation and synthesis of adsorbents and membranes for water pollutants remediation.		
4.	Upgraded laboratory facility and improved technical capacity for manning and operating the advanced equipment for diagnostic and analytical investigative exercises / activities		
5	Capacity building training for development of innovations, piloting, prototyping, incubation and translation into start-ups / spin offs and possible establishment of limited liability enterprises.		

Please find below the outstanding documents submitted for the DLI 5.3

- i. Guiding document on innovation week and 'Innovator of the Year Award'
- ii. Types of "innovator of the Year Award" presented at the climax of the Innovations week
- iii. Report on the Innovations week and 'Innovator of the Year Award'

ACE IMPACT 5.3 VERIFICATION

CENTRE: RWESCK

Milestone Description	Verification Criteria	Submission (Yes/No) (Achieved/Not Achieved)	Comment by RWESCK	Comment
. M 2.2. Innovations Week and Innovator of the Year Award	i. Guiding document on innovation week and 'Innovator of the Year Award'	Yes	The pitch of the teams was assessed broadly in five (5) areas (Annex 2) namely; Innovation and Creativity (30%), Feasibility and Practicality (20%), Market Potential and Scalability (20%), Impact (20%) and Presentation & Communication (10%).	
	ii. Types of "innovator of the Year Award" presented at the climax of the Innovations week iii. Report on the Innovations week and 'Innovator of the Year Award'			
DECISION				

MILESTONE ONE

Find below the outstanding documents submitted for the DLI 7.5

MILESTONE: 3 University-wide departmental and colleges ranking, benchmarking and innovations awards

- i. Copy of survey instruments
- ii. Evidence of online survey platform for submission/MIS etc
- iii. Best departments awards letters and non-cash awards,
- iv. Recognition of faculty members with product/service innovations, and patent
- v. Recognition of faculty members with strong institutional commitments and award of grants to support postgraduate education,
- vi. Recognition of staff with strong commitment towards achievements of

- departments, Centre's of Excellence and research Centre's
- vii. Document that proves that activity has been institutionalized at the university level as an annual activity. This benchmarking process should occur as a recurring, sustainable activity within the university

MILESTONE: 1**Standardize the centres of excellence with university statutes and structures.**

- i. Minutes of Committee Meetings
- ii. Verification of Minutes of the Council Meeting that approved the Centre;
- iii. University Recorder document indicating status and structure of the Centre of excellence, duties of the director, deputy director and coordinators, Composition of Local Advisory Board (LAB) and Centre Management Team, tenure of officers, Channel of communication to VC,
- iv. A letter approving payments of allowances to director, deputy director and coordinators of the Centre of excellence.

ACE IMPACT 7.5 VERIFICATION

INSTITUTION: KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY
CENTER: RWESCK - MILESTONE: 3

Milestone Description	Verification Criteria	Submission (Yes/No) (Achieved/ Not Achieved)	Comment	AAU Comment
<p>KNUST intends to create a university-wide departmental and colleges ranking, benchmarking and innovations awards to be coordinated by the Quality Assurance and Planning Unit (QAPU).</p>	<p>i. Letter from Vice-Chancellor or other authority constituting a committee with clear TOR,</p>	<p>Yes</p>	<p>A memo from the Vice Chancellor's office dated 1st of February 2024. It was addressed to Prof. Andam-Akorfu, it can be found on page 14-15</p>	<p>Submitted</p>

Milestone Description	Verification Criteria	Submission (Yes/No) (Achieved/ Not Achieved)	Comment	AAU Comment
	ii. List of Committee Members and their positions,	Yes	List of committee members is listed on page 14. 7 other members were selected to be part of the committee	Submitted
	iii. Minutes of Committee Meetings	Yes	1st meeting was held on Thursday, 8th February, 2024 at 3.00 p.m. in the keep boardroom. 2nd meeting was held on Thursday, 15th February, 2024 at 3.00 p.m. in the keep boardroom 3rd meeting was held on Friday, 8th march, 2024 at 11.00 a.m. via zoom 4th meeting was held on Wednesday, 17th April, 2024 at 06.00 p.m. via zoom It can be found on page 43-53.	Submitted
	iv. Verification of annual departmental ranking report,	Yes	The College of Health Sciences, with its strong research focus, consistently outperformed other colleges, highlighting the importance of research in enhancing academic standing. It can be found on page 7-8.	Submitted

Milestone Description	Verification Criteria	Submission (Yes/No) (Achieved/ Not Achieved)	Comment	AAU Comment
	v. Document providing evidence of a plan for the university to support the departments that scored poorly on the report	Yes	The discussion suggests and highlights the possible cause of why a particular department was ranked poorly and recommendations on how to support them. It can be found on page 9-10	Submitted
	vi. Copy of survey instruments	Yes	Data for the study was obtained using online surveys, web scraping, and existing institutional records It can be found on page 3	Not submitted 2024 QAPO Ranking- Questionnaire-For Departments.pdf
	vii. Evidence of online survey platform for submission/MIS etc	Yes	It can be found on page 3	Send link of online survey platform https://survey.knust.edu.gh/index.php?r=survey/index&sid=794313&lang=en
	viii. Best departments awards letters and non-cash awards,	Yes	Figure 3: Overall Department level ranking (90th Percentile and above) It can be found on page 8	Submit evidence of award letters and non-cash awards

Milestone Description	Verification Criteria	Submission (Yes/No) (Achieved/ Not Achieved)	Comment	AAU Comment
	ix. Recognition of faculty members with product/service innovations, and patent	Yes	Dr. Nadia Tagoe was tasked to ask for the number of grants won from 2019 to 2023, patents and intellectual property at the 1st meeting held. Centre of Settlement Studies was awarded as the Best Innovation centre	Submit evidence of faculty recognised
	x. Recognition of faculty members with strong institutional commitments and award of grants to support postgraduate education,	Yes	Considering of modalities and initial analysis, grants occupied (20%). Dr. Linda Batsa Debrah was awarded as the Best Mid-Career Researcher	Submit evidence of faculty recognised
	xi. Recognition of staff with strong commitment towards achievements of departments, Center's of Excellence and research Center's	Yes	The committee evaluated staff performance across three main sections thus teaching, research and grants. Kumasi Centre for Collaborative Research in Tropical Medicine (KCCR) was awarded as the Best Research centre	Submit evidence of faculty recognised

Milestone Description	Verification Criteria	Submission (Yes/No) (Achieved/ Not Achieved)	Comment	AAU Comment
	xii. Document that proves that activity has been institutionalized at the university level as an annual activity. This benchmarking process should occur as a recurring, sustainable activity within the university	Yes	The whole document was produced as a basis for institutionalizing college ranking. A memo dated 12th March 2025 was circulated to that effect.	Submit a memo or letter indicating activity has been institutionalised
DECISION	Institution has not submitted all evidence and therefore verification incomplete. Institution to submit remaining evidence to criteria in red			

GRANTSMANSHIP

Total Project grants value from 2014 to 2024

	FUNDING SOURCE & PROJECTS	AMOUNT	GOAL OF PROJECT
	Ghana Cedi-Projects		
1	Jospong Group of Company	¢150,000.00	Municipal Solid Waste Management Research
2	Community Water and Sanitation	¢332,560.80	Development of Package Water Treatment plants and Innovations for Addressing Supply Network Challenges
	Total Amount in Ghana Cedis	¢482,560.80	

Total number of internships

190 Internship - training for 190 postgraduate students

Number of PhD enrolled (2018 - 2024) 77 in total, comprising 67 national and 10 regional students

PROGRESS REPORT AS AT DECEMBER 2024

DLR Indicators	Current Status (%)	Remark
DLI 2: Development Impact of ACE	100	
2.1 Progress to impact	100	
2.2 Development impact	0	Awaiting Directives and template
DLI 3: Quantity of students with focus on gender and regionalization	100	
3.1: New PhD students	100	
3.2: New Masters Students	100	
3.3: New Prof. Short Course Students	100	
DLI 4: Quality of Education & research through international accreditation, research publications and improved teaching and research infrastructure	100	
4.1: Program Accreditation	100	
4.2: Research Publications	100	
4.3: Teaching & Research Infrastructure	100	
DLI 5: Relevance of Education and Research through externally generated revenue, internships, and entrepreneurship		
5.1: External Revenue	100	
5.2: Internships	98	Awaiting verification and payment
5.3: Entrepreneurship	70	Awaiting verification and payment
6.1		
6.2		

7. Centre Management and Governance

CHANGE OF LEADERSHIP

During the last quarter of year, 2023, the leadership of the centre changed hands from Prof Sampson Oduro Kwarteng (the former Director) to the Prof. Richard Akwasi Buamah. The new Director is an astute professor in Water Treatment with over 25 years of experience in the Water and Sanitation sector. He has risen through the ranks in the academic profession having held various key official positions including I) examination officer, graduate programme coordinator, WRESP programme Manager, K-AISWAM programmes coordinator and the Founding Coordinating Dean of the KNUST Obuasi Campus. At the time of taking over leadership, Prof. Oduro-Kwarteng, had superintended the RWESCK team to max majority (about 80%) of the stipulated DLIs. This remarkable feat of the out-going Director presented the new Direct with an uphill task of ensuring that all remaining DLIs are efficiently and meticulously maxed.

RWESCK has continued to uphold effective management and governance practices, building on the achievements and experiences of the previous years. The year 2024 saw significant developments in various areas, contributing to the Centre's overall growth and impact. As the World Bank sponsorship phase of the of the ACE Impact draws to a close frantic efforts have been made by leadership to ensure that all outstanding deliverables are achieved. Commissioning various committees, working groups and devising and implementing several measures to max all the DLIs and achieve the ultimate disbursement targets.



Prof. Richard Akwasi Buamah
New Director



Prof Sampson Oduro Kwarteng
Former Director

Participation in ACE Impact Regional Workshop

Several teams from RWESCK attended the underlisted workshops organized by the AAU and World Bank 2024 to build capacity, participate in roundtable progress meetings of Ghana Centres of Excellence and deliberate on bilateral negotiations with other centres and deliver presentations for conferences: The under-listed events are some of the notable workshops and their respective objectives:

1. The ACE Impact 11th ACE Regional Project Workshop was organized on the 15th of April 2024 at the Tomreik Hotel, Accra for progress update and modalities for the then pending 11th Regional Workshop.
2. To encourage partnerships amongst the Centre of Excellence, the WB / AAU and the Inter-University Council of East Africa provided a forum to promote and inspire all Centres to strengthen and solidify their collaborative engagements. From 8th - 10th, May 2024, the ACE International Partnerships Workshop was organized in Mauritius, a beautiful country with a serene environmental panorama.
3. The Maiden National Tertiary Education Conference and Celebration of ACE Impact At 10 held at Mensvic Grand Hotel, East Legon, Accra from October 30th to November 2024
4. Objective of Conference:
5. A) Unite all tertiary institution under one roof to foster collaboration and knowledge sharing, b) Exchange successful practices from various institutions to inspire others, c) Discuss and find potential solutions to tertiary-related issues. D) examine policies that will promote the advancement of tertiary education in Ghana.
6. 4) Training Workshop on the theme "Adaptive and Residual Risk Management-Embracing Uncertainty and Change and implementing Adaptive and Residual Risk Management strategies to mitigate risks & capitalise on opportunities in a Dynamic environment". The training sessions were held at the Royal Cosy Hills Hotel - Jirapa Dubai from October 6 - 13, 2024.
7. Objective: Gain a comprehensive understanding of adaptive and residual risk management principles, concepts and methodologies. B) Acquire practical skills and tools for assessing, managing and mitigating complex and dynamic risks within the context of ACE and beyond. C) Develop actionable strategies for integrating adaptive and Residual risk management into institutional processes and decision making at the ACE centres.



Excerpts from the ACE Impact Regional Workshop

ANNEX 1

TECHNOPOLIS OVERALL ASSESSMENT

ACE African Higher Education
Centers of Excellence Project

technopolis
group

RWESCK

REGIONAL WATER AND ENVIRONMENTAL SANITATION CENTRE KUMASI

DLR 2.2

SCORE **4**/5

OVERALL ASSESSMENT

The centre is doing very relevant work and seems to be doing this well. The research is of good quality and the centre is educating students that manage to take important positions in the research and policy landscape after graduating. There is room for more strategy development in the centre, less of an ad hoc approach to address issues that are popping up and taking more actions in line with strategy that will help the centre in the long run.

SECTOR	<p>Sub-assessment: The centre collaborates with a wide variety of stakeholders and gives concrete examples of these collaborations. The responses to the survey were very positive, which indicates the sector is happy with the centre. There is room for development in the cooperation with private sector companies.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Industry finds vast majority of the knowledge of the interns relevant. <input type="checkbox"/> Successful collaboration with the CWSA on AI-Based Robotics for Water Leakage Detection. <input type="checkbox"/> RWESCK plays a vital role in promoting water and environmental sanitation in the region. 	4/5
RESEARCH	<p>Sub-assessment: The center has a solid number of relevant publications with some policy impact and government collaborations. Open access and patent outputs are limited, and research KPIs require further development.</p> <ul style="list-style-type: none"> <input type="checkbox"/> The center has influenced the political agenda by drawing attention to a previously overlooked topic of greywater <input type="checkbox"/> Demonstrated thematic focus by having published 71% of their publications in their top three fields <input type="checkbox"/> The center has an above average citation impact for their field 	4/5
SOCIETY	<p>Sub-assessment: The centre very clearly works on relevant issues for the local, regional and national society, addressing real world issues through research, innovation and agenda setting.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Governmental and non-governmental organizations, utilize the centre's laboratories for specialized testing and consultancy services. <input type="checkbox"/> The centre contributes to public health through research projects that address water quality issues. 	4/5

RWESCK

REGIONAL WATER AND ENVIRONMENTAL SANITATION CENTRE KUMASI

DLR 2.2

SCORE **4**/5



Number of Publications: 156

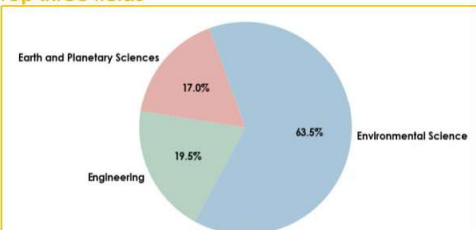
Number of Open Acces: 88

69% of RWESCKs publications are directly relevant to SDGs

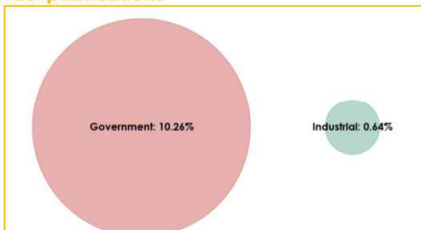
64 publications that contribute to the SDG Clean water and sanitation

92 graduates have been employed by the survey respondents

Top three fields



Co-publications



"I think RWESCK has contributed immensely to new knowledge and technologies to help my organization through it's masters and PhD programs"

RWESCK

REGIONAL WATER AND ENVIRONMENTAL SANITATION CENTRE KUMASI

DLR 2.2

SCORE **4**/5



- The publications of the centre have a high contribution to the SDG **Clean water and sanitation**
- The centre has collaborated with the **government** to contribute to solving relevant challenges.
- Number of interns and graduates employed by private sector collaborators is very high



- Further develop social media strategy, especially on how to **increase the reach**.
- Expand the M&E framework for research by **establishing clear KPIs** next to supervision and meetings.
- **Strengthen partnerships** with the private sector for project funding.

Methodology

DLR 2.2: Development Impact

2024

Elements		Realised impact ³
<p>Sector</p> <ul style="list-style-type: none"> The successful employment of graduates and interns at relevant organizations, as well as the appreciation of the skills and knowledge of graduates and interns by the sector. The amount and quality of interaction the centre has with the sector, shown through the number and quality of collaborations on research projects, input from the sector on curriculum and the use of research results by the sector. Short courses and other interactions with the sector are also considered. The extent to which collaboration is part of the governance and culture of the centre. The amount and type of support the centre provides to start-ups and spin-offs as well as the education of students around the possibilities of start-ups and spin-offs. Overall examples of excellence in the interaction with the sector. 	<p>1</p> <p>The evaluators do not have enough information to assess if the center has made development impact. The center provides little in the way of concrete examples and are unable to convince the evaluators that development impact has been achieved across any of the dimensions.</p>	
<p>Research</p> <ul style="list-style-type: none"> The quality of the research strategy, especially with regards to parameters and indicators to guaranty quality and relevance as well as the presence and quality of a dissemination strategy. The amount and quality of publications and the collaborations with other national, regional, global and industry partners on these publications. The extent to which the innovation strategy and implementation of the strategy are indicative of fostering and supporting start-ups and developing intellectual property. The extent to which the standards for quality of research are a part of the culture. Examples of excellence with regard to research, including but not limited to research projects with high impact and conferences and or events that led to unique collaborations or demonstrated the advancement of the Centre’s position in the research field. 	<p>2</p> <p>The evaluators find there to be little provable impact and less impact than expected across the three dimensions. The Centre has demonstrated little provable impact in two out of three dimensions.</p>	
<p>Society</p> <ul style="list-style-type: none"> The extent to which alumni are engaged and included in the future development of the sector. The demonstration of the extent to which the centres engages with local and/or regional community and their involvement in solving and addressing local and regional issues. The extent The extent to which the outcomes of projects lead to measurable improvements in society. Examples of the Centre’s infrastructure being used by or open to societal actors. 	<p>3</p> <p>The Centre has demonstrated provable impact in all dimensions or at least 2 out of three dimensions with other areas where the center is performing above expectation.</p>	
<p>Scoring process</p> <p>Each bibliometric analysis, survey analysis and self-assessment report is reviewed by in-depth by two evaluators then triangulated by a team of five evaluators. Assigned scores are harmonised and standardised, allowing for unique qualities amongst centres but ensuring consistence throughout in terms of application of the rubric and methodology.</p>		<p>4</p> <p>The Centre has demonstrated significant impact in all three domains. There are multiple examples and supporting documentation</p>
		<p>5</p> <p>The Centre has demonstrated impact across all three domains and the supporting evidence is clear about the effectiveness of the interventions.</p>

ANNEX 2

Number of publications from 2019 to 2023

115 articles published in peer reviewed (SCOPUS)

PUBLICATIONS FOR 2024

1. Acheampong, A., **Anornu, G. K.**, Owusu-Nimo, F., Gyamfi, C., and Abass, G. (2024). Site-specific condition evaluation for managed aquifer recharge (MAR) site selection in granitic aquifers, Ghana. *Water Supply*, 24(5), 1842-1858. <https://doi.org/10.1016/j.gsd.2024.101079>
2. Apogba, J. N., **Anornu, G. K.**, Koon, A. B., Dekongmen, B. W., Sunkari, E. D., Fynn, O. F., and Kpiebaya, P. (2024). Application of machine learning techniques to predict groundwater quality in the Nabogo Basin, Northern Ghana. *Heliyon*, 10(7). <https://doi.org/10.1016/j.gsd.2024.101199>
3. A ppiah Boamah, L., Nyamekye, C., Gyamfi, C., Ballard, J. Q., and **Anornu, G. K.** (2024). Mapping and estimating water quality parameters in the Volta Lake's Kpong Headpond of Ghana using regression model and Landsat 8. *Cogent Engineering*, 11(1), 2307165. <https://doi.org/10.1007/s00704-023-04636-5>
4. Asilevi, P. J., Dogbey, F., Boakye, P., Aryee, J. N. A., Yamba, E. I., Owusu, S. Y., Peprah, D. K., Quansah, E., Klutse, N. A. B., Bentum, J. K., Adjei, K. A., **Anornu, G. K.**, Oduro-Kwarteng, S., and Amekudzi, L. K. (2024). Bias-corrected NASA data for aridity index estimation over tropical climates in Ghana, West Africa. *Journal of Hydrology: Regional Studies*, 51, 101610. <https://doi.org/10.2166/ws.2024.087>
5. Atayi, J., **Anornu, G. K.**, Awotwi, A., Andam-Akorful, S. A., Kabo-bah, A. T., Twumasi, Y. A., Adu-Afari, E and Anim-Gyampo, M. (2024). Terrestrial water storage and climate variability study of the Volta River Basin, West Africa. *Theoretical and Applied Climatology*, 155(1), 309-325. <https://doi.org/10.1016/j.heliyon.2024.e28527>
6. Dekongmen, B. W., Kabo-bah, A. T., **Anornu, G. K.**, Akpoti, K., Amo-Boateng, M., Antwi, E. O., Boamah O. E and Sunkari, E. D. (2024). Delineation of flood risk terrains and rainfall visualisation in the North Western part of Ghana. *Modeling Earth Systems and Environment*, 10(3), 4567-4594. <https://doi.org/10.1007/s40808-024-02041-z>
7. Kouacou, B. A., **Anornu, G. K.**, Adiaffi, B., and Gibrilla, A. (2024). Hydrochemical characteristics and sources of groundwater pollution in Soubré and Gagnoa counties, Côte d'Ivoire. *Groundwater for Sustainable Development*, 26, 101199. <https://doi.org/10.1016/j.ejrh.2023.101610>

8. Kouacou, B. A., **Anornu, G. K.**, Gibrilla, A., Adiaffi, B., and Gyamfi, C. (2024). Hydrochemical evolution of groundwater in Soubré and Gagnoa counties, Côte d'Ivoire. *Groundwater for Sustainable Development*, 24, 101079. <https://doi.org/10.1080/23311916.2024.2307165>
9. Siabi, E. K., Adu-Poku, A., Otchere, N. K. O., Awafo, E. A., Kabo-bah, A. T., Derkyi, N., Akpoti, K., **Anornu, G. K.**, Akyereko-Adjei, E., Kemausuor, F., & Yazdanie (2024). Flood risk assessment under the shared socioeconomic pathways: a case of electricity bulk supply points in Greater Accra, Ghana. *Discover Water*, 4(1), 76. <http://dx.doi.org/10.2139/ssrn.4688609>
10. Agyemang-Badu, S. Y., Awuah, E., **Oduro-Kwarteng, S.**, Dzamesi, J. Y. W., Kombian, V. M., Deku, G., and Offei, S. (2024). Survey of mosquito (Diptera: Culicidae) breeding sites in the Sunyani East Municipality, Bono Region of Ghana. <https://doi.org/10.1016/j.gsd.2024.101193>
11. Bakobie, N., Essandoh, H. M., **Oduro-Kwarteng, S.**, Appiah-Adjei, E. K., Ahammad, S. Z., and Chakma, S. (2024). Self-supply groundwater in five communities: Moshie zongo, aboabo, kotei, ayeduase and apemso in kumasi metropolis, ghana. *Heliyon*, 10(1). <https://doi.org/10.3389/frmst.2024.1343651>
12. Enyemadze, I., **Oduro-Kwarteng, S.**, Essandoh, H., Momade, F. W., Gaveh, E. A., and Asamoah, B. K. (2024). Lettuce Response to Enhanced Struvite Recovered from Faecal Sludge Effluent and the Probabilistic Health Risk Assessment of Heavy Metals Through the Intake of the Lettuce. *International Journal of Research and Innovation in Applied Science*, 9(3), 317-335. <https://doi.org/10.1016/j.heliyon.2023.e23823>
13. Tabi, R. N., Boakye, P., Agyemang, F. O., Nxumalo, E. N., and **Oduro-Kwarteng, S.** (2024). A review of spiral wound membrane modules and processes for groundwater treatment. *Frontiers in Membrane Science and Technology*, 3, 1343651. <https://doi.org/10.21203/rs.3.rs-4018451/v1>
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15. Ahmed, I., **Awuah, E.**, Essandoh, H. M., Oduro-Kwarteng, S., Ofori-Amanfo, D., Cobbold, F., and Oduro-Adu, J. (2023). Development, characterisation, and performance evaluation of some indigenous plants for faecal sludge treatment in Ghana. *International Journal of Polymer Science*, 2023(1), 7470378. <https://doi.org/10.1155/2023/7470378>
16. Sossou, K., **Awuah, E.**, Appiah-Brempong, M., Prasad, S. B., Adjama, I., & Eyrarn, A. K (2024). Design of a Cost-Effective Nanomembrane Ceramic Filter for the Removal of Fluoride and Heavy Metals from Groundwater.

- SSRN. <http://dx.doi.org/10.2139/ssrn.4775694>
17. Annan, E., Amponsah, W., **Adjei, K. A.**, Disse, M., Hounkpè, J., Biney, E., Agbenorhevi, A.E. & Agyare, W. A. (2024). Spatio-temporal land use and land cover change assessment: Insights from the Ouémé River Basin. *Scientific African*, 25, e02262. <https://doi.org/10.1016/j.sciaf.2024.e02262>
 - 18. Appiah-Effah, E.**, Boakye, K., Salihu, T., Duku, G. A., Fenteng, J. O. D., Boateng, G., Appiah, F and Nyarko, K. B. (2024). Determinants of open defecation among rural women in Ghana: analysis of demographic and health surveys. *Environmental Health Insights*, 18, 11786302241226774. <https://doi.org/10.1177/1178630224122677>
 - 19. Appiah-Effah, E.**, Duku, G. A., Boakye, K., Oduro, C., and Nyarko, K. B. (2024). Navigating Taxpayers Attitude: Exploring Support for Urban Sanitation Surcharge in Kumasi. *Environmental Health Insights*, 18, 11786302241247797. <https://doi.org/10.1177/11786302241247797>
 20. Appiah-Brempong, M., **Essandoh, H. M. K.**, Asiedu, N. Y., and Momade, F. Y. (2024). Bone char adsorption of COD and colour from tannery wastewater: Breakthrough curve analysis and fixed bed dynamic modelling. *Advances in Civil Engineering*, 2024(1), 6651094. <https://doi.org/10.1080/1065657X.2024.2368224>
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 22. Kima, A. S., **Gyamfi, C.**, Kima, E., Ouédraogo, C., Traoré, O., Wang, Y.-M., Traoré, S., and Sangaré, S. A. K. (2024). Evaluating Dripper-Plants Spacing for Improving Tomato Yield and Water Productivity under the Drip-Irrigation System in the Sudanian Climate in Burkina Faso. *Journal of Irrigation and Drainage Engineering*, 150(2), 04024003. <https://doi.org/10.1061/JIDEDH.IRENG-10172>

ANNEX 3



STRATEGIC PLAN FOR SUSTAINABILITY

RWESCK KNUST: A LEGACY OF EXCELLENCE
IN WATER AND SANITATION



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EXECUTIVE SUMMARY

Since its inception in 2014, the Regional Water and Environmental Sanitation Centre Kumasi (RWESCK) has become a beacon of excellence in high quality postgraduate programmes, innovation, research, and community engagement in the field of WASH. Committed to addressing developmental challenges in the West African Sub-Region and beyond, the Centre has distinguished itself through its pioneering curriculum, impactful research and partnerships.

RWESCK's comprehensive academic programs, ranging from master (MSc) to Doctor of Philosophy (Ph.D.) levels, are designed to equip students with the skills and knowledge necessary to address complex water and sanitation challenges. The Centre attracts talented faculty and students, resulting in impactful research that inform policy and provides practical solutions. Partnerships with key national and international organizations further bolster the Centre's capacity for knowledge sharing, joint research, and community engagements.

Despite these achievements, RWESCK faces challenges such as declining student enrolment and limited funding. These hurdles have spurred resilience and adaptability, positioning the Centre to seize emerging opportunities in the sector. With a vision to advance knowledge in water and environmental sanitation for sustainable development in West Africa and beyond, and a mission to foster teaching, research, and innovation RWESCK is poised to expand its impact and solidify its status as a leader in water and sanitation.

The strategic plan for RWESCK, detailed herein, outlines goals and objectives across several thematic areas including governance, human resource development, academic excellence, student engagement, community outreach, financial sustainability, industry relevance, and visibility. Each area is supported by specific key actions, indicators, and responsibilities to guide implementation from 2025 to 2030.

1. Introduction

1.1 Background

Since its inception in 2014, the Regional Water and Environmental Sanitation Centre Kumasi (RWESCK) has established itself as a leading Centre for academic excellence, research innovation, and community engagement in the field of water and sanitation. With a strong commitment to addressing critical developmental challenges in Ghana and beyond. The Centre has built a strong reputation for its:

- Pioneering curriculum: From its outset, RWESCK has been at the forefront of developing cutting-edge curricula that equip students with the knowledge and skills to tackle complex water and sanitation challenges. The Centre's programmes, encompassing:
 - ◊ MSc Environmental Sanitation and Waste Management
 - ◊ MSc Water Supply Engineering and Management
 - ◊ MSc Water Engineering
 - ◊ MSc Disaster Prevention and Management
 - ◊ MPhil in Water Resources Engineering and Management
 - ◊ MPhil in Water Supply and Environmental Sanitation
 - ◊ Ph.D. Water Supply and Treatment Technology
 - ◊ Ph.D. Water Resources Management
 - ◊ Ph.D. Environmental Sanitation and Waste Management
 - ◊ have consistently evolved to reflect the latest advancements in the field, ensuring graduates are prepared for successful careers in the WASH sectors.
- Renowned research: The Centre fosters a vibrant research culture, attracting talented faculty and students who conduct impactful research on diverse water and sanitation challenges. This dedication to research has not only expanded the body of knowledge in the field but also informed policy decisions and practical solutions that have improved lives.
- Meaningful partnerships: RWESCK recognises the importance of collaboration in addressing water and sanitation challenges. The Centre has established strong partnerships with key national and international partners, including:

Local

- ◊ Water Resources Commission (WRC)
- ◊ Ghana Water Company Limited (GWCL)
- ◊ Community Water and Sanitation Agency (CWSA)
- ◊ Ghana Hydrological Authority International
- ◊ National Water Resources Institute (Nigeria)
- ◊ University of Benin (Nigeria),
- ◊ University of Cheikh Anta Diop, Dakar, Senegal

enabling knowledge sharing, joint research initiatives, and collaborative projects that have demonstrably improved water and sanitation access and management in various communities.

- Community-oriented approach: Beyond academic pursuits, RWESCK is deeply

committed to serving communities. The Centre's outreach programs have directly impacted the lives of individuals through community outreach programmes. This commitment to social responsibility has not only instilled a sense of purpose in students and faculty but also contributed to building trust and collaboration with local communities.

Despite its achievements, RWESCK. KNUST has also faced challenges along the way. There has been a reduction in the number of students enrolling in some of our postgraduate programmes and a reduction in the funds that are available for research and infrastructure development. These experiences have served as valuable lessons, shaping the Centre's resilience and adaptability as it moves forward. RWESCK is poised to capitalise on emerging opportunities in the water and sanitation sector. The growing global focus on sustainability, advancements in technology, and increasing public awareness present exciting possibilities for the Centre to further its impact and solidify its position as a leading force in the field.

2. Vision and Mission Statement of RWESCK

2.1 Vision

RWESCK seeks to advance knowledge in the Science and Technology of Water and Environmental Sanitation for sustainable development in Africa and to be globally recognised as a Centre of excellence for producing high calibre graduates with knowledge and expertise in water resources, water supply and environmental sanitation to support the industrial and socio-economic development of Ghana and Africa.

2.2 Mission

The mission of RWESCK is to provide an environment for teaching, research and mentorship training in the science and technology of water and sanitation for the industrial and socio-economic development of Ghana, Africa and other nations by attracting scholars, industrialists and entrepreneurs from Africa and other international community.

2.3 Core Values and Guiding Principles

1. Excellence in development of technologies for water resources, water supply and environmental sanitation and hygiene
2. Integrity and efficient management of water resources, water supply and environmental sanitation and hygiene
3. Leadership in innovative solution to alleviate societal problems
4. Diversity and equal opportunity for career development and mentorship

2.4 Purpose/Importance of the Sustainability Plan

The relevance of building and sustaining of a resilient WASH centre of excellence cannot be over emphasized. Servicing the human capacity needs, ensuring a constant streaming of innovations, development of new technologies to tackle societal problems and dissemination of knowledge are perpetual fundamental needs of the developing society. In the light of that, this document furnishes a detail sustainability plan for the RWESCK centre for the next ten years. It is envisaged that periodic review of the plan after the mentioned will offer the opportunity for revision and appropriate amendements relevant for the period.

3. Situational Analysis

3.1 SWOT Analysis:

3.1.1 Strengths:

- Strong reputation: RWESCK enjoys a well-established reputation for academic excellence and research in the water and sanitation sector. This recognition attracts talented students, faculty, and partners, fostering a strong foundation for future growth.
- Industry-responsive courses & Cutting-edge curriculum: The Centre's academic programmes are regularly updated to reflect current industry trends and advancements, ensuring graduates possess the relevant skills and knowledge required for successful careers.
- Collaborative partnerships: Strong collaborations with national and international institutions expand RWESCK's reach and capabilities, facilitating joint research projects, knowledge sharing, and access to diverse resources.
- Community-oriented approach: By actively engaging with local communities through outreach programs, the Centre addresses real-world challenges and builds valuable partnerships, contributing to social responsibility and trust.
- Dedicated faculty and staff: Experienced and passionate faculty and staff form the backbone of the Centre, driving academic excellence, research initiatives, and community engagement activities.
- Strong Alumni Network: One of the valuable resources of any academic institution is its alumni. With the high calibre of graduates churned out every year, the centre can boast of a plethora of experts that are currently superintending major projects and institutions / industries. Bolstering our collaboration with the alumni will afford us feedback from industry, partnerships, financial support, enhanced community entry or outreaches using the alumni as the conduits etc.
- Dedicated Centre Building with Conference Facilities: There is a dedicated Centre building with well-equipped facilities including classrooms, conference rooms, offices, meeting rooms, cafeteria.
- Well Equipped Laboratories: A number of high technological equipment relevant

for material analytical work and top notch research have been purchased to beef up the quality of research and consultancy activities.

- Student Hostel: Available accommodation to both local and international students admitted to programmes at the Centre.

3.1.1 Strengths:

- Limited resources: Budgetary constraints hinder research endeavours and infrastructure upgrades, potentially impacting the Centre's ability to fully leverage emerging technologies and advancements.
- Limited sources of funding: Reliance on a limited number of funding sources presents vulnerability to external factors and restricts opportunities for expansion and innovative projects.
- Decrease in Student Numbers: Decreasing student enrolment across programs due to inadequate scholarship awards.
- Weak Management Structure and Institutionalisation:
- Inadequate Synergy:

3.1.3 Opportunities:

- Growing demand for WASH Professionals: The increasing demand for professionals in the water and sanitation sector creates promising opportunities for graduates and expands the Centre's potential impact.
- Sustainability and Climate Change focus: The global emphasis on sustainable water management practices opens doors for research collaborations, funding opportunities, and partnerships aligned with RWESCK's expertise.
- Technological advancements: Innovations in water and sanitation technologies present exciting possibilities for developing new solutions, conducting cutting-edge research, and enhancing outreach programs.
- New partnerships: Expanding partnerships with diverse stakeholders, including international institutions, private companies, and NGOs, can lead to knowledge exchange, resource sharing, and joint initiatives for broader impact.
- Blended learning: Exploring virtual and in-person (blended) learning formats can attract wider student audiences, increase accessibility, and cater to evolving learning preferences.
- Advancement in social media advertisement:

3.1.4 Threats:

- Competition: Other institutions offering similar programs could pose competition for student enrolment and research funding.
- Funding cuts: Potential budget cuts and withdrawal (change of focus) by funding institutions could negatively impact the Centre's research capabilities and limit its ability to pursue innovative projects.

4. Stakeholder Analysis

Identifying and Engaging Key Stakeholders:

RWESCK, KNUST interacts with a diverse range of stakeholders whose interests and needs influence the Centre's success. Understanding their perspectives and fostering meaningful engagement are crucial for effective strategic planning and implementation.

4.1 Key Stakeholder Groups:

- Internal Stakeholders:
 - ◊ Faculty and Staff: Possess expertise, drive research and teaching, and also contribute to the Centre's culture.
 - ◊ Students: Represent the future generation of professionals and benefit from quality education and research opportunities.
 - ◊ Administration: Provides support, resources, and guidance, shaping the Centre's overall direction.
- External Stakeholders:
 - ◊ Government Agencies: Collaborate on policy development, research projects, and community initiatives.
 - ◊ Funding Partners: Provide financial support for research, scholarships, and infrastructure development.
 - ◊ Private Companies: Offer internship opportunities, research collaborations, and potential employment for graduates.
 - ◊ NGOs and Community Organisations: Partner on outreach programs, knowledge sharing, and addressing community needs.
 - ◊ Alumni Network: Represent valuable resources, offer mentorship opportunities, and contribute to the Centre's reputation.
 - ◊ The Public: Benefits from improved water and sanitation solutions and contributes to awareness raising.

4.1 Key Stakeholder Groups:

Internal Stakeholders:

- Faculty and Staff: Desire professional development, competitive salaries, and recognition for their contributions.
- Students: Seek quality education, relevant skills development, and career preparation support.
- Administration: Aims for efficient operations, financial stability, and alignment with KNUST's strategic goals.

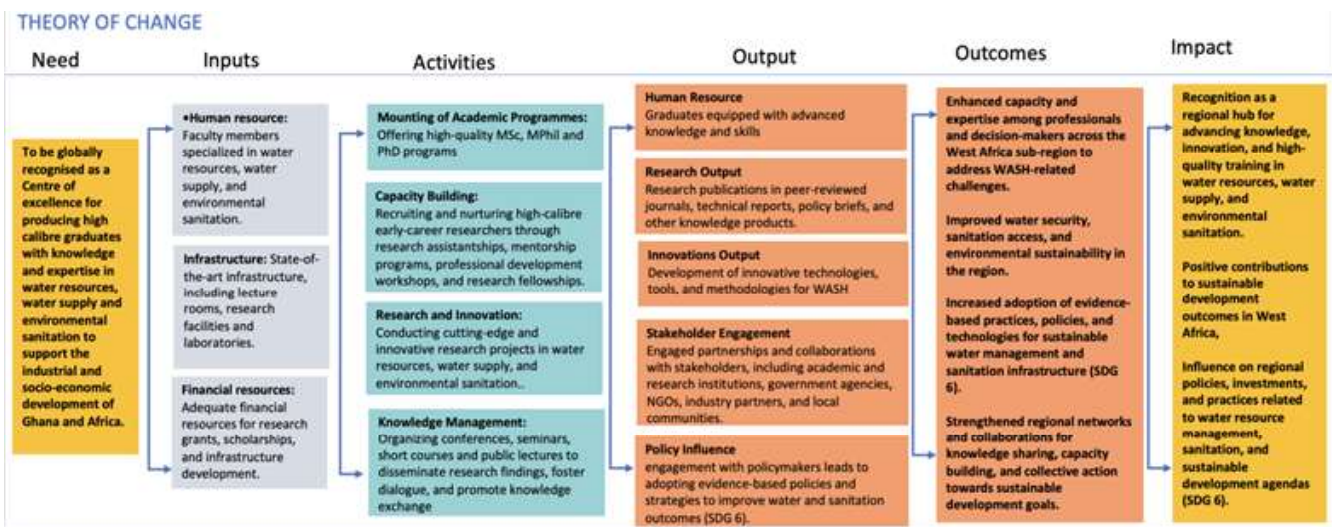
External Stakeholders:

- Government Agencies: Seek evidence-based solutions, policy expertise, and capacity building for sustainable WASH management.
- Funding Partners: Expect research excellence, measurable impact, and alignment with their funding priorities.
- Private Companies: Value skilled graduates, research collaborations, and innovative solutions to industry challenges.

- NGOs and Community Organisations: Seek partnerships to address community needs, share knowledge, and empower local populations.
- Alumni Network: Desire to stay connected, contribute to the Center’s growth, and support current students.
- The Public: Expects access to safe water and sanitation, awareness of water challenges, and responsible resource management.

5. Destination 2035

Theory of Change



6. Shaping the Future of RWESCK to enhance and sustain excellence in the Water, Sanitation and Environmental sector globally

Championing excellence in the WASH sector globally demands concerted efforts and pragmatic strategic plans. Emphasizing on the culture of excellence, the following outlined thematic areas prescribes the development and sustainability agenda for the years ahead. It is envisaged that the implementation of the agenda will further catapult the RWESCK centre to an epic position in terms of relevance, visibility and innovation. The thematic areas include:

- i. Governance and Leadership
- ii. Human Resource Development
- iii. Academic Excellence
- iv. Student Engagement
- v. Financial Sustainability
- vi. Industry Collaborations and Relevance
- vii. Visibility and Internationalization

6.1.1 Governance and Leadership

Goal

- Enhance governance structures and leadership capabilities to ensure effective decision-making and organizational effectiveness at RWESCK

Objectives

- Strengthen governance frameworks and processes.
- Develop leadership capacity at all levels.
- Foster a culture of commitment

6.1.2 Human Resource Development

Goal

- Cultivate a skilled, motivated, and diverse workforce that drives innovation and excellence in teaching, research, and service delivery

Objectives

- Attract and retain top talent in academia and administration.
- Support professional growth and career advancement opportunities.
- Promote diversity, equity, and inclusion in all aspects of the Centre's activities.

6.1.3 Academic Excellence:

Goal

- Become a globally recognised leader in water and sanitation education and research, renowned for its cutting-edge curriculum, innovative research, and transformative impact.

Objectives

- Develop and implement interdisciplinary programs addressing emerging water

and sanitation challenges.

- Increase research output through faculty development initiatives and securing external grants.
- Establish partnerships with international universities for staff and student exchange and joint research.

6.1.4 Student Engagement:

Goal

- Empower students to become ethical, well-rounded changemakers and future leaders in the water and sanitation sector, equipped with the knowledge, skills, and leadership qualities to tackle complex challenges.

Objectives

- Increase student enrolment in core water and sanitation programs.
- Implement a comprehensive leadership development program for students.
- Increase student participation in community outreach initiatives.
- Foster an inclusive and supportive learning environment.

6.1.5 Community Outreach:

Goal

- Be a leading force in collaborating with stakeholders and local communities to develop and implement sustainable water and sanitation solutions that improve lives and enhance environmental well-being.

Objectives

- Secure funding and implement community-based water and sanitation projects.
- Develop and share knowledge resources on sustainable water and sanitation practices with local communities.
- Establish a collaborative platform for knowledge exchange and capacity building with stakeholders.

6.1.6 Financial Sustainability

Goal

- Achieve long-term financial independence and stability for RWESCK

Objectives

- Develop a diversified revenue stream to reduce dependence on tuition fees and ACE funding.
- Establish an endowment fund to support long-term financial stability
- Implement cost-saving measures

6.1.7 Industry Relevance

Goal

- Enhance RWESCK's alignment with the needs and trends of relevant industries.

Objectives

- Strengthen industry partnerships
- Revise curriculum to meet industry standards
- Facilitate student engagement in industry-related activities

6.1.8 Visibility and Internationalisation

Goal

- Raise the profile and reputation of RWESCK KNUST locally, nationally, and internationally through strategic communication and branding initiatives.

Objectives

- Increase awareness of RWESCK's mission, programs, and achievements.
- Enhance engagement with internal and external stakeholders.
- Build and protect the institution's reputation and brand identity.

7. Building a Collaborative Future for Water and Sanitation

7.1 Governance and Leadership

Objectives	Key Actions	Indicators	Responsibility
<ul style="list-style-type: none"> Strengthen governance framework and processes. 	<ul style="list-style-type: none"> Establish clear policies and procedures for governance, including decision-making, and oversight by 2026 	<ul style="list-style-type: none"> Percentage of governance policies and procedures documented and implemented. Compliance rate with established governance policies and procedures. 	<ul style="list-style-type: none"> Director Management
<ul style="list-style-type: none"> Develop leadership capacity at all levels. 	<ul style="list-style-type: none"> Provide training and development opportunities for staff to enhance their skills in strategic planning, communication, and conflict resolution annually (2025-2030). 	<ul style="list-style-type: none"> Number of staff members participating in leadership development programs. Percentage increase in leadership competencies demonstrated by participants. Employee feedback on the effectiveness and relevance of leadership training programs 	<ul style="list-style-type: none"> Director Management
<ul style="list-style-type: none"> Foster a culture of commitment, transparency, accountability, and ethical behaviour. 	<ul style="list-style-type: none"> Promote open communication channels, encourage stakeholder participation, and regular management meetings throughout the implementation period (2025-2030). 	<ul style="list-style-type: none"> Employee perception surveys measuring commitment, transparency, accountability, and ethical behavior within the Centre. Number of stakeholder engagement activities conducted annually. Frequency of management meetings and documented action items. 	<ul style="list-style-type: none"> Management Industry Liaison Coordinator

7.2 Human Resource Development

Objectives	Key Actions	Indicators	Responsibility
<ul style="list-style-type: none"> Attract and retain top talents in academia and administration. 	<ul style="list-style-type: none"> Implement competitive recruitment and retention strategies, including competitive salaries, benefits, and opportunities for professional development throughout the implementation period (2025-2030). 	<ul style="list-style-type: none"> Percentage of top-tier candidates successfully recruited. Employee turnover rate among academic and administrative staff. Participation rate in professional development programs. 	<ul style="list-style-type: none"> Management
<ul style="list-style-type: none"> Support professional growth and career advancement opportunities. 	<ul style="list-style-type: none"> Offer training programs, workshops, and mentorship opportunities to enhance employee skills, knowledge, and leadership capabilities annually (2025-2030). Implement faculty development programs on research methodologies, grant writing, and publication skills annually. 	<ul style="list-style-type: none"> Number of training programs and workshops conducted annually. Percentage of employees participating in mentorship programs. Number of faculty members receiving grants or publishing research papers. 	<ul style="list-style-type: none"> Management
<ul style="list-style-type: none"> Promote diversity, equity, and inclusion in all aspects of the Centre's activities. 	<ul style="list-style-type: none"> Implement diversity and inclusion initiatives and support networks for all through 2025-2030. 	<ul style="list-style-type: none"> Employee satisfaction surveys measuring perceptions of equity and inclusion within the organisation. Participation rates in diversity and inclusion training programs. 	<ul style="list-style-type: none"> Management

7.3 Academic Excellence

Objectives	Key Actions	Indicators	Responsibility
<ul style="list-style-type: none"> Develop and implement interdisciplinary programs addressing emerging water and sanitation challenges. 	<ul style="list-style-type: none"> Conduct curriculum mapping and needs assessments to identify emerging areas of focus biennially from 2025-2030. Partner with industry professionals and community stakeholders to ensure program relevance and practical application from 2025-2030. Secure funding and resources for developing new interdisciplinary programs 2025-2030. 	<ul style="list-style-type: none"> Number of interdisciplinary programs developed and implemented biennially. Percentage of industry professionals and community stakeholders involved in program development. Amount of funding secured for new program development. 	<ul style="list-style-type: none"> Management Academic programmes Coordinator
<ul style="list-style-type: none"> Increase research output through faculty development initiatives and securing external grants. 	<ul style="list-style-type: none"> Implement faculty development initiatives annually (2025-2030). Secure external grants for research projects annually (2025-2030). 	<ul style="list-style-type: none"> Number of faculty members participating in research development programs. 	<ul style="list-style-type: none"> Management
<ul style="list-style-type: none"> Establish partnerships with international universities for staff and student exchange and joint research. 	<ul style="list-style-type: none"> Develop collaborative research partnerships with national and international institutions annually (2025-2030). Facilitate staff and student exchange programs and joint research projects with partner universities annually (2025-2030). 	<ul style="list-style-type: none"> Number of collaborative research partnerships established. Participation rate in staff and student exchange programs. Number of joint research projects conducted with partner universities. 	<ul style="list-style-type: none"> Management

7.4 Student Engagement

Objectives	Key Actions	Indicators	Responsibility
<ul style="list-style-type: none"> Increase student enrolment in core water and sanitation programs by 20% each year from 2026 to 2030. 	<ul style="list-style-type: none"> Develop targeted outreach programs for high schools and communities to generate interest in water and sanitation careers by 2026. Offer merit-based scholarships and financial aid to attract diverse and qualified students from 2026 to 2030. Strengthen service-learning opportunities in academic programs such as the masterplan course to connect students with community needs from 2025-2030. Establish mentoring programs and support groups to promote a sense of belonging and well-being by 2026. Create accessible learning resources and accommodations to cater for diverse student needs by 2026. 	<ul style="list-style-type: none"> Percentage increase in student enrolment. Number of high schools and communities reached through outreach programs. Percentage of students receiving scholarships and financial aid. Feedback on student satisfaction and sense of belonging. Number of accessible learning resources and accommodations provided. 	<ul style="list-style-type: none"> Management
<ul style="list-style-type: none"> Implement a comprehensive leadership development program for students 	<ul style="list-style-type: none"> Design and implement a multi-tiered leadership development program focusing on critical thinking, communication, and project management skills annually from 2025-2030. 	<ul style="list-style-type: none"> Number of students enrolled in the leadership development program. Success rate of program graduates in leadership roles following post-graduation. 	<ul style="list-style-type: none"> Management
<ul style="list-style-type: none"> Increase student participation in community outreach initiatives by 20% annually from 2025 to 2030. 	<ul style="list-style-type: none"> Task students to lead the Centre in Celebrating World Toilet, Water and Menstrual Hygiene Days annually from 2025 to 2030. 	<ul style="list-style-type: none"> Percentage increase in student participation in community outreach initiatives. Number of community outreach events organised. Impact assessment of community outreach initiatives on the local community. 	<ul style="list-style-type: none"> Management

7.5 Community Outreach

Objectives	Key Actions	Indicators	Responsibility
<ul style="list-style-type: none"> Secure funding and implement community-based water and sanitation projects. 	<ul style="list-style-type: none"> Partner with local community organisations, NGOs, and government agencies to identify priority needs and co-develop project proposals annually from 2025 to 2030. Secure funding through grants, partnerships, and fundraising initiatives annually from 2025 to 2030. 	<ul style="list-style-type: none"> Number of community-based water and sanitation projects initiated. Amount of funding secured for project implementation. Number of partnerships established with local community organisations, NGOs, and government agencies. 	<ul style="list-style-type: none"> Management Industry Liaison Coordinator
<ul style="list-style-type: none"> Develop and share knowledge resources on sustainable water and sanitation practices with local communities. 	<ul style="list-style-type: none"> Organise workshops and training sessions to share knowledge and build capacity on sustainable water and sanitation practices annually from 2025 to 2030. 	<ul style="list-style-type: none"> Number of workshops and training sessions conducted. Participation rate in knowledge-sharing events. Feedback on the effectiveness and relevance of knowledge resources provided. 	<ul style="list-style-type: none"> Management
<ul style="list-style-type: none"> Establish a collaborative platform for knowledge exchange and capacity building with stakeholders. 	<ul style="list-style-type: none"> Organise a multi-stakeholder platform (WASH Dialogue) for dialogue, knowledge sharing, and joint problem-solving in 2025. 	<ul style="list-style-type: none"> Number of stakeholders engaged in the collaborative platform. Frequency of dialogue sessions and knowledge exchange events. Success stories or case studies resulting from collaborative efforts. 	<ul style="list-style-type: none"> Management Industry Liaison Coordinator

7.6 Financial Sustainability

Objectives	Key Actions	Indicators	Responsibility
<ul style="list-style-type: none"> Develop a diversified revenue stream to reduce dependency on tuition fees and ACE funding. 	<ul style="list-style-type: none"> Launch fundraising campaigns targeting alumni, donors, and philanthropic organisations in 2025 Explore corporate sponsorships and partnerships with industry for research funding from 2025 to 2030. Develop revenue-generating programs such as professional development courses and consulting services in 2025. 	<ul style="list-style-type: none"> Amount of funds raised through fundraising campaigns and corporate sponsorships. Number of revenue-generating programs implemented and their contribution to overall revenue. Size and growth of the endowment fund. 	<ul style="list-style-type: none"> Management Industry Liaison Coordinator Academic Programmes Coordinator
<ul style="list-style-type: none"> Establish an endowment fund to support long-term financial stability 	<ul style="list-style-type: none"> Develop a comprehensive fundraising strategy to solicit major gifts and planned to give from donors in 2025. Establish investment policies and guidelines for prudent management of endowment assets in 2025 Allocate a portion of endowment income to support key Centre priorities while preserving the principal 	<ul style="list-style-type: none"> Number of major gifts and planned giving commitments secured. Compliance with investment policies and guidelines. Impact of endowment income allocation on Centre priorities. 	<ul style="list-style-type: none"> Management Finance officer
<ul style="list-style-type: none"> Strengthen laboratories to be a main source of income 	<ul style="list-style-type: none"> Attain ISO certification for laboratories by 2025 Equip laboratories with additional state-of-the-art instruments and equipment by 2030 	<ul style="list-style-type: none"> Attainment of ISO certificate Number of additional instrument/equipment acquired. 	<ul style="list-style-type: none"> Management Laboratory management
<ul style="list-style-type: none"> Implement cost-saving measures 	<ul style="list-style-type: none"> Conduct a thorough review of operational expenses to identify areas for efficiency improvements and cost reductions by 2025 Implement energy-saving measures and sustainable practices to reduce utility costs (2025-2030). Streamline administrative processes and eliminate redundancies to improve operational efficiency (2025-2030). 	<ul style="list-style-type: none"> Percentage reduction in operational expenses. Reduction in utility costs due to energy-saving measures. Efficiency gains achieved through streamlined administrative processes. 	<ul style="list-style-type: none"> Management Financial officer

7.7 Industry Relevance

Objectives	Key Actions	Indicators	Responsibility
<ul style="list-style-type: none"> Strengthen industry partnerships 	<ul style="list-style-type: none"> Strengthen sector advisory board to provide guidance on curriculum development and research priorities (2025-2030). Foster research collaborations with industry partners to address emerging challenges and opportunities (2025-2030). Facilitate industry-sponsored projects and internships for students to gain practical experience and network with professionals (2025-2030). 	<ul style="list-style-type: none"> Number of industry partnerships established or strengthened. Number of research collaborations with industry partners. Number of industry-sponsored projects and internships provided to students. 	<ul style="list-style-type: none"> Management Academic Programmes Coordinator
<ul style="list-style-type: none"> Revise curriculum to meet industry standards 	<ul style="list-style-type: none"> Conduct regular reviews of academic programs to ensure alignment with industry standards and emerging trends (2025-2030). Integrate industry-relevant content, case studies, and guest lectures into coursework to enhance practical applicability from 2025 to 2030. Offer specialised tracks or concentrations within programs to cater for specific industry needs and career pathways from 2025 to 2030. 	<ul style="list-style-type: none"> Frequency of curriculum reviews conducted. Percentage of program content aligned with industry standards. Student satisfaction with the relevance and applicability of coursework. 	<ul style="list-style-type: none"> Management Academic Industry Liaison Coordinator Programmes Coordinator
<ul style="list-style-type: none"> Facilitate student engagement in industry-related activities 	<ul style="list-style-type: none"> Organise industry networking events, career fairs, and guest speaker series to connect students with industry professionals from 2025 to 2030. Provide mentorship opportunities and career counselling services to help students explore career options and develop industry-specific skills from 2025 to 2030. Support student-led initiatives such as clubs, competitions, and projects focused on addressing industry challenges and fostering innovation from 2025 to 2030. 	<ul style="list-style-type: none"> Attendance and participation rates in industry-related events and activities. Number of students participating in mentorship programs and career counselling sessions. Number of student-led initiatives and their impact on addressing industry challenges. 	<ul style="list-style-type: none"> Industry Liaison Coordinator Academic programmes Coordinator

7.8 Visibility and Internationalisation

Objectives	Key Actions	Indicators	Responsibility
<ul style="list-style-type: none"> Increase awareness of RWESCK's mission, programs, and achievements. 	<ul style="list-style-type: none"> Develop a comprehensive communication strategy that includes traditional and digital media, social media, and targeted outreach campaigns from 2025 to 2030. 	<ul style="list-style-type: none"> Increase in the number of media mentions and press coverage about RWESCK. Growth in social media followers and engagement metrics (likes, shares, comments). Feedback from stakeholders indicating improved awareness of RWESCK's mission, programs, and achievements. 	<ul style="list-style-type: none"> Centre Director Visibility and Media Coordinator
<ul style="list-style-type: none"> Enhance engagement with internal and external stakeholders. 	<ul style="list-style-type: none"> Cultivate relationships with key stakeholders, including alumni, donors, community partners, and government agencies, through regular communication and engagement activities from 2025 to 2030. 	<ul style="list-style-type: none"> Number of engagement activities conducted with internal and external stakeholders (e.g., alumni events, donor appreciation events, community outreach programs). Feedback from stakeholders indicating increased satisfaction with communication and engagement efforts. Number of partnerships or collaborations established with external stakeholders. 	<ul style="list-style-type: none"> Industry Liaison Coordinator Visibility and Media Coordinator IT officer
<ul style="list-style-type: none"> Build and protect the institution's reputation and brand identity. 	<ul style="list-style-type: none"> Monitor and manage the institution's online presence and reputation, including proactive reputation management and crisis communication planning (2025-2030). 	<ul style="list-style-type: none"> Maintenance of a positive online reputation score (based on sentiment analysis of online mentions). Timely and effective response to any negative publicity or crisis situations. Surveys or feedback indicating stakeholders' perception of RWESCK's reputation and brand identity. 	<ul style="list-style-type: none"> Visibility and Media Coordinator IT officer

Objectives	Key Actions	Indicators	Responsibility
<ul style="list-style-type: none"> Enhance international collaboration and partnerships 	<ul style="list-style-type: none"> Establish partnerships with international universities and research institutions for joint research projects and academic exchange programs and encouraging Centre fellows to initiate and participate in these collaborations (2025-2030). Encourage Centre fellows to present their research at international conferences, seminars, and symposiums to foster collaboration and exchange of ideas (2025-2030). Facilitate Centre fellows' involvement in faculty and student exchange programs such as exchange programs, study abroad opportunities, and international internships. 	<ul style="list-style-type: none"> Number of international partnerships established or strengthened with the involvement of Centre fellows. Participation of Centre fellows in international conferences and collaborations. Number of Centre fellows engaged in faculty and student exchange programs. 	<ul style="list-style-type: none"> Management Industry Liaison Coordinator Academic Programmes Coordinators.

8. Conclusion

The RWESCK strategic plan charts a course for the Centre to strengthen its position as a premier Research Center in Water and Environmental Sanitation education and research. By focusing on governance and leadership, RWESCK aims to strengthen its decision-making processes and foster a culture of commitment and transparency. Human resource development initiatives will attract and retain top talent, while academic excellence will be pursued through innovative postgraduate programs and increased research output.

Financial sustainability will be achieved through diversified revenue streams, endowment fund, and cost-saving measures. Industry relevance will be maintained by aligning curricula with industry standards and strengthening partnerships. Visibility and internationalization efforts will raise the Centre's profile, enhancing engagement with stakeholders and building a robust brand identity. Through these strategic efforts, RWESCK will continue to make significant contributions to the WASH sector, impacting communities locally and globally, and advancing sustainable development goals.

By 2035, RWESCK envisions itself as a globally recognized Centre of excellence, producing high-caliber graduates equipped to tackle the water and sanitation challenges of the future. This strategic plan is a testament to RWESCK's unwavering commitment to its mission and vision, paving the way for a collaborative and impactful future in water and sanitation.

PROJECT STAFF

CENTRE DIRECTOR



PROF. RICHARD AKWASI BUAMAH

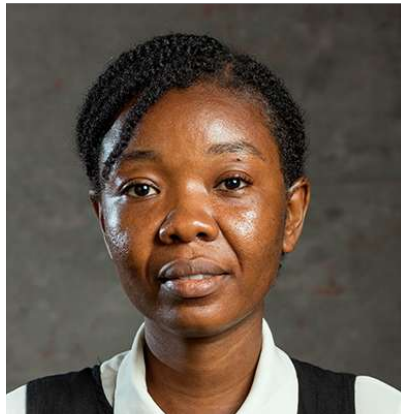
CENTRE DEPUTY DIRECTOR



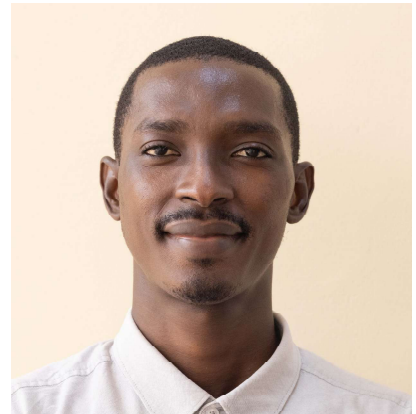
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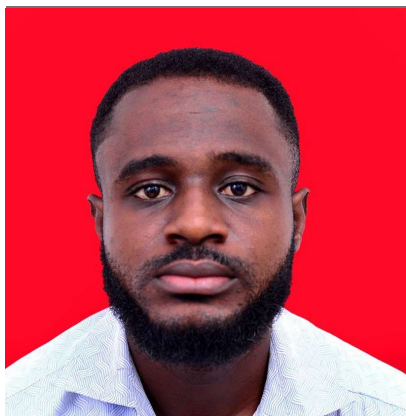
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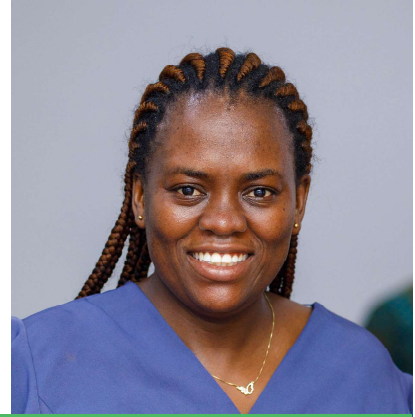
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RWESCK
 Regional Water & Environmental Sanitation Centre Kumasi

 Kwame Nkrumah
 University of Science
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ANNUAL REPORT

2024

PARTNERS



IMPLEMENTING PARTNERS

