



REPORT ON HATOF'S EXPERIENCE SHARING AND KNOWLEDGE EXCHANGE FORUM OF THE RECIRCULATE PROJECT IN GHANA

ACCRA, ERATA HOTEL
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EXECUTIVE SUMMARY

Accessibility to water is an internationally recognized right for every human's dignity, yet billions of people are still deprived of this right. It is evidential, according to the UN World Water Development Report 2019: 'Leaving no one behind, the necessity to adopt both policy and practice approaches in addressing the inequalities and exclusion of clean and proper water and sanitation systems and procedures.

Primed by these alarming results, Lancaster University, UK, Lancaster University Ghana (LUG), Council for Scientific and Industrial Research (CSIR) and the University of Benin with partners in Ghana, Nigeria, Malawi, Zambia, Botswana and Kenya together worked towards a safer circular water economy in Africa under the RECIRCULATE project.

Progressively, the RECIRCULATE project has advanced:

- ◆ understanding how African eco-innovation systems work, how they differ from European models, and what innovations would be needed to achieve SDGs 8 and 13.
- ◆ growing the capacity and capability in Africa's eco-innovation community by developing and promoting innovations through better-skilled people
- ◆ establishing African research organizations as 'anchor' institutions that drive and sustains change
- ◆ Enablement of African researchers to co-design ambitious eco-innovation projects aimed at delivering a safe circular water economy for Africa.

A one-day Experience Sharing and Knowledge Exchange Forum is imperative to highlight the efforts, goodwill, successes and challenges realized by project partners in Ghana with key stakeholders involved in the initial stages of the project as well as those unfamiliar with the project and its impacts on beneficiary communities and institutions.

The Forum sought to raise the profile of the RECIRCULATE project through experience sharing and knowledge exchange among project partners and key stakeholders in the circular water economy in Ghana.

1 BACKGROUND AND INTRODUCTION

The RECIRCULATE project is an action-oriented project aiming to drive eco-innovation in Africa and adopt new partnership-based approaches to enable African researchers and research institutions to grow transformational impact through working with, in and for their communities. The project was expected to deliver innovative solutions to pressing problems with water use and safety in Africa.

Primed by these rising water challenges, the RECIRCULATE project which commenced in 2017 was underpinned by four interlinked research areas, *(i) water for sanitation and health; (ii) water for food production; (iii) water for energy production; and (iv) water, pathogens and health.* The project since its inception to its completion in 2022 has supported the join-up of diverse ways water promotes and sustains developments and communities from waste and sewage disposal to energy generation and water used for food and agricultural production growing a transformational impact through working with, in and for communities especially in Ghana.

The RECIRCULATE Project in Ghana has advanced collaborative engagements while building interests in research-driven and community-led solutions among researchers, institutions, government agencies, CSOs, private sectors, and local communities.

With the aim of *raising the profile of the RECIRCULATE project to maximize its research and societal impact in Ghana*, the RECIRCULATE Experience Sharing and Knowledge Exchange Forum highlights the transformational paradigm achieved under RECIRCULATE in Ghana through experience sharing, knowledge exchange and information spreading among key stakeholders at local and community levels to support the project's sustainability.

1.1 The RECIRCULATE Experience Sharing and Knowledge Exchange Forum in Ghana

The Forum was an active engagement of discussions, sharing of experiences, and networking with players and key actors in the water, sanitation, energy, and health sectors. The forum leveraged RECIRCULATE's goodwill and impact to share experiences including findings, lessons, successes and challenges learnt by partners as well as beneficiaries both institutional and community; and spread these experiences and transformations with critical stakeholders, including industry players,

private sector, media, CSOs and state actors involved in the initial stages of the project. This will also include stakeholders unfamiliar

The one-day Experience Sharing and Knowledge Exchange Forum of the RECIRCULATE project in Ghana was hosted by HATOF Foundation and took place on Friday 27 May 2022. In collaboration with Ghanaian partners of the RECIRCULATE Project, the forum brought together local actors in the circular water economy in Ghana to propagate the collective achievements garnered under the project.



UK Research and Innovation

GCRF
Global Challenges Research Fund

RECIRCULATE EXPERIENCE SHARING AND KNOWLEDGE EXCHANGE FORUM IN GHANA

Date: FRIDAY 27TH MAY, 2022

Venue: ERATA HOTEL

Time: 9:00AM

Partners:

Lancaster University, CSIR, HATOF Foundation, UNIVERSITY OF BENIN, Centre For Distance Learning, Lancaster University Ghana, BIOT (BOTSWANA INTERNATIONAL UNIVERSITY OF SCIENCE & TECHNOLOGY)

The Forum was facilitated by Dr. Samuel Dotse, Chief Executive Officer of HATOF Foundation. This report summarizes presentations, panel discussions, comments, submissions and questions addressed during the one-day Forum.

1.2 Objectives of the Forum

The RECIRCULATE project, *“Driving eco-innovation in Africa through Capacity-building for a safe circular water economy”* funded by the Global Challenges Research Fund through UK Research and Innovation seeks to tackle major global development issues and improve lives in communities in Ghana and Nigeria.

In this framework and acknowledging the tremendous work executed under RECIRCULATE by key partners in Ghana, HATOF Foundation sought to ‘raise the profile of the RECIRCULATE

project to maximize its research and societal impact in Ghana’. This will espouse experience sharing, knowledge exchange and communication of the project's progress among critical stakeholders involved at the initial stages of the project and stakeholders and beneficiaries unfamiliar with the project outcomes or solutions in the communities.

As part of HATOF’s role in raising the profile of the RECIRCULATE project in Ghana, a RECIRCULATE Lessons Learned Document (LLD) was developed to serve as a reference in the focal area of safe circular water economy by documenting and accounting for lessons, successes, challenges and recommendations from all project partners and researchers involved at essential stages of the project implementation in Ghana for future research processes and project engagements. The LLD was distributed at the Forum among other RECIRCULATE souvenirs.

1.3 Participants of the Forum

The one-day RECIRCULATE Forum brought together over **50 participants** which includes beneficiary institutions and communities, local civil society organizations (CSOs) in the circular water economy in Ghana, Ministries of water, sanitation, and health, RECIRCULATE project partners, and reporters from national media houses.

2. OVERVIEW OF THE FORUM

The one-day Forum was divided into two sessions with a group photograph taken at the end of the first session. The Forum officially began with an introduction of participants present which was facilitated by Dr. Samuel Dotse. The agenda continued with a presentation to set the stage by Dr. Richard Bayitse who stood in for Dr. Francis Boateng Agyenim, Director of the Council for Scientific and Industrial Research (CSIR)-Institute of Industrial Research (IIR). This was followed by series of presentations and panel discussions by key partners and beneficiaries of the RECIRCULATE project in Ghana. Participants had the opportunity to ask questions, seek clarifications and make suggestions for integrated future engagements in the circular water economy in Ghana.

3. PRESENTATIONS AT HATOF’S RECIRCULATE EXPERIENCE SHARING AND KNOWLEDGE EXCHANGE FORUM IN GHANA

SESSION ONE (1)

This session was moderated by Dr. Samuel Dotse



3.1 Overview of the RECIRCULATE Project and Work Achievements in Ghana

The first presentation set the stage for key actors in the circular water economy in Ghana to understand the RECIRUCLATE project and what it sought to achieve in Africa. Dr. Bayitse, Team Lead for WP2 in Ghana stood in for Dr. Boateng Agyenim, Director of CSIR-IIR.

Dr. Richard Bayitse of CSIR, IIR introduced the RECIRCULATE Project and what it sought to achieve. Dr. Bayitse comprehensively provided an overview of the RECIRCULATE project and its underpinnings in the four interlinked research areas specifically, *(i) water for sanitation and health; (ii) water for food production; (iii) water for energy production; and (iv) water, pathogens and health.*

The overarching goal of the RECIRCULATE project was successfully engineered under four interlinked areas or work packages (WP): WP1-water for sanitation and health, WP2-water for food production, WP3- water for energy production, and WP4- water, pathogens and health. He stated that Ghana as a country implemented three (3) out of the four work packages specifically, WP1, WP2, and WP3.

He acknowledged the collaborative and integrated approach of the project by bringing together scientists from different parts of the world to address the challenging water crisis in Africa and support the varied ways water promotes and sustains developments and communities from waste and sewage disposal to energy generation and water used for food and agricultural production.

He stated that RECIRCULATE project most importantly in Ghana, ‘has taught researchers and scientists how to engage communities and how to have entrepreneurial thinking in research works undertaken in the circular water economy’. He went further to admonish the good work and commitments made by project partners and local communities to support the successful implementation of the project.

3.2 Presentation on the Overview, Experiences and Lessons Learned on the Entrepreneurship and Innovation Package (Work Package 1) implemented in Ghana



Mr. Anthony N-Yelkabong presenting on the overview of Work Package 1

Mr. Anthony N-Yelkabong, Lancaster University Ghana and team member of the WP1 briefly introduced the Entrepreneurship and Innovation work package (WP), and its research focus to analyze the optimum ecosystem for African research institutions to work with, in and for their communities in Ghana. He acknowledged the demand and calls from scholars and policy makers for the development of strong local institutions to address societal challenges as research and academic institutions form a key element of these strong local institutions.

With the aim to co-create appropriate scalable programmes that contribute to international research and knowledge exchange initiatives (Example; SETS) while providing a platform for dissemination and building capacities, Mr. N-Yelkabong revealed key achievements and successes

attained by the team under the WP1. Amongst these achievements were the development and growth of an entrepreneurial eco-system through the co-design, and co-facilitation of SETS Workshops, models and toolkits for entrepreneurial thinking; the improvements in community-research interactions including the participation in the UN Climate Change Conference of Parties (COP26) Innovation Zone Exhibition, and Fair Research Partnerships (FRP); and the building of capacities of key Integrated Research Projects (IRPs) including the Women Innovators Network for Africa (WINA).

He acknowledged the strong capacities built by researchers, scientists and entrepreneurs in the space of entrepreneurship and innovation in Ghana at both individual and organizational levels as well as the opportunities for networking and partnerships accumulated.

Amidst the opportunities and successes created under the work package, Mr. Anthony N-Yelkabong stated the challenges faced by the team including the COVID-19 Pandemic and the discontinuity of an IRP.

Questions and Comments

Below are a few questions, responses and comments made after the presentation

- ❖ What were the expected outcomes of the WP1?
 - The expected outcomes of this work package included the development of an entrepreneurial toolkit for researchers and scientist, publication of papers and articles among others.
- ❖ One of the legacies of the WP was the development of a PhD student. What was the project focus of the student?
 - The PhD student focused on the collaboration between academia and industry.
- ❖ Why was the IRP discontinued because the lead left? Was there no replacement or search for a replacement?

3.3 Presentation on the Overview of the Health and Sanitation Package (WP2) implemented in Ghana



The Team Lead for Work Package 2, Dr. Richard Bayitse of the CSIR-IIR gave an overview of the Health and Sanitation package by introducing the research focus of the package and how eco-innovations can aid proper water production and usage in our communities in Ghana . He mentioned that the WP2 in Ghana was implemented in two communities specifically, the Gbegbyise and Madina communities. He then threw a question to the audience of how drinking water consumed in Africa’s poor urban communities get contaminated with faecal waste and can we find a safe circular solution to this problem in Ghana. He answered, ‘Yes, this is what the WP2 in Ghana sought to prove and experiment’.

He further outlined the key activities and achievements undertaken by the package which included the launch of the project and delivery of handwashing facilities to the Gbegbeysie community, drain and tap connection repairs and upgrade, community clean-ups, toilet dislodge and building of 10 additional toilet facilities for selected households, deployment of waste skips, formation of change agents groups, involvement of a community-based organization (CBO) and adolescent forerunners and community discussion sessions to accommodate an integrated solution to water and sanitation issues in the community.

Dr. Bayitse continued to reveal the various innovations benefited by the Madina Zongo community including the weather station, school show (science) lab, and the ACTUATE Biodigester demonstrator all constructed in the Umar Bun Hatab Islamic School for the whole Zongo community. He stated that the WP2 research established the ‘concept of the Last 100metres’ where these interventions have led to improvements in environmental quality measured by the quality of wastewater in drains. Finally, according to Dr. Bayitse, these improvements in environmental quality is yet to translate into improvements in water quality at the point of use. And is dependent on continuous behavior change in these communities.

3.4 Panel Discussion

The panel discussion was intended to address how the last 100 metres problem manifest itself across a range of contexts and identifiable interventions that reduce contamination in those contexts.

The panelists:

- ❖ Dr. Richard Bayitse, CSIR-IIR
- ❖ Patience Agbedor, CSIR-IIR
- ❖ Eric Boamah, CSIR-IIR
- ❖ Bennett Akuffo, Green Advocacy Ghana



Panelists discussing issues of Work Package 2

Session Summary

The panel enlightened the audience on the state of communities that were engaged to better understand the source of the problem and how the various interventions caused improvements in the communities.

- ◆ **The Gbegbeyise Community-** According to the panelist the Gbegbeyise community was the major beneficiary of the water and sanitation interventions introduced. This is as a result of poor water storage and usage practices among inadequate sanitation resulting from the poverty state of individuals living in the community. Hence the concept of the ‘last 100 metres’ and how illicit practices of community members affect the last 100 is very evident.
- ◆ **Interventions to reduce contamination in the ‘last 100 metres’-** The WP2 admitted both eco-innovations as well as behaviour change methods to aid the reduction of contamination. These interventions included both eco-innovations (delivery of handwashing facilities, toilet dislodge and building of 10 additional toilet facilities for selected households, deployment of waste skips) and change methods (formation of change agent groups, involvement of a community-based organization (CBO) and adolescent forerunners and community discussion sessions).
- ◆ **Sustainability of WASH facilities-** The strategic move of the WP2 team was the development of change agents capitalizing on the youth power of the communities and the CBO to ensure the continuity of behaviour change while propagating sustainability of interventions introduced in the communities.

Suggestions

In spite of the integrated interventions developed in these communities, it is prudent that community leaders as well as district/municipal authorities improve local environmental protection and sanitation structures to aid the sustainability of local interventions.

SESSION TWO (2)

This session was moderated by Mr. Vincent Ansah Botchway of the CSIR, Animal Research Institute.



3.5 Presentation on the Overview of the Water for Food Production Package implemented in Ghana

Mr. Gilbert Osei, CSIR-IIR and team member of the WP3 presented on the overview and experiences of the WP3 team. The research focus of the package addresses how small-holder agriculture benefit from new approaches to irrigation based on the understanding crop biology and access to new technologies and how these technologies can be developed and optimized for local communities.

Mr. Osei identified that the research focused on two key technologies; Alternate Wetting and Drying Irrigation system in rice and the Partial Rootzone Drying (PRD) in tomato via furrow irrigation. He acknowledged that the need for this research was as a result of the necessity for efficient resource use to increase food production in Ghana. According to MR. Osei, in addressing this need, the WP3 used different water saving irrigation technologies to enhance crop productivity and food security under West African conditions.

He revealed from the team's research that applying these technologies decrease crop water requirements without decreasing crop yield. As a result, farmers have shown high potential to adopt irrigation scheduling techniques and as well use digestate as alternative nutrient source if

bottlenecks are removed. He concluded by adding that in order for these technologies to be well adopted, capacity building and awareness raising was espoused to propagate these findings amongst farmers and farmer-based organizations in the beneficiary communities.



Mr. Gilbert Osei presenting on the overview of Work Package 3

Questions and Comments

Below are a few questions, responses and comments made after the presentation

- ❖ Where was the WP3 demonstrations implemented in Ghana?
 - The project was implemented in communities within Central and Eastern regions of Ghana.
- ❖ Why didn't the team introduce these technologies as separate from the current farmer practice?
 - In the Ghanaian setting, change is difficult and expensive. Introducing these technologies to be used as a totally new irrigation technique will impede on the fast adoption by farmers but rather the team introduced these technologies into the current farmer system in order to ease the process of adoption for local farmers.

3.7 Panel Discussion to share Beneficiary stories

The panel discussion was intended to allow community and institutional beneficiaries to share their experiences, lessons and benefits derived from the RECIRCULATE project and if appropriate the ACTUATE project. The representative of the Gbegbeyise community shared the experiences of the community in his local dialect specifically, ‘Ga’ where Ms. Valerie Nutakor of HATOF Foundation interpreted to the audience in English.

The panelists:

- ❖ Dr. Jolene Nyako, CSIR-Food Research Institute
- ❖ Ofosu Eric Obeng, Umar Bun Hatab Islamic School
- ❖ Nii Abashie, Opinion Leader-Gbegbeyise community



Beneficiaries sharing their stories, experiences, lessons

Session Summary

CSIR-FRI: According to Dr. Nyako, the CSIR-FRI was a beneficiary on the RECIRCULATE project benefiting specifically from the Entrepreneurship and Innovation workshops organized by the WP1 team. She acknowledged that the “Stimulating Entrepreneurial Thinking of Scientists” has widened the thinking and horizon of the Institute giving it the opportunity to also train its own members to propagate entrepreneurship and innovation ideologies in research.

UBH: According to Mr. Ofori, the school has benefited from both the RECIRCULATE and ACTUATE projects rendering the school a STEM discovery in the Madina Zongo community. As a result of project partner engagements with learners of the school, students now appreciate the circular water economy and were even able to train and teach students from other junior high schools and secondary school as well on the concept of waste to energy as demonstrated by the Anaerobic digester. The school and the Zongo community as a whole have benefited from the Anaerobic digester, a show lab (science) and a weather station from both the RECIRCULATE and ACTUATE. This is aside the trainings and capacity building the students, teachers, parents and the community have been given by project partners.

Gbegbeyise community: ‘The recirculate project has been a great help to my Community and I cannot thank the implementing team enough! We are grateful. Before the project, the Gbegbeyise Community faced serious hygiene and sanitation issues that posed serious health problems for both adults and children but now, when you mention Gbegbeyise? We are the cleanest and hygienic community amongst our surrounding communities, such as Shiabu and Wiaboman communities’.

‘It was a rather huge hurdle when it came to constructing the toilet facilities as most of the indigenes expressly stated their preference for open defecation by the sea as opposed to using toilet facilities. The choice was justified by reason that open defecation by the sea was an avenue to also enjoy a cool breeze whilst attending to nature's call. Another headache the implementing team experienced were with the home owners of the community. These persons (known as land lords or ladies) stated their intention to build single rooms to be rented out instead of toilet facilities, because the toilet facility would not be financially beneficial’.

‘Although the challenges were many, the project was successfully implemented and now we have clean, safe and potable water, good drains and a good number of toilet facilities that can be accessed free of charge. We also now know that when our water containers are unwashed, it breeds germs which leads to infections. Indeed, the saying remains true that, cleanliness is indeed next to godliness. Gbegbeyise says thank you! And we like Oliver Twist, would be grateful if more is done as we see in the other projects. Such as biodigesters and other good things for the Gbegbeyise community. We have received good training and help, so with our change agents, our community-based organizations formed, and as concerned residents of Gbegbeyise, we will guard these developments and ensure that they are properly managed’.

4 CLOSING REMARKS

Ms. Valerie Nutakor, team member of HATOF Foundation gave the closing remarks by acknowledging the efforts of the RECIRCULATE Project partners in Ghana for their contribution towards a collective and high-level community-research participation and advised that key actors in the circular water economy in Ghana present at the programme take the opportunity to engage RECIRCULATE project partners and community actors to invest in sustainable eco-innovation and technologies that promote a safe circular water economy in Ghana especially in our local communities.

She further recognized the presence of all participants to encourage the spreading of the learning process in order to propagate the good works of RECIRCULATE in Ghana and the African continent. Ms. Nutakor finally expressed her profound gratitude to all participants and humbly instructed that we all be agents of change in our various communities.

The program ended at 2:00 pm as the media engaged with the speakers which was followed by lunch.

5 CONCLUSION

The RECIRCULATE Project in Ghana has advanced collaborative engagements while building interests in research-driven and community-led solutions among researchers, institutions, government agencies, CSOs, private sectors, and local communities. It is imperative to highlight the transformational paradigm achieved under RECIRCULATE in Ghana through experience sharing, knowledge exchange and information spreading among key stakeholders at local and community levels to support the project's sustainability. Hence the RECIRCULATE Experience Sharing and Knowledge Exchange Forum to raise the profile of the RECIRCULATE project to maximize its research and societal impacts in Ghana.

The RECIRCULATE Lessons Learned Document developed and distributed at the Forum forms an integral part of this agenda by capturing lessons learned throughout RECIRCULATE project life cycle and also providing an overall progress summary of the RECIRCULATE project implemented in Ghana serving as an official RECIRCULATE document referenced from all relevant documents under the project.

ANNEX 1: Photographs of Discussion session at the Forum
Sections of participants during the RECIRCULATE Forum



Printed RECIRCULATE documents and souvenirs



ANNEX 2: AGENDA

AGENDA

RECIRCULATE EXPERIENCE SHARING AND KNOWLEDGE EXCHANGE FORUM IN GHANA

Date: May 27, 2022

Venue: Erata Hotel

Time: 9:00 am

9:00 -9:30am	Arrival and Registration
9:30 - 9:35am	Opening prayer
9:35 - 9:40am	Introduction of Participants
9:40 – 9:50am	Setting the Stage: The Background and work achievements under the RECIRCULATE Project in Ghana <i>Dr. Francis Boateng Agyenim- Director, CSIR</i>
9:50-10:10am	Presentation/Discussion 1: Overview, Experiences and Lessons learned on the Entrepreneurship and Innovation Package (Work Package 1) implemented in Ghana <i>WP1 Team- Anthony N-Yelkabong, Lancaster University Ghana</i>
10:10 – 10:20am	Q&A
10:20 – 10:30am	Presentation 2: Overview of the Health and Sanitation Package (Work Package 2) implemented in Ghana <i>WP2 Ghana Team Lead- Dr. Richard Bayitse, CSIR-IIR</i> <i>Moderated by: Dr. Samuel Dotse</i>
10:30 – 11:40am	Panel Discussion 2: WP2- Health & Sanitation The panel discussion is intended to address <i>how ‘the last 100 metres’ problem manifest itself across a range of contexts and identifiable interventions (eco-innovations and/or changes to practice) that reduce contamination in those contexts</i> Panel Members <ul style="list-style-type: none"> • Patience Agbedor, CSIR-IIR • Joyce Tuakly, Blueskies Ghana Ltd • Bennett Akuffo, Green Advocacy Ghana <i>Moderated by: Dr. Samuel Dotse</i>
10:30 – 10:40am	Q&A
10:40 – 11:00am	Coffee Break/ Group Photo
11:00 – 11:10am	Presentation/Discussion 3: Overview Experiences and Lessons learned on the Water for Food Production Package (Work Package 3) implemented in Ghana <i>WP3 Ghana Team- Gilbert Osei</i> <i>Moderated by: Mr. Vincent Ansah Botchway</i>
11:10 – 11:20am	Q&A
11:20 – 11:40am	Beneficiary stories Panel Members <ul style="list-style-type: none"> • Dr. Jolene Nyako, CSIR FRI • Jacob Amengor, iWASH Africa • Ofosu Eric Obeng, Umar Bun Hatab Islamic School (UBH) • Ni Agbashie, Opinion Leader- Gbegbeyise Community <i>Moderated by: Mr. Vincent Ansah Botchway</i>
11:40 – 12:00pm	General Questions and Comments
12:00 – 12:10pm	Closing Remarks
12:10 – 12:30pm	Lunch/Departure

Moderator: Dr. Samuel Dotse, Chief Executive Officer- HATOF Foundation