

Newsletter of the Women in Science, Technology, Engineering and Mathematics in Ghana (WiSTEM_{Gh})



The Inspirer

September, 2021


Women in Research



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WELCOME MESSAGE FROM THE EXECUTIVE DESK

Dear WISTEM Community and Friends,

It is time again for us to look back and celebrate the rise of women in STEM, who are defying all odds and rising to the challenge to be the torchbearers on both local and global arenas within the scientific research community.

As life-long researchers, we are keenly aware of the numerous challenges women have to grapple with amidst huge social responsibilities and expectations. These challenges and uncertainties present themselves as opportunities for research, growth and development. We are particularly excited about the women in the scientific community who have exhibited unwavering resilience to pursue a worthy cause with immense societal returns on all fronts.

Science, as we all know, has been the backbone of societal and economic development. The continuous churning of new knowledge through rigorous systematic research has made society evolve in many ways, through improved transport systems, healthcare delivery, automobile industry, construction and built environment, agriculture and agribusiness food industry, biotechnology, information technology, maths and the actuarial industries and many more. The plethora of technological advancements are worthy of the essential contribution of Women in STEM yesterday, today and tomorrow.

It is an undeniable fact that women in most cases are underrepresented in the Scientific Research Community. According to the World Economic Forum only 30% of women are in STEM globally and this calls for a shift at various dimensions in leveling the ground for all women to pursue their careers in STEM to the fullest potential.

Notwithstanding, Women have been at the forefront

of the majority of technological developments through research and development ensuring today's society evolves to what we seek for in generations to come. Women in research play a key role in science that transcends boundaries as good storytellers, implementers and visionaries and we are thrilled to be sharing their journey in this edition. We are confident that the future of our communities will be majorly dependent on women reaching their full potential in STEM careers.

Only together as a thriving community can we make our families, societies, institutions, nations and the world at large a better place through sound science without borders.

At WISTEM, our mission is to help you grow, discover, and realize your aspirations within the scientific community of women who are no different from you. Within our community, you will find the guidance, mentoring and coaching to develop and serve your community whether you want to develop your leadership skills, explore your passion for the STEM, serve our community, conduct your own research, or pursue a community based scientific engagement.

On behalf of the WISTEM community, I welcome you and hope you find a significant dose of inspiration from the stories and excerpts captured in this edition (volume/issue) of our Inspirer.

With best wishes:

Prof. (Mrs.) Ibok Oduro

Prof. (Mrs.) Olusola Atinuke Adebajji

Dr. (Mrs.) Mercy Badu

Dr. (Mrs.) Augustina Sylverken



EDITORIAL

By Prof. Marian Asantewah Nkansah



The very nature of women makes them good candidates for excellent research. Qualities such as attentiveness, careful observation, attention to detail, meticulousness, ability to multi-task, etc., which set good researchers apart, come to a large majority of women naturally. However, women continue to lag behind men in terms of total contribution to the world's research force due to challenges such as issues of cultural, social and economic background which hamper the progress of women in the research land scape.

This edition of the INSPIRER is focused on WOMEN IN RESEARCH.

We shed light on the research work of women at different levels of their career and how they juggle work with other aspects of their lives.

Most of the articles focus on research being led by women in the six Colleges of the Kwame Nkrumah University of Science and Technology, while the rest focus on WiSTEM-Ghana members from other parts of Ghana.

We have had an enriching experience while putting this issue of the INSPIRER together, and trust that you will feel same after reading. Enjoy!!

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COLLEGE OF ART AND BUILT ENVIRONMENT

Department of Painting and Sculpture KNUST-Kumasi



Dr. Dorothy Akpene Amenuke

BACKGROUND INFORMATION: Growing up, Educational background, Current qualification, Status and Workplace

I grew up in Akwatia, on the then Diamond mines (where my father was a teacher). That is where I had my primary education. My mother also taught in St. Rose's Secondary School, where I proceeded for my GCE O'Level. I continued to Mawuli School in Ho for my sixth form education and consequently obtained my GCE A'Level certificate. In 1989, I was admitted to the College of Art, of the then University of Science and Technology(UST), where I studied Sculpture for my undergraduate degree, graduating in 1993. I then pursued a Post Graduate Diploma and a Master of Arts in Art Education and completed in 1996, still in UST. I taught Art, first in the Junior Secondary School (KNUST Basic Schools) and later in the Senior High School (Tech Secondary School). In 2004, I enrolled on the Master of Fine Art programme of the KNUST Department of Painting and Sculpture and later, a PhD in the same Department. I am currently a Senior Lecturer in the Department of Painting and Sculpture, Faculty of Art, College of Art and Built Environment KNUST.

HOW DID YOU END UP AS AN ARTIST?

I come from a background in both Science and Art. My parents taught Science and Maths in the secondary school, but they loved Art. I was fortunate to attend a secondary school that allowed students interested in both Science and Art during the O'Level period to enroll in both areas. I, therefore, was a Science student who did Art in St Rose's Secondary School. I moved on to pursue Art at the A' Level as I realized I gravitated more towards Art. My interests and performance in art led me to the then UST College of Art. I have since remained in Art.

WHO WERE YOUR ROLE MODELS OR GREATEST INFLUENCERS WHILE GROWING UP?

My mother was my greatest role model. She taught at various levels of education in Ghana and retired as a Lecturer from the University of Education, Winneba. She taught us to pursue our dreams and be diligent in all that we did. I also had some of my aunts and uncles who did Art and taught Art in secondary schools as role models. They encouraged me when they realized I had an interest in Art.

WHAT ARE YOUR RESEARCH INTERESTS IN GENERAL AND CURRENT RESEARCH?

Generally, I am interested in artistically investigating "immediacy" with Mixed-media, Fibre Art, Installations and Resists Dyeing. My art has been involved in the manipulation of different fabrics and fibres as a metaphor in material, process and content, valuing a solid psychological and philosophical content.

I create environments in which the sense of 'ritual and magic' is profound. But by alluding to ritual and magic, I do not evoke the esoteric or necessarily mysterious. To me, ritual can be seen in repetitive acts or activities, and magic can also emanate from surprises that the ordinary allows. The processes I employ require and include long hours of cutting, dying, tying, knotting, pasting, weaving, modeling and installing.

These are not mere repetitious obsessive actions but a form of cumulative appeal, a sort of supplication or devotion to duty and purpose. The essence of my processes is an experience of "weaving the fabric of the self". And by the use of the word "manipulation", I literally refer to the act of engaging my hands in the

making process. This subtly unites the human heart and hand in an unspoken language of pattern and symbol, which in turn examines the nature of our daily actions, woven through our value systems. I see my processes speaking to the human spirit as I explore with my hands those connections our inner values have with our daily actions, both in our spiritual life and with our world community.

I enjoy the freedom of combining different fabrics and fibres and try to maintain a balance between control and spontaneity in whatever results from my experimentations. The materiality of the "used" (things that have experienced use, wear and tear), with which I sometimes build, speak of intimacy and privacy. They also relate to very public concerns, especially when the art objects are exhibited in outdoor or indoor spaces. I am currently working on the metaphor of the "used" and investigating the artistic potentials of intellectually disabled people with intellectual disability. With some of my students, I have worked in Deduako Life Community Special Vocational School and Garden City special School, both in Kumasi, Ghana.

IS YOUR RESEARCH FUNDED AND BY WHOM?

Not at all. Artistic research tends to skirt the fringes of subjectivity, and often, the capitalist-oriented funding sector would not make ready sense of the depths of such forms of research. The fact is that immediate economic benefits are not easily decipherable when it comes to our field of engagement. Many times, it is not easy to get funding for Art Research. One must, therefore, do all funding by oneself. There is also a double bind in the sense that when one's artistic production or significant research is known to have been funded from particularly known sources, the credibility of the work becomes suspect. To this point, the majority of my output has rested on my tiny coffers. The situation is the same with most colleagues in the fields of literature and creativity generally, but more so in the fine Arts.

HOW MANY PEOPLE ARE IN YOUR RESEARCH TEAM? INDICATE THEIR GENDER AND LEVELS OF EDUCATION.

The Research Team consist of five people: two women and three men. three PhD (Candidates), one MFA (Student) and one BFA (Student).

WHAT ARE THE EXPECTED OUTCOMES OF YOUR RESEARCH?

Curated Art exhibitions, Curated spatial interventions and Publications.

HOW HAS YOUR RESEARCH CONTRIBUTED TO KNOWLEDGE AND IMPROVEMENT OF LIFE AND THE SOCIETY?

My research has resulted in several art exhibitions, that educate both the literate and non-literate about life generally and particularly about art. These shows tackle/range through space occupancy, human responsibilities and reflections on the status quo. These engagements have given opportunities to some people from otherwise, less-resourced backgrounds to experience and create some art. Of course, my impact is not only limited to such a demographic, but the reaches of the work expand to as many areas of the society as possible. Through my work too, some public engagements in the forms of lectures, presentations and academic publications have resulted.

I have also facilitated workshops for Visual Art teachers and students of St Monica's Senior High School, Ghana. I have served as a member of Council (Government Nominated Rep) at the St Monica's College of Education Ashanti Region, Ghana. I am currently an Advisory Board member of "Advancing Creative Industries in Ghana", a five year (on going)

collaborative and interdisciplinary research project aimed at generating empirical and theoretical knowledge on creative industrial sector in Ghana to be used in Advancing the industry.

WHERE DO YOU SEE THE FUTURE OF YOUR RESEARCH?

To instigate more art experiences with and for people who do not have enough access. I seek to create art spaces (both physical and intellectual), where people could come to create some art, do some reading, partake in art discussions and that sort of thing. I hope to engage even more challenging ideas, topics and techniques, and create more art exhibitions to find more innovative ways to disseminate the knowledge.

WHAT EXTRA-CURRICULA ACTIVITIES ARE YOU INVOLVED IN?

I produce batiks, and from time to time, organize workshops for both local and international people (Peace Corps) who are interested in it. I also organize sessions for women Art students to support and encourage them with their art practice.

HOW DO YOU FIND WORK-LIFE BALANCE?

It has been interesting combing my responsibilities. Being a practising artist and a Lecturer, simultaneously,



Dr. Amenuke in a discussion at the 'Twists, Turns and Broken Doors' Exhibition, 2017

with home responsibilities, has generally called for my devising of strategies that would make me efficient. I have managed to combine them over the years. Although it has not been easy, I have managed to do my best with the help of my family, friends and colleagues.

HOW DO YOU UNWIND, ANY HOBBIES?

I love cooking and sewing, and from time to time, I do some gardening. Sometimes it is nice to sit comfortably, relax and reflect on all that transpires in life. These are the moments when ideas for art are either birthed or processed.

ADVICE TO YOUR YOUNGER SELF?

Nothing good comes easy. Hardwork and commitment are the keys to success and tranquility. My younger self should not be ignorant about the field interest and endeavour. Dream huge and pursue it honestly.

At work during
Ofkob Artists
Residency, 2018



*I seek to create
art spaces
where people
could come to
create some
art...*

Department of Planning, KNUST- Kumasi



Dr. (Mrs.) Akosua Baah Kwarteng
Amaka-Otchere

*...life is easy
too if you are
able to find
happiness in
the little things
around you*

BACKGROUND INFORMATION: Growing up, Educational background, Current qualification, Status and workplace

I was born in Bolgatanga in the Upper East Region. I grew up in Kumasi until I had my secondary school education, after which I moved to Accra to stay with my extended family for 2 years during my 6th Form education. I attended Garisson Primary (4BN), State Experimental School, Prince of Peace Girls' Secondary School, St. Louis Secondary School all in Kumasi, and finally Presbyterian Boys' Secondary School, Legon (PRESEC) in Accra for my 6th Form education.

I did my first and second degrees in KNUST, and doctorate in Technische Universität Dortmund, Germany. I worked in industry after my Bachelor's degree and in between my subsequent higher educational levels until 2016 when I joined academia.

HOW DID YOU END UP AS A SCIENTIST?

I come from a family of scientists. My father was a Chemist, my mother was a super great nurse – at one time she headed a whole medical facility. That is all I knew growing up – a house full of chemicals, scientific and medical implements and apparatus. Everything science caught my attention. My dad had a cliché – “Ask questions, ask why” - scientists always ask “Why.” My siblings and I were required to “apply the science” everywhere and in everything. When we had to move huge furniture through a small doorway, a look from my Dad's eyes simply told you to apply Physics! I realised I loved numbers. My statistics teacher at the 6th Form was a big inspiration even though we did not have a one-on-one discussion on that. I'm not sure he would even know who I am. That passion persisted as I progressed in education and career until now.

WHO WERE YOUR ROLE MODELS OR GREATEST INFLUENCERS WHILE GROWING UP?

My greatest role models were my parents. My Dad's science was applied everywhere. He baked excellently, taking his time to tell you why he took



Interaction with Students

what measurement of baking soda or yeast. He made shampoo, soaps, etc. He fixed everything at home. My mother amazed me with super intelligence in medical science. She had gone through very rigorous training, which she lived up to. She had her own library and upgraded her knowledge all the time. Nothing missed her intelligence. She put nurses in order, challenged them out of their comfort zones, challenged doctors to do more. She was tough and amazing. My siblings and I could not refuse a leadership position growing up because of our parents; it was a good training ground. They did not settle for mediocrity. Sometimes, it was suffocating and really the case that 'no discipline seems pleasant at the time, but painful. Later on, however, it produces a harvest of righteousness and peace for those who have been trained by it'.

WHAT ARE YOUR RESEARCH INTERESTS IN GENERAL AND CURRENT RESEARCH?

My areas of research interest are energy planning, environment, urban and regional planning. Currently I am involved in a collaborative research with partners in Rhodes University, South Africa. It is an action research titled, "Household energy use practices and potential interventions for sustainable

consumption in Makhanda-Grahamstown, South Africa and Kumasi, Ghana". It falls in the category of transdisciplinary research.

IS YOUR RESEARCH FUNDED AND BY WHOM?

Yes, my current research is funded by the International Science Council and the Network of African Science Academies.

HOW DID YOU SECURE THE FUNDING?

Funding was secured through a competitive application.

HOW MUCH IS THE GRANT?

It is a total of EUR 79,000 split between Rhodes University and KNUST

HOW MANY PEOPLE ARE IN YOUR RESEARCH TEAM? INDICATE THEIR GENDER AND LEVELS OF EDUCATION

The core team in Ghana comprises 6 members, with 8 partnering institutions. The core team comprises

4 females including the Principal Investigator, and 2 males. The team members are research assistants who also take on various management roles when necessary. One of the two young men is their supervisor. Their roles are strictly assigned according to their levels of competence. Two of them (a female and male) are also scholars on the project.

WHAT ARE THE EXPECTED OUTCOMES OF YOUR RESEARCH?

- Enhanced agency for residents to contribute to small-scale solutions to unsustainable energy consumption. i.e. generation of transformative knowledge.
- More relevant transformative scholarship. i.e. co-created knowledge that not only responds to local needs but is committed to social and individual transformation.

HOW HAS YOUR RESEARCH CONTRIBUTED TO KNOWLEDGE AND IMPROVEMENT OF LIFE AND THE SOCIETY?

The research engages academia, society and policy. Borrowing from the Triple Helix model propounded by Ranga and Etzkowitz (2013), the core of the research is to co-create solutions towards the energy sustainability challenge through facilitating effective and open interaction between the three parties. Our research has brought together on several occasions these three parties. In the process, unfavourable seething sentiments between society and policy have been resolved, technical gaps in the activities of technical agencies and policy makers have been uncovered, and the societies involved are playing the agency role by implementing interventions co-designed and encouraging their neighbours to do the same.

Again, the approach of society-policy interaction is different from what has been the status-quo in the development arena. The “co-creation” concept is a new and innovative concept which policy makers would hopefully adopt in tackling persistently sustainability challenges in the energy sector.

WHERE DO YOU SEE THE FUTURE OF YOUR RESEARCH?

It is anticipated that this new approach, in addition to our innovative communication tool, would be adopted by the policy makers and technical agencies involved as a vital pathway in addressing the energy sustainability challenge in Ghana.

WHAT EXTRA-CURRICULA ACTIVITIES ARE YOU INVOLVED IN?

Responsibilities at church, Scripture Union camps, volunteering activities as and when they come, extended family fun activities.

HOW DO YOU FIND WORK-LIFE BALANCE?

This is a very difficult question to answer. I have to be intentional about it. I try to free my Sundays as much as possible for nothing but worship and family activities. On a normal weekday, hours from dusk are times to organise the family and do homeworks with children, and touch base with my siblings and close friends. Academic work begins again in the wee hours of the morning until the next dusk. Recently, I've had to do extra tuition with the older children at dawn.

HOW DO YOU UNWIND, ANY HOBBIES?

I love gardening. I love sight-seeing and excursions. A recently newfound hobby is cycling - it gives me this feeling of freedom particularly when riding down slope. Other times, I just drive out of town! (smiling).


ADVICE TO YOUR YOUNGER SELF?

Hardwork pays. A personal decision to be useful to society matters, so that every action we take is purposeful. I will pass on the two common phrases I learnt from my parents: my father said, “Ask questions – ask why”. My mother always said, “As you do something repeatedly, probe and ask yourself ‘how can I do it better’ – it is a way of challenging yourself to being innovative and discovering better ways of doing things”. That is science!

ANY FINAL WORDS?

Firstly, life is hard and must be tackled the hard way, but life is easy too if you are able to find happiness in the little things around you. Both sides of the coin are not easy to achieve to say the least, but one has to be intentional and determined about everything.

Second, God in His infinite wisdom created the female the way He did – beautiful, complex, complicated, even the wiring of our brains is super complex which enables us to pick on numerous task at a time. We have no limits! Once you set your heart to do something, you are able to achieve it.



A newfound hobby is cycling - it gives me this feeling of freedom

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

Department of Horticulture, KNUST-Kumasi



Dr. Laura Atua



...draw inspiration from others, be content with who you are, believe in yourself...

BACKGROUND INFORMATION: Growing up, Educational background, Current qualification, Status and workplace

I had my primary education in Kumasi (Nhyiaeso International School), secondary education in Cape Coast (Ghana National College), first degree education (BSc Hons.), at KNUST, Kumasi. I did my postgraduate studies, both MPhil Horticulture and PhD Soil Science at The University of Reading, UK. Currently, I am a Senior Lecturer at the Department of Horticulture, KNUST.

HOW DID YOU END UP AS A SCIENTIST?

My Dad gave me the impression that the only relevant course to study was science. I can not tell whether it actually influenced my performance in school. I was doing better relatively, in the science subjects. I therefore pursued science and thought I would be a pharmacist in future.

WHO WERE YOUR ROLE MODELS OR GREATEST INFLUENCERS WHILE GROWING UP?

Dr. Mrs. Abigail Kyei, the current Head of the Dept. of Nursing and Midwifery of Pentecost University, was a great inspiration and encourager. She is also the current president of the Ghana College of Nurses and Midwifery. There were not many ladies in the university then so it made it feel like you really needed some extraordinary IQ as a lady to be in the university.

In general, my research interest is in the area of Horticulture- using soilless medium in greenhouse production of horticultural produce, Horticultural interventions in urban landscapes to mitigate the occurrence of urban heat island and the use of organic amendments for the remediation of metal contaminated soils. I am currently engaged in a project titled Remediation of Cocoa Soils in Ghana as a Route to a More Sustainable Cocoa Production.

IS YOUR RESEARCH FUNDED AND BY WHOM?

Yes, it is a funded research. It is funded by the Global Challenges Research Fund (GCRF)

The University of Reading UK, sought to collaborate with KNUST and the Cocoa Research Institute of Ghana to respond to the call for project proposals under the GCRF scheme. We held joint meetings via skype and brainstormed the way forward and a proposal was put together and submitted.

HOW MUCH IS THE GRANT?

Grant Amount: £595.682

HOW MANY PEOPLE ARE IN YOUR RESEARCH TEAM? INDICATE THEIR GENDER AND LEVELS OF EDUCATION

The team consists of 5 scientists from the University of Reading, UK, 3 from Cocoa Research Institute, Ghana and 2 from KNUST. All team members are PhD holders. Team members are all males and I am the only female.

WHAT ARE THE EXPECTED OUTCOMES OF YOUR RESEARCH?

It is expected that we will have a more sustainable means of improving the spent soils of old cocoa farms

by using composted cocoa pod husk and biochar from cocoa pruned twigs/small branches and pod husk.

This research is likely to expand the productive years of cocoa farms. As trees age production tend to decline and the cocoa soils need some form of amendments in order to sustain good yield. The cocoa pod husk can be used as a means of returning the extracted nutrients to the soil.

WHAT EXTRA-CURRICULA ACTIVITIES ARE YOU INVOLVED IN?

Besides academia I am engaged in cocoa farming, which is just about 3 years old now. I also do render some consultancy for landscape works. I am an ardent believer in keeping an intimate walk with God for I take fellowship with other believers seriously.

I love watching family films with family and friends.

ADVICE TO YOUR YOUNGER SELF?

My advice is, be ready to learn all the time. Remember, the way forward is team work. Going solo will delay progress. Be open to share and learn from others. You are unique as a person. So as you draw inspiration from others, be content with who you are, believe in yourself, stay focused and trust God; He wants you to be the best so work hard.



A visit to the International Cocoa Quarantine Centre

Department of Fisheries and Watershed Management, KNUST-Kumasi

...selecting who is on your team is critical to obtaining great outcomes and excellent wellbeing



Dr. Regina Esi Edziyie

BACKGROUND INFORMATION: Growing up, Educational background, Current qualification, Status and Workplace

I am the fourth of five girls born to my Father Mr. John Kofi Edziyie, a Mechanical Engineer, and Ms. Ms Mary Essien, a small business owner. My father was a firm believer in education and a very analytical person. My mother was an entrepreneur and is perhaps the most emotionally intelligent person I have ever come across. Being five girls in the house made for some exciting times; there were lots of fun, good food and our home was opened to many people. Both of my parents also believed in raising independent women who would make an impact in their communities. I started school when I was four years old, attending

Datus Preparatory School. This was a highly competitive and fun environment for me. I later moved on to Mfantseman Girls' Secondary School, where I met an interesting mix of teachers and characters that helped shape my life. After 6th Form, I did a one-year National Service at St John Bosco School, where I taught Science and Maths and for a short time PE, and Class Four. After my National Service, I gained admission into Kwame Nkrumah University of Science and Technology to pursue the BSc. Natural Resources Management. I also did my National Service at KNUST serving as a teaching/research assistant. In 2002, I had the opportunity to travel to USA to pursue an MS in Aquaculture/Fisheries at the University of Arkansas at Pine Bluff. I later moved to the University of North Texas where I pursued an MS in Applied Geography (Water resources) and

a PhD in Environmental science. I am currently a Senior Lecturer at the Department of Fisheries and Watershed Management, KNUST.

HOW DID YOU END UP AS A SCIENTIST?

I am reliably informed that I had a strong tendency for investigation and analysis right from childhood. Whenever my parents could not find a document or something else. They knew to contact me. My father encouraged me to be inquisitive, and my mother encouraged me to be myself. I also loved to read and always questioned the status quo. In short, my family encouraged me to investigate, and my teachers had very high expectations of me and were pushing me to pursue a medical profession later on. But it was not until I got to the 2nd year of my secondary education that I met a teacher who talked

about contamination incidents and impacts on the environment and humans, and I knew I wanted to be an environmental scientist.

WHO WERE YOUR ROLE MODELS OR GREATEST INFLUENCERS WHILE GROWING UP?

During my childhood years, that would be my family; my father taught me to be analytical, my mother taught me to love life and people, and my sisters gave me the wings to fly. Ms. Novak, my Science teacher, made me want to be an environmental scientist, but the most influential role model was my Masters Supervisor Dr. Peter Perschbacher; a great scientist, a godly and wonderful person who pushed me to be the best.

WHAT ARE YOUR RESEARCH INTERESTS IN GENERAL AND CURRENT RESEARCH?

I love everything water; my research interests include water quality in aquaculture systems and culturing new species, wastewater management, aquatic ecology and toxicology, and environmental education.

I am currently a CO-PI working together with Prof Adjei-Boateng (PI), KNUST and other members in Ghana and DTU working on a funded research project, 'IPAG- Improving aquaculture productivity in Ghana'. We want to better understand water quality dynamics in tilapia ponds better to update the current management practices, and also trying to domesticate and culture a 'new' species, *Heterotis niloticus* (Supaku), for farmers to culture to help relieve the current fishing pressure on wild populations and improve on fish farmers' livelihood.

I am also working with Dr. Jacob Hamidu (Faculty of Agric) and Mr Sessou (EAP consult) to establish an Aquaculture-Agriculture demonstration site that utilises treated wastewater at Legon.

IS YOUR RESEARCH FUNDED AND BY WHOM?

The core of my current research is funded by DANIDA, I have also previously received funding for research from USAID (AQUAFISH Innovation lab), AUUSIE AID (Australia) and DANIDA (Sustainable feed development). I have also received funding from KREF in the past.

HOW DID YOU SECURE THE FUNDING?

This has always been a team effort, working with people in my network to develop funding proposals.

HOW MUCH IS THE GRANT?

For the IPAG project - 6,000,000 DKK

HOW MANY PEOPLE ARE IN YOUR RESEARCH TEAM. INDICATE THEIR GENDER AND LEVELS OF EDUCATION.

On IPAG project, we have six people:

Prof Daniel Adjei-Boateng - Principal Investigator

Dr. Regina Edziyie – Co-PI

Prof. Nelson W. Agbo – Investigator

Prof. Benjamin Champion - investigator

Dr. Kwasi Adu Obirikorang – Investigator

Dr. Collins Duodu - Investigator

WHAT ARE THE EXPECTED OUTCOMES OF YOUR RESEARCH?

- Promote higher growth rates of tilapia in ponds as well as reduce environmental impacts
- Improve on floatability of fish feeds developed from a previous DANIDA project – improve feed intake and reduce pollution.
- Promote the culture of a 'new' aquaculture species – support mass reproduction in hatcheries and reduce mass mortality of larvae, a critical barrier to developing the species for commercial culture.
- Build capacity of young scientists in water quality management, aquaculture production and feed development research.
- Establish productive and safe ways of recovering resources from wastewater.

HOW HAS YOUR RESEARCH CONTRIBUTED TO KNOWLEDGE AND IMPROVEMENT OF LIFE AND THE SOCIETY?

- Working with aquaculture farmers/practitioners to improve water quality and increase fish

productivity

- Building the capacity of young scientists in conducting research (lab and field) in aquatic environments with emphasis on application
- Promoting resource recovery in wastewater systems to reduce negative environmental impacts, create jobs and increase food production.

WHERE DO YOU SEE THE FUTURE OF YOUR RESEARCH?

To strengthen aquaculture practice, reduce aquatic pollution and build capacity in the area of sustainable aquatic environments.

WHAT EXTRA-CURRICULAR ACTIVITIES ARE YOU INVOLVED IN

Active in church and counselling

HOW DO YOU FIND WORK-LIFE BALANCE?

By not stressing out. For me, life is like a slide rule. Sometimes there is a perfect balance, other times there is more focus on certain areas (work or family

or self) and there are even times when life is chaotic. It is important to look at the big picture. Maintaining work-life balance has also meant relying on God, and my support system; my family, my research group and friends.

HOW DO YOU UNWIND, ANY HOBBIES?

Reading novels or playing with children.

ADVICE TO YOUR YOUNGER SELF

- Trust in your choices
- Focus on other interests apart from academics

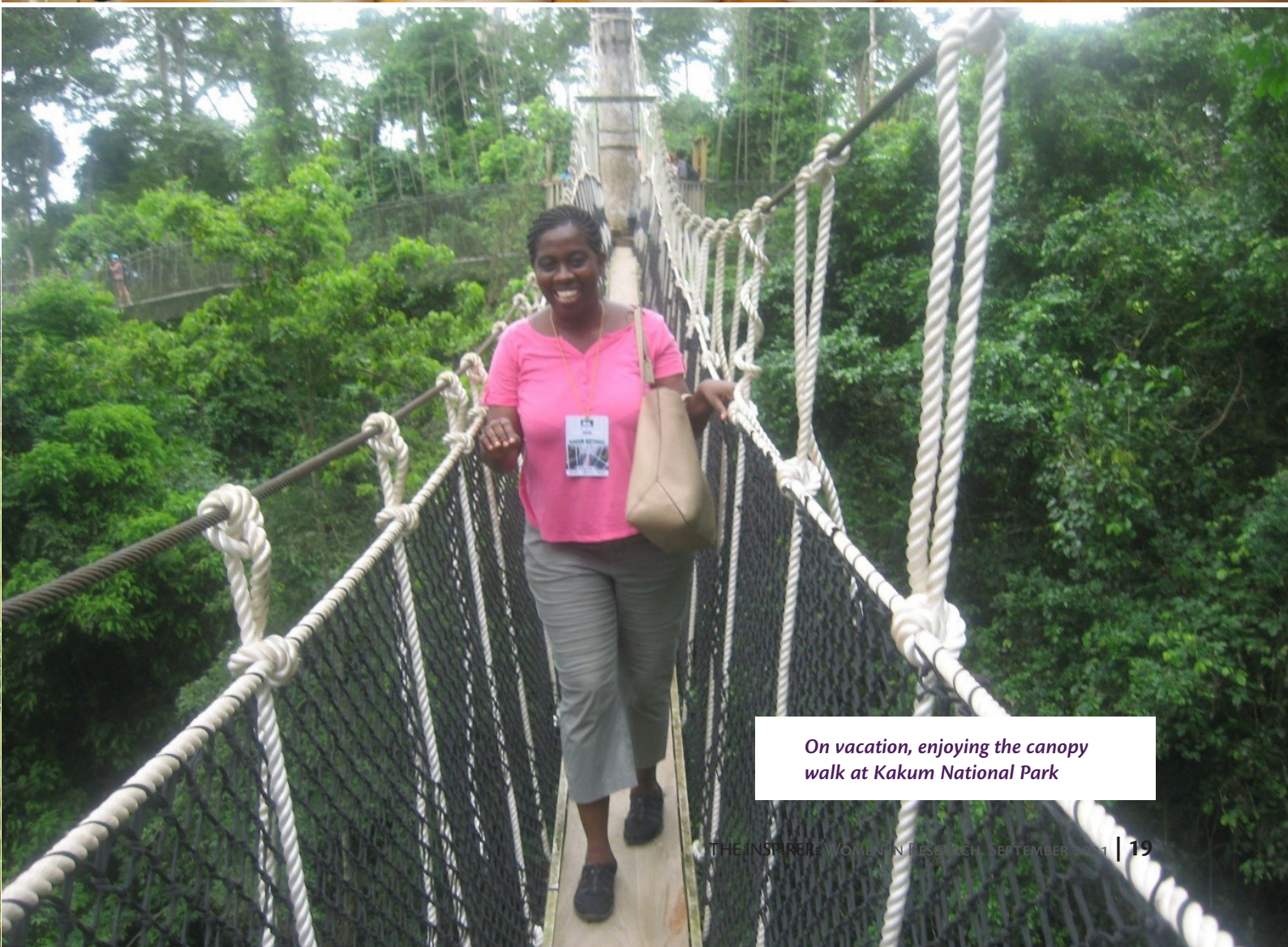
ANY FINAL WORDS?

The beauty of science and life is in the diversity; idea generation is not hierarchical, and harmony is in complementarity, so selecting who is on your team is critical to obtaining great outcomes and excellent wellbeing.



Helping with the feeding of juvenile tilapia (student project) on the Department of Fisheries and Watershed Management fish farm, KNUST.

Preliminary work on filtration rates of clams to be used for research



On vacation, enjoying the canopy walk at Kakum National Park

COLLEGE OF HEALTH SCIENCES

Department of Clinical Microbiology

Dr. (Mrs.) Linda Batsa Debrah



BACKGROUND INFORMATION: Growing up, Educational background Current qualification, Status and Workplace

Being a child of a teacher, I moved from town to town depending on where my mother (single parent) was being transferred to. I had my primary education in four schools (Offinso Training College Primary School at Offinso, Agogo Presbyterian Training College Primary school at Agogo, A/A, Airforce Complex Primary School in Takoradi, and Naval Base JHS in Takoradi). I finally completed my primary education at Agogo Presbyterian Training College JHS and my secondary education at Holy Child School in Cape Coast in 1995. There was a lag period of one year before I could come to the university and so I attended Akkrokeri Training College for one year before entering Kwame Nkrumah University of Science and Technology (KNUST) in 1997 to pursue BSc. Biological Sciences. I continued to pursue an

MPhil in Clinical Microbiology also at KNUST. My passion for research made me join the Filariasis Research Group at Kumasi Centre for Collaborative Research into Tropical Medicine where I had the opportunity to do a sandwich PhD programme between the University of Bonn Germany and KNUST. I joined the Department of Clinical Microbiology as a Lecturer in 2016 and I am currently a Senior Lecturer in the Department.

HOW DID YOU END UP AS A SCIENTIST?

After completing my first degree in Biological Sciences, I applied for an MPhil position at Kumasi Centre for Collaborative Research into Tropical Medicine (KCCR) on a filariasis project. I worked very hard because I had a lot of interest in research. I wondered why there are people in filariasis endemic area who do not have the infection yet others have it and some are even suffering from the severe forms of the disease. I had the opportunity to do a sandwich Ph.D. programme between the University of Bonn Germany and KNUST. On completing my Ph.D. I worked as a Postdoctoral fellow on the project for three years elucidating the genetic markers for lymphatic filariasis. I also worked on coinfection of helminth infection and Mycobacteria diseases such as Buruli ulcer disease and tuberculosis. I am currently a principal investigator on German sponsored projects funded by German Federal Ministry of Education and Research (BMBF), German Parliament and German Centre for Infectious Disease (DZIF).

WHO WERE YOUR ROLE MODELS OR GREATEST INFLUENCERS WHILE GROWING UP?

My loving mother, a single parent who made a lot of sacrifices to ensure that her children attain the highest level of education. I remember admiring her

Always see failure as an opportunity to learn from your mistakes

so much and telling her “mummy I want to be like you”. Her response was “You should be better than me”. That statement was very motivating/inspiring. I then put in my all to get to where I am today. I was fortunate to have collaborated with Dr. Mwelecele Ntuli Malecela, the current Director for Neglected Tropical Disease at WHO on one of my projects and she has been a great inspiration to me. Thinking about how she made it to the top inspires me a lot.

WHAT ARE YOUR RESEARCH INTERESTS IN GENERAL AND CURRENT RESEARCH?

My research focuses on the elimination of filariasis i.e. Lymphatic filariasis and Onchocerciasis. I do a lot of clinical trials in the bid to find a drug that could kill the adult worm of lymphatic filariasis and onchocerciasis and also to identify markers for understanding what predisposes a person to the disease. These biomarkers when identified could be monitored to prevent the disease from occurring. The influence of helminth infections on other infectious diseases is also my current area of research. In addition, I am working on developing digital tools for disease identification which will prevent under reporting of cases.

IS YOUR RESEARCH FUNDED AND BY WHOM?

My current research is funded by German Federal Ministry of Education and Research (BMBF), German Research Foundation (DFG), German Center for Infection Research (DZIF), North Rhine-Westphalia Parliament (German Parliament) and Drug for Neglected Disease initiative (DNDI).

HOW DID YOU SECURE THE FUNDING?

Funding was secured for projects sponsored by BMBF, DFG and DZIF through competitive bidding. However, DNDI made contact with the research team due to

previous experiences.

HOW MUCH IS THE GRANT?

A total of Three Million, Three Hundred and Six Thousand Euros €3,306,000

HOW MANY PEOPLE ARE IN YOUR RESEARCH TEAM. INDICATE THEIR GENDER AND LEVELS OF EDUCATION

I have a team of about 20 core staff and about 10 subsidiary staff which comprises Clinicians, Pharmacists, a financial administrator, Scientists, PhD and Masters students as well as National service persons. Unfortunately, I have only 15% of my staff being females (a PhD student, a research assistant and a national service person). More women are encouraged to join the group.

WHAT ARE THE EXPECTED OUTCOMES OF YOUR RESEARCH?

- a. To find a cure for filariasis
- b. To identify biomarkers responsible for lymphatic filariasis
- c. To develop digital tools for disease surveillance

HOW HAS YOUR RESEARCH CONTRIBUTED TO KNOWLEDGE AND IMPROVEMENT OF LIFE AND THE SOCIETY?

My research has:

- a. Identified doxycycline as a drug for the treatment of persons infected with both lymphatic filariasis and onchocerciasis. The interest of WHO in the project has led to a multi-country trial which involves USAID sponsored countries; Sri Lanka,

Mali, and India and BMBF sponsored countries; Ghana, Tanzania, and Cameroon conducting a clinical trial with doxycycline to assess its effectiveness in reducing the leg sizes of persons suffering from lymphatic filariasis.

- b. Treated persons who were not responding to ivermectin responded to doxycycline treatment offered by my research group (<https://doi.org/10.1093/cid/civ363>)
- c. Developed a digital tool for the identification of persons with lymphedema (swollen limbs) and hydrocele (swollen scrotum) to reduce the under-reporting of cases. (<https://doi.org/10.1371/journal.pntd.0008839>)

WHERE DO YOU SEE THE FUTURE OF YOUR RESEARCH?

My research has been able to cure persons who did not respond to ivermectin (national drug that kills baby worms) treatment. Identifying persons with filariasis and treating them in a test and treat approach will result in a world free of lymphatic filariasis and onchocerciasis.

WHAT EXTRA-CURRICULA ACTIVITIES ARE YOU INVOLVED IN?

Though I do not really know how to dance very well, I enjoy dancing and that I can do it even without music. I also enjoy swimming even though I do not get many opportunities to do so.

HOW DO YOU FIND WORK-LIFE BALANCE?

I thought I was doing well until my nine-year-old son told me to quit my job and sell tomatoes. This was when I had returned home from a three-day fieldwork at 6 pm and I had a virtual meeting at 7 pm. I think I need to do better by having extra time for my family in the midst of my busy schedules.

HOW DO YOU UNWIND, ANY HOBBIES?

I love hanging out with my family, working in my

garden and playing volley ball.

ADVICE TO YOUR YOUNGER SELF?

Hard work pays. In everything you do, do it with all your strength and might. Put inner satisfaction above all. The end is always positive.

ANY FINAL WORDS?

'You may face many defeats in life, but never let yourself be defeated' Maya Angelou. Always see failure as an opportunity to learn from your mistakes



Department Of Nursing KNUST, Kumasi



Dr. (Mrs.) Veronica Dzomeku

BACKGROUND INFORMATION: Growing up, Educational background, Current qualification, Status and Workplace.

I am an Associate Professor of Nursing and Midwifery and currently, the Head of the Department of Nursing, KNUST-Ghana. I obtained my Bachelor of Arts (BA) and Master of Philosophy (MPhil.) degrees from the University of Ghana between 1997 and 2005. I was adjudged the Best Student in 1999 and the Best MPhil Thesis in 2005 at the College of Health Sciences, University of Ghana. I obtained my PhD from the School of Nursing, University of the Western Cape, South Africa in 2017.

For the past 27 years, I have risen through the ranks from a Staff Nurse-Midwife at Ho Government Hospital in 1993 through to becoming a Midwifery tutor at Midwifery Training Schools in Mampong-Ashanti from the year 2000 and also at Kumasi from the year 2009. In 2010, I joined the Department of Nursing, KNUST-Kumasi as a full-time lecturer. In 2017, I was fortunate to be selected among the University of Michigan African Presidential Scholars

to undertake a four-month residency programme in Michigan, United States of America.

In the past years, I have conducted many studies and has over 30 publications to my credit. I am also a reviewer for a number of journals including Nursing and Midwifery International Journal (NUMID), Nigerian Journal of Nursing, Pre-publication reviewer, University of Michigan, and Ethiopian Journal of Health Sciences.

HOW DID YOU END UP AS A SCIENTIST?

Being a scientist is an unavoidable component of my role as a lecturer at KNUST. It became obvious to me after my appointment that the way to go was to develop into an independent scientist. The question then became, how will I gain the required skills and competencies? Through capacity building, consultation and collaboration, I developed my skills as a research scientists and identified a mentor (Prof. Jody Lori) who could provide guidance in this direction. I would also want to say that my previous relationship with my mentor, Prof. Jody Lori of the University of Michigan, USA and also during my four-month fellowship programme (University of Michigan African Presidential Scholar) at Michigan played a huge role in my career path, not undermining the tremendous contribution from my senior colleagues and tuition received during my postgraduate studies. All these experiences played a huge role in the development of my carrier as a scientist.

WHO WERE YOUR ROLE MODELS OR GREATEST INFLUENCERS WHILE GROWING UP?

Personally, I am inspired by anybody who is results-oriented. Growing up, my role models varied, some were not scientists or nurse scientists but my encounter with a nurse manager who performed exceptionally well in her duties and did things differently inspired me and I looked up to her as a role model then. I also once worked with a British trained nurse who greatly influenced my life: she was very competent so she acted professionally and produced results at all cost. I had great admiration for her though we used to think



that she was bullying us when we were younger. Her professionalism was par excellence. Nevertheless, I will say that Professor Jody Lori is currently my mentor as I am greatly influenced by her.

WHAT ARE YOUR RESEARCH INTERESTS IN GENERAL AND CURRENT RESEARCH?

I am generally interested in maternal and child health. Currently my focus is on issues about respectful maternity care, quality maternity care and women's health. My goal is to design, implement and evaluate programmes relevant to improving maternal health outcomes in Ghana and sub-Saharan Africa. One of my current research projects seeks to ensure the provision of respectful maternity care to women in Ghana. As part of that project, a respectful maternity care module for midwives has been developed and pilot-tested in Kumasi, Ghana. The project further seeks to examine the effect of the respectful maternity care modules in changing midwives' attitudes, behaviours, and clinical practice as well as the perception of the recipients of midwifery care in Ghana.

IS YOUR RESEARCH FUNDED AND BY WHOM?

Yes, my researches are funded. The current one we are about to sign in 2021 is funded by USAID (United States Agency for International Development) for a

period of two years. The grant worth 200,000 USD seeks to implement a project titled "Community- and Hospital-based Obstetrics, WhatsApp Triage, Referral, and Transfer (WAT-RT) System" for a period of two years. The objective of this project is to enhance continuity and access to quality maternal care in rural communities in Ghana.

I also have a five-year project titled 'Changing the Culture of Disrespect and Abuse in Maternal Care in Kumasi, Ghana' which is an 'Emerging Leader Award' funded by the National Institute of Health (NIH) through the Fogarty International. This grant is worth 480,000 USD and for a period of five years from 2018 through to 2023.

HOW DID YOU SECURE THE FUNDING?

Few years ago, my mentor, Prof. Jody Lori showed me a call from UMAPS (University of Michigan African Presidential Scholars) programme and encouraged me to apply which I did and succeeded; so, I had to spend some time with University of Michigan, USA. During the fellowship period, I applied for the "Emerging Leader grant and was successful.

Following on from that, I have also won another grant from USAID (United States Agency for International Development) to see how we can bridge the gap between community settings and the hospitals, making referral systems effective and thereby reducing

delays during the obstetric cycle. This is a multi-site project in collaboration with the University of Liberia and the University of Michigan to be run for 2 years (2021-2023).

HOW MUCH IS THE GRANT?

The NIH grant is 480,000 USD for five years (an average of 96,000 USD per year) and the USAID grant is 200,000 dollars for two years (an average of 100,000 USD per year).

HOW MANY PEOPLE ARE IN YOUR RESEARCH TEAM? INDICATE THEIR GENDER AND LEVELS OF EDUCATION.

For the NIH grant, which is an emerging leader award, its purpose is to build the capacity of a Principal Investigator (PI) to become an independent researcher, so it does not follow the usual research protocols. But we have a research assistant, a statistician, an administrator and an accountant.

The USAID grant also involves a research assistant, a statistician and an accountant for each site in the other countries USA and Liberia.

WHAT ARE THE EXPECTED OUTCOMES OF YOUR RESEARCH?

To improve mothers' satisfaction with maternal care delivery. We also hope to reduce maternal mortality by reducing the delays associated with access to maternal healthcare.

HOW WILL YOUR RESEARCH CONTRIBUTED TO KNOWLEDGE AND IMPROVEMENT OF LIFE AND THE SOCIETY?

We initially conducted a research that assessed the expectations and experiences of women receiving care during the perinatal period. We also had studies that assessed the satisfaction of women with the care they received from midwives. Out of the findings from these studies, we developed a model that would train the midwife on respectful maternity care. The module's feasibility and usability were tested and are subsequently being used in the training of midwives.

We have also published quite a number papers from these research studies to add to knowledge.

WHERE DO YOU SEE THE FUTURE OF YOUR RESEARCH?

I see these researches going beyond Kumasi to the national and international levels especially the West African sub-region. The literature suggests that, the concerns of women in relation to respectful maternity care are not limited to Ghana but is an issue also that is experienced in other African countries.

WHAT EXTRA-CURRICULAR ACTIVITIES ARE YOU INVOLVED IN?

Church, women's ministry, youth ministry, and listening to radio discussions on issues.

HOW DO YOU FIND WORK-LIFE BALANCE?

It is quite difficult but not impossible to do. It is sometimes overwhelming but planning has been the key. What I do mostly is to have enough rest after which I plan on what to do and execute afterwards.

HOW DO YOU UNWIND, ANY HOBBIES?

I like listening to discussions especially on radio reflecting over them while am at rest.

ADVICE TO YOUR YOUNGER SELF?

I can say the need for mentorship cannot be underscored enough. Sometimes the abilities and opportunities are there but you will need somebody to show you the way. Identifying people with the potential and encouraging or holding somebody's hand (mentoring) while climbing the ladder is very important to me because you will learn in that process. 'Mentor and be mentored'.

ANY FINAL WORDS?

Every great person was once a beginner so never give up... it's only a matter of time.

Department of Pharmacology, KNUST-Kumasi



Dr. Priscilla Kolibea Mante

BACKGROUND INFORMATION: Growing up, Educational background, Current qualification, Status and Workplace

I am Dr. Priscilla Kolibea Mante, born and raised in Accra, and an old student of Wesley Girls' High School, Cape Coast.

I am currently a Senior Lecturer at the Department of Pharmacology, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi. I have a Bachelor of Pharmacy (Hons) and PhD in Pharmacology from KNUST and received Postdoctoral training at the University of Michigan Medical School, United States of America (USA).

HOW DID YOU END UP AS A SCIENTIST?

My career path in neuroscience was largely influenced by my mentor, Prof. Eric Woode, who is arguably the father of basic neuroscience research in Ghana. Together, we gravitated towards basic science research in epilepsy, depression and anxiety, investigating potential treatment options from natural products.

My area of specialization involves looking at agents

from natural sources with benefit in medical conditions of the central nervous system. Conditions of the central nervous system are mostly misunderstood and I found that a worthwhile challenge to pursue.

WHO WERE YOUR ROLE MODELS OR GREATEST INFLUENCERS WHILE GROWING UP?

One of my very first role models as a child was Prof. Marian Ewurama Addy. Watching her host the National Science and Maths Quiz was a big inspiration for me as a young girl. As I got older, I have been largely influenced by mentors like Prof. Eric Woode (University of Health and Allied Sciences-Ghana) and Prof. Lori Isom (University of Michigan-USA)

WHAT ARE YOUR RESEARCH INTERESTS IN GENERAL AND CURRENT RESEARCH?

My research basically involves investigating plant-based therapeutics that are known to affect the brain and spinal cord, and attempt to scientifically establish their usefulness or otherwise in medical conditions. I do this in order to find alternative treatments for people who are not getting any benefit from the medicines that are already available.

I focus mostly on people living with epilepsy. I also try to find out if their inability to respond to medicines has a connection to their genetic make-up.

IS YOUR RESEARCH FUNDED AND BY WHOM?

My current research is funded by Organization for Women in Science for the Developing World (OWSD).

HOW DID YOU SECURE THE FUNDING?

I was awarded an Early Career Fellowship in 2019.

HOW MUCH IS THE GRANT?

The grant was \$50,000.

HOW MANY PEOPLE ARE IN YOUR RESEARCH TEAM. INDICATE THEIR GENDER AND LEVELS OF EDUCATION.

My team currently consists of six individuals, four males and two females. The majority have Bachelors degrees, while the rest have Masters degrees.

WHAT ARE THE EXPECTED OUTCOMES OF YOUR RESEARCH?

It is expected that we will be able to unravel the genetic causes for drug-resistance in some Ghanaian patients and also be able to develop custom-made medications for these patients.

HOW HAS YOUR RESEARCH CONTRIBUTED TO KNOWLEDGE AND IMPROVEMENT OF LIFE OR THE SOCIETY?

We are, invariably, directly or indirectly related to someone who lives with epilepsy. This condition requires drug therapy and sometimes a multiple drug regimen which can be expensive or difficult to adhere to, with a strong potential for the condition to deteriorate. About 30% of these patients will most likely not derive any benefit from the existing medicines. In addition to the lack of benefit, these patients have to endure stigma from the public as well. These further compound their ability to cope. Finding a cure will go a long way to reduce suffering and improve the quality of life of these patients, which in turn reduces the burden on their caregivers.

WHERE DO YOU SEE THE FUTURE OF YOUR RESEARCH?

I am a neuroscientist with a strong zeal to find a cure for epilepsy. There is presently no known cure for epilepsy and most central nervous system disorders. It is my hope that my research will lead to a breakthrough in this area.

WHAT EXTRA-CURRICULAR ACTIVITIES ARE YOU INVOLVED IN

I am the current Chair of the Ghana Young Academy, a group of exceptionally promising young scientists that serve as the country's voice for young scientists. We work on science policy and advocacy issues. I'm also a part of the ASLP (African Science Leadership Program) team. ASLP is a non-profit organization

established in Pretoria, South Africa, that selects early to mid-career African academics with the goal of assisting them.

HOW DO YOU FIND WORK-LIFE BALANCE?

Playing to my strength helps me establish work-life balance. I concentrate on my strengths and delegate the tasks that I am unable to complete to others. I make it a point to arrange a 'me' time every week. Work hours are also determined for me. For example, unless it's an emergency, I do not take work calls after 6 p.m.

HOW DO YOU UNWIND, ANY HOBBIES?

In my spare time, I enjoy watching movies and television series with my husband. We love to try menus from new restaurants/ eateries on regular days (during the Covid-free phase).

ADVICE TO YOUR YOUNGER SELF?

I would tell her to smile more, worry less and treat life as an adventure.

ANY FINAL WORDS?

"Always bet on yourself, no matter what the odds are. It means more to be in the race than watching the victory lap from the stands." – Peter Wentz



COLLEGE OF HUMANITIES AND SOCIAL SCIENCES

Department of Economics

*Discipline yourself
and be mindful of
your time...*



Prof. Grace Nkansa Asante

BACKGROUND INFORMATION: Growing up, Educational background, Current qualification, Status and Workplace

I was born in Kumasi on the 19th of January, 1965. I had my primary school education in many schools due to the nature of work of my father, Mr. Robert Edmund Asante of blessed memory. The first phase of my secondary education was in St Louis Senior High School in Kumasi and I continued to Osei Kyeretwie Senior High School to complete my Sixth Form education. I pursued my first degree at the Kwame Nkrumah University of Science and Technology (KNUST), where I graduated with Economics and French from the Faculty of Social Sciences. I read my second degree at the Department of Economics at the University of Ghana, Legon and my PhD in Economics at the Department of Economics at KNUST. I started my working career by teaching at the Adventist Senior High School at Bantama, Kumasi. I then joined

the Civil Service as an Assistant Director II at the Ministry of Local Government posted at the Kumasi Metropolitan Assembly. After working for three years, I took a study leave to read my second degree. As a requirement of the programme, I had internship at the African Development Bank in Abidjan in La Cote D'Ivoire. I was then considered for an appointment as a Research Assistant at the Government Division of the Bank. I had an appointment at the Department of Economics at KNUST when the civil war intensified and the Bank relocated to Tunisia. I have been working as a Lecturer since then and I am now an Associate Professor in Economics.

WHO WERE YOUR ROLE MODELS OR GREATEST INFLUENCERS WHILE GROWING UP?

Mary Kay was my role model. I read about her and I had always wanted to be a woman of substance like

her. Interestingly, the Virgin Mary, Jesus' Mother, is one of my influencers. I am a woman of strong will so I became convinced that if I discipline myself and put up the qualities in her, I will make it to the level I am aspiring. So, I have always strived to be upright like her and work hard like Mary Kay. Mention should also be made of the man I married, Mr. Alfred Ofori-Abebrese. He also made me always feel I could do everything I wanted to do and he was always ready to support me.

WHAT ARE YOUR RESEARCH INTERESTS IN GENERAL AND CURRENT RESEARCH?

My research interest is in Economic Policy making and Monetary issues. Currently, I am working on financial inclusion, bank competition, negative interest rate as an option for monetary policy for developing countries and also bank regulation issues.

IS YOUR RESEARCH FUNDED AND BY WHOM?

No please.

HOW MANY PEOPLE ARE IN YOUR RESEARCH TEAM? INDICATE THEIR GENDER AND LEVELS OF EDUCATION.

We are about five in my research team but I am the only female. Interestingly, women in economics are not many.

HOW HAS YOUR RESEARCH CONTRIBUTED TO KNOWLEDGE AND IMPROVEMENT OF LIFE OR THE SOCIETY?

I cannot actually measure the contribution of my research but if it could be assessed from the citations of my works, then I think I have impacted on life and society.

WHERE DO YOU SEE THE FUTURE OF YOUR RESEARCH?

I see a bright future for my research because the number of citations and reads keep increasing.

WHAT EXTRA-CURRICULAR ACTIVITIES ARE YOU INVOLVED IN?

I am an Anglican Priest.

HOW DO YOU FIND WORK-LIFE BALANCE?

It is not easy but one has to manage time well and remain disciplined.

HOW DO YOU UNWIND, ANY HOBBIES?

I love cooking, reading, being with children and tendering flowers.

ADVICE TO YOUR YOUNGER SELF?

Getting work to do these days is not easy so do not look down on what you consider as small jobs. Start with them and in good time God will lift you up to higher laurels. Remain honest in all you do and in your relations with other people. Discipline yourself and be mindful of your time. Hard work does not actually kill but strengthens you. Always remember your God and He will decorate the cake you have strived to bake with the icing.

ANY FINAL WORDS?

I am grateful for the opportunity given me to share my life with you. I hope it would inspire many young ones especially the numerous young ones who see me as their mentor.



COLLEGE OF ENGINEERING

Department of Mechanical



Ing. Dr. Mrs. Eunice Akyereko Adjei

BACKGROUND INFORMATION: Growing up, Educational background, Current qualification, Status and Workplace

I am Ing. Dr. Mrs. Eunice Akyereko Adjei, a Senior Lecturer at Department of Mechanical Engineering under the College of Engineering. I graduated with a PhD in Sustainable Energy Technologies in 2016 and M.Sc. in Aerospace Dynamics in 2006 at the University of Nottingham and Cranfield University respectively. I pursued a B.Sc. in Mechanical Engineering at the Kwame Nkrumah University of Science and Technology, Kumasi and graduated in 2004. I am a proud alumna (1995) of Dormaa Ahenkro Secondary School at Brong Ahafo Region.

HOW DID YOU END UP AS A SCIENTIST?

I developed interest in science courses at the Junior Secondary through my Science and Mathematics Tutors. This led to my selection of General Science Programme at the Senior Secondary and eventually

...it is possible to attain your goals if you believe in yourself

the selection of Mechanical Engineering due to my good performance in Elective Mathematics and Physics. During the B.Sc. programme, I realized that the University had only 5 female Senior Members among male counterparts of about 100. I immediately aspired and encouraged myself to join the faculty to increase the female population and also to mentor other females to take up careers in STEM particularly Engineering. The College of Engineering's policy to support brilliant female students gave me the opportunity to fulfill my career ambition as a female engineer and scientist.

WHO WERE YOUR ROLE MODELS OR GREATEST INFLUENCERS WHILE GROWING UP?

Mrs. Constance Ntow, my Class Six teacher was my role model at the basic level. She assisted me to realize my academic potential, since from my family background, both of my parents were not highly educated. Unfortunately, I could not identify people I could look up to in my locality. At my secondary level. My mentor was Prof. Mrs. Christine Amoako-Nuamah, the former Minister of Education whom, I got know when she turned up as the Special Guest of Honour at the Golden Jubilee Celebration of my School. I admired Prof. Mrs. Ibok Oduro, Mrs Araba Instiful, Prof. Mrs. Esi Awuah and Prof. Mrs. Rudith King all of KNUST.

**Fabricating
improved Cook
Stove at Sudra,
Akom Kumasi**

WHAT ARE YOUR RESEARCH INTERESTS IN GENERAL AND CURRENT RESEARCH?

My research interests are as follows: Energy efficiency and policies, gender related research, performance evaluation and climate change.

- i. Boosting Green Employment and Enterprise Opportunities in Ghana (Green) project.

This project seeks to create jobs for the youth, women, returning migrants and entrepreneurs in green sector.

- ii. Towards Ghana Green Energy Future-Reducing Electricity Wastage in Offices Associated with Air conditioners during non-occupancy.

This project seeks to reduce electricity consumption during non-occupancy hours and improve energy efficiency as well as conservation in public buildings in Ghana to mitigate climate change

- iii. Implementation of Bio-Rural Energy Scheme for Ghana. This project sought to implement designed bioenergy schemes at a selected cocoa farming community and to construct an experimental prototype at KNUST for assessment of the viability of the project in the villages.

- iv. Feasibility of integration of bio-energy schemes (IBRES) for Ghana. This was a preliminary research undertaken to ascertain the availability of cocoa pod husk in the country and to identify the challenges confronting selected cocoa farming communities in the country.



IS YOUR RESEARCH FUNDED AND BY WHOM?

- i. EPSRC-funded Grant Ref EP/R512849/1, U.K.
- ii. Global Challenges Research Funds, U.K. (RS 1066908).
- iii. Funded by SNV Ghana, UN Capital Development Fund (UNCDF) and European Union Emergency Trust Fund for Africa.
- iv. KNUST Research Fund

HOW DID YOU SECURE THE FUNDING?

The research fundings were secured by collaborating with my colleagues mainly Dr. Richard Opoku of KNUST and my Mentor Prof Jo Darkwa at University of Nottingham, UK.

HOW MUCH IS THE GRANT?

In total, the research grant is USD 120,000.

HOW MANY PEOPLE ARE IN YOUR RESEARCH TEAM? INDICATE THEIR GENDER AND LEVELS OF EDUCATION.

In total, the research team members I have worked with are 5 of which 3 are females at PhD educational level and 2 females Teaching Assistant with BSc degrees.

WHAT ARE THE EXPECTED OUTCOMES OF YOUR RESEARCH?

The main outcomes of the researches are reduction of energy consumption with subsequent reduction in green gas emissions.

HOW HAS YOUR RESEARCH CONTRIBUTED TO KNOWLEDGE AND IMPROVEMENT OF LIFE AND THE SOCIETY?

The use of theory of change to provide electricity to rural communities and alleviate poverty through the implementation of Bioenergy Schemes.

WHERE DO YOU SEE THE FUTURE OF YOUR RESEARCH?

I am working towards moving from research findings towards the development of products out of researches conducted to solve societal challenges.

WHAT EXTRA-CURRICULA ACTIVITIES ARE YOU INVOLVED IN?

My extra curriculum activities are as follows: mentoring young women in STEM, turning my cooking skills passion into entrepreneurship with the registration of Joshnuella Food Enterprise and serving as a Deaconess in supporting the church Presbytery as well as females in several capacities.



Panel Members Assessing WiSTEM Girls Camp Competition at KNUST



Presenting at WiSTEM Girls Camp on Career opportunities in Engineering

HOW DO YOU FIND WORK-LIFE BALANCE?

This is a major challenge, but I do my best to set daily priorities for my numerous activities right and seek support when the need arises. My career and family times are set right.



Family Time

HOW DO YOU UNWIND, ANY HOBBIES?

My hobbies are cooking and fashion

ADVICE TO YOUR YOUNGER SELF?

You can be who you want to be if only you remain focused and disciplined.

ANY FINAL WORDS?

Yes, it is possible to attain your goals if you believe in yourself and formulate consistent progressive strategies towards them.

COLLEGE OF SCIENCE

Department of Chemistry, KNUST-Kumasi

Dr. (Mrs) Mercy Badu

BACKGROUND INFORMATION: Growing up, Educational background, Current qualification, Status and Workplace

I was raised in a small family home in Konongo, in Ashanti Region, Ghana. I am the ninth child of a large nuclear family of eleven children. I attended both primary and secondary schools in the same town. My parents were big supporters of education, and they always told my brothers and I that it was the greatest road to a bright future. I am married and a mother of three children. I am currently a Senior Lecturer at the Department of Chemistry at KNUST.

HOW DID YOU END UP AS A SCIENTIST?

Following my Basic Education, I enrolled at Konongo Odumasi Senior High School where I studied Science (Physics, Chemistry, and Biology). During this time, I was privileged to participate in Science Technology Mathematics Education Clinic (STME) in a 5-day Boot camp. The Government at the time was promoting female interest in science. Participants learned about science, technology, mathematics, and their applications, all of which have a direct impact on our daily lives. I recall participating in the National Brilliant Science and Maths Quiz Competition on behalf of my school. All of these events instilled in me a strong desire to learn more about science.

WHO WERE YOUR ROLE MODELS OR GREATEST INFLUENCERS WHILE GROWING UP?

Several female scientists have inspired me at various points in my life until today, and have impacted my life as a scientist. Prof. Marian Ewurama Addy was the first woman I encountered when I was a child (Biochemist at the University of Ghana). She was the



quiz mistress for the nationwide television show called Brilliant Science and Math Quiz. Her ability to discuss and explain science, as well as its implications in our daily lives, brought science to life for me and piqued my interest in it. As a result, I made the decision to study Science in Senior High School.

There were very few female mentors during my undergraduate studies. I got to know Prof. Aba Andam, Prof. Esi Awuah and Prof. Ibok Oduro. In a male-dominated sector and profession, I admired their simplicity, tenacity, excellence, and accomplishments. Prof. Oduro, my trusted go to person at KNUST, ascended through the ranks to become the Provost of the College of Science, which changed the course of my story.

Following that, for the first time in our University's (70-year) history, a woman was appointed Vice Chancellor. These women continue to inspire us to be the greatest version of ourselves. In the past 12 months, I have had the privilege of being mentored by Prof. Melinda Duer, one of the world's most accomplished inorganic chemists, who has continued to challenge my Chemistry and how research in "basic Chemistry" can become more of an applied

science in a way that will directly benefit society to improve people's lives.

Last but not least, my husband has been a tremendous source of strength and support for me. He believes in me. Even when I feel like giving up, he is there to encourage me to keep going because he believes in me.

WHAT ARE YOUR RESEARCH INTERESTS IN GENERAL AND CURRENT RESEARCH?

I study and research into Natural Products Chemistry, by applying novel approaches to harness Climate Resilient Indigenous under-utilised foods to mitigate hunger and malnutrition in rural communities in Ghana, especially in this era of changing climate. Currently, I am studying the functionality of oilseeds and nuts and their activity to improve nutrition and promote good health. By this, I extract, isolate and characterise the nutritional and medicinal compounds found in oilseeds and nuts and investigate the bioavailability and absorption of these compounds in the human digestive tract.

IS YOUR RESEARCH FUNDED AND BY WHOM?

I have received a number of international awards, during my Ph.D studies. I received the University of Michigan Africa Presidential Scholars Awards (UMAPS) (2012), Commonwealth Split-Site scholarship award (2013) and the prestigious L'Oreal UNESCO for Women in Science (FWIS) regional fellowships award (2013). After my Ph.D, I received a post-doctoral fellowship (2017) from the African Academy of Sciences within the Climate Impact Research and Capacity Leadership Enhancement (CIRCLE) programme.

After the post-doctoral fellowship, I received The World Academy of Sciences (TWAS) Research Grant (2017), a grant worth USD 15,000. To study the Evaluation of the Kinetics of Trans-esterification of Selected Under-utilised Non-edible Seed Oils using Locally Produced Ethanol and Calcium Oxide Catalyst. I also received a grant from the International Foundation for Science (IFS) Research Grant (2019-2021), to study the chemical characterisation of under-utilised drought-tolerant oil bearing seeds and nuts in addressing food security challenges a grant amount USD 15,000.

Again, I won a collaborative trans-disciplinary research grant (2019-2021) from the Leading Integrated Research for Agenda in Africa (LIRA 2030), the study looks at Inclusive Metabolism: Using co-produced theory of informal decentralised urban infrastructures to transform the delivery of urban food, water and energy services in Egypt, Ghana and South Africa a research grant of an amount of Euros 90,000. Additionally, I received a grant from the Organization for Women in Science for the Developing World (OWSD) Early Career Fellowship (2019-2021). This grant is to support a study on Promoting Under-utilised Oilseeds for address malnutrition in Africa, a grant amount of USD 50,000.

Currently (2020 – 2021), I have a grant from the Cambridge-Africa ALBORADA Research Fund to study promoting indigenous underutilized oilseeds as immune boosters. A grant amount: GBP 20,000

HOW DID YOU SECURE THE FUNDING?

I submitted a proposal to various funding organisations' calls for proposals. Collaboration is key to success, as is mentorship and building the right network.

HOW MUCH IS THE GRANT?

Currently, I have five active grants with sum of about USD 200,000.00

HOW MANY PEOPLE ARE IN YOUR RESEARCH GROUP? INDICATE THEIR GENDER AND LEVELS OF EDUCATION

My research group currently consists of about 25 persons, females including Dr. Mary-Magdalene Pedavoah of the CK Tedam University of Technology and Applied Sciences in Navrongo, Ghana, who was once a PhD student in the group, and three post-graduate students (1 PhD student and 2 MPhil Chemistry students). The rest of the group is made up of my undergraduate final-year students, who form the core of my research team.

WHAT ARE THE EXPECTED OUTCOMES OF YOUR RESEARCH?

- The edible and highly nutritious oilseeds and nuts will be used as food hence reducing hunger and malnutrition, in many rural communities in Ghana and Africa as a whole.



- An increased awareness of the nutritional and medicinal value of oil-seeds and nuts found in Ghana.
- The cultivation and sales of these natural resources will serve as a source of employment and an income generating venture, hence supporting livelihoods.

HOW WILL YOUR RESEARCH CONTRIBUTE TO KNOWLEDGE AND IMPROVEMENT OF LIFE AND SOCIETY

My research aims to reduce malnutrition and promote good health by utilising micronutrients from indigenous oil-seeds and nuts (which are otherwise underutilised). This kind of research is especially important in this period of climate change, when temperature changes have a big impact on food supply in the wake of a growing population. The nutritional and therapeutic benefit of Ghana's native, drought-tolerant oilseeds is timely, and it has the potential to help the country's food security problems.

WHERE DO YOU SEE THE FUTURE OF YOUR RESEARCH?

Most of the identified oil-seeds should be embraced and incorporated into the Ghanaian diet, in my opinion. I hope to see a comprehensive document on the nutritional and chemical composition of the underutilised oil-seed plants found in the different ecological zones in Ghana.

WHAT EXTRA-CURRICULR ACTIVITIES ARE YOU INVOLVED IN?

I participate in a lot of church activities, including teaching sunday school and working in the family

enrichment ministry..

HOW DO YOU FIND WORK-LIFE BALANCE?

I have planned my life such that I do not have to choose between family and career. I deal with them separately.

Drink tea, relax, watch TV and engage in a good conversation with my family to unwind.

ADVICE TO YOUR YOUNGER SELF?

Several girls have passed through 'my hands' during my 14 years at this university and gone on to achieve great success despite their poor beginnings. To advice my youger self I would say, work hard, study smartly, exercise often, and eat healthily. Make good friends, live a fulfilled faith life. You are body, soul and spirit, do not neglect any aspect of who you are. There is time for everything, this time is to study, take your time to fulfil this aspect and the others will unfold. Believe in yourself, there is so much you can do.

ANY FINAL WORDS?

Trust God! Believe in yourself! Work hard! And you will achieve!





Dr. (Mrs). Augustina
Angelina Sylverken

BACKGROUND INFORMATION: Growing up, Educational background, Current qualification, Status and Workplace

I was born and raised in Cape Coast, where I had my basic education and attended Holy Child School. I undertook my first and second degrees at KNUST where I read BSc. Biological Sciences and Clinical Microbiology respectively. I proceeded to enroll into a PhD programme in Clinical Microbiology, with specialty in Virology, at KNUST. I undertook most of my PhD pre-training and laboratory work at German's oldest tropical institute, the Bernhard Nocht Institute for Tropical Medicine (BNITM) in Hamburg, the Kumasi Centre for Collaborative Research in Tropical Medicine (KCCR) at KNUST and later at the Institute of Virology, University of Bonn Medical Centre, Bonn, Germany.

I served as the Deputy Head of Labs at KCCR and later the substantive Head of Labs. I also undertook a Postdoctoral Research Scientist position at the KCCR and the Institute of Virology, University of Bonn Medical Centre, Bonn, Germany.

Currently, I am a Senior Lecturer at the Department of Theoretical and Applied Biology, College of Science, KNUST.

*Run after your dreams,
do not allow anyone to
stop you...*

HOW DID YOU END UP AS A SCIENTIST?

Is It okay to say I found myself here? I think it has been by dint of hard work. So after my one-year mandatory National Service at KCCR, I think they found me to be an assert so I had a juicy Master of Philosophy opportunity even before I completed the National Service. And the rest is what and how I am today!

WHO WERE YOUR ROLE MODELS OR GREATEST INFLUENCERS WHILE GROWING UP?

Role models? Amazingly, I never had any role models while growing up. My greatest influencers while growing up were my parents, now of blessed memory. They made us understand the purpose of education and being Teachers (Mom, class two teacher, Dad secondary school teacher), together with my siblings and household, we just had to be the best or among the best in our various classrooms.

WHAT ARE YOUR RESEARCH INTERESTS IN GENERAL AND CURRENT RESEARCH?

I am interested in emerging and re-emerging infectious diseases especially those that fall under the 'One health' umbrella. My ongoing projects are focused in the areas of One Health which involves studies on wildlife, livestock and human interactions as a proxy to viral zoonosis. It also involves establishing the impact of state-of-the art diagnostic methodologies on outcome of infections.

IS YOUR RESEARCH FUNDED AND BY WHOM?

I have received funding for most of my research. Funds in the form of grants have come from prestigious funders including the German Research Council (DFG), Global Fund, European and Developing

Countries Clinical Trials Partnership (EDCTP), The Royal Society – UK, the Global Challenges Research Fund (GCRF) with the University of Surrey, the Friedrich-Loeffler-Institute (FLI), Germany and the KNUST Research Fund (KReF).

HOW DID YOU SECURE THE FUNDING?

Most of these funds are from large scale multidisciplinary and interdisciplinary collaborative studies with teams of investigators from all over the world, in particular, Europe.

HOW MUCH IS THE GRANT?

A little over 500,000 USD

HOW MANY PEOPLE ARE IN YOUR RESEARCH TEAM? INDICATE THEIR GENDER AND LEVELS OF EDUCATION.

My research team is made up of 9 people; 3 females (1 PhD, 1 Research assistant, 1 National Service personnel) and 6 males (1 PhD, 3 Masters, 2 clinicians)

WHAT ARE THE EXPECTED OUTCOMES OF YOUR RESEARCH?

Establish how specific diagnosis based on a molecular intervention influences the outcome of diseases and to build the capacities of young scientists and further strengthen north-south and south-south research partnership among collaborating institutions. Furthermore, one important outcome for my 'One Health' related research is to establish how human, animal and environment data can be synced in the context of the One Health concept.

HOW HAS YOUR RESEARCH CONTRIBUTED TO KNOWLEDGE AND IMPROVEMENT OF LIFE AND THE SOCIETY?

The import of my research has been made evident during this Covid-19 pandemic period. I never thought it will be exciting to study respiratory viruses until this time! Now, we are able to detect the presence of these viral pathogens and establish their transmission patterns within wildlife, livestock and human populations. We have also established how some of the viral pathogens switch hosts in their quest to thrive in new environments. Importantly, we now understand the evolution and epidemiology of certain pathogens which continue to threaten lives.

WHERE DO YOU SEE THE FUTURE OF YOUR RESEARCH?

The future looks bright especially since we currently know that close to 75% of emerging and re-emerging infectious diseases are zoonotic in nature. Long term, collaborative research and development for therapeutics will be the line of action for my research.

WHAT EXTRA-CURRICULA ACTIVITIES ARE YOU INVOLVED IN?

Church-related activities, acting as resource person on TV talkshows, to groups.

HOW DO YOU FIND WORK-LIFE BALANCE?

It is not easy. There is always something to do and its been very challenging for me. I try to do as much as I can but I feel I am still not able to do enough. It has been tough for me!

HOW DO YOU UNWIND, ANY HOBBIES?

Cooking.

ADVICE TO YOUR YOUNGER SELF?

Run after your dreams, do not allow anyone to stop you, keep going and make sure beyond the skies become your limit!



OTHER WISTEM MEMBERS

UNIVERSITY FOR DEVELOPMENT STUDIES-TAMALE

Department of Food Science and Technology



BACKGROUND INFORMATION: Growing up, Educational background, Current qualification, Status and Workplace

My name is Fortune Akabanda, and I come from Wiaga, a town in the Builsa South District of the Upper East Region of Ghana. I was born in Winkogo, a village in the Tongo District. I had my Primary and Junior Secondary School education in Winkogo; from there, I went to the Bolgatanga Secondary School to study General Science.

After completing Secondary school, as we used to call it, I gained admission to the University for Development Studies (UDS), where I studied Applied Biology in the Faculty of Applied Sciences. I graduated with a Second Class Upper Division and was selected among other colleagues to serve as a Teaching Assistant (National Service period) and Research Assistant in my department. After National Service, I was privileged to be given a DANIDA Scholarship to pursue my Masters and PhD degrees in Food Science at the University of Ghana. This enabled me to travel to Denmark at the University of Copenhagen to carry out my research.

I am currently a Senior Lecturer at the Department of Food Science and Technology at the UDS.

HOW DID YOU END UP AS A SCIENTIST?

As a small girl growing up in the village, I had always wanted to be a Medical Doctor, so I decided to do Science at the high school to become a doctor.

I went on to do Applied Biology with the hope of becoming a doctor, but my plans changed when I had the DANIDA scholarship. Since it was still in the area of science, I decided to take it up.

WHO WERE YOUR ROLE MODELS OR GREATEST INFLUENCERS WHILE GROWING UP?

In the Village there were no notable role models to look up. However, my JSS, now JHS Science teacher, influenced me a lot. He was someone I looked up to, and liked the way he taught science effortlessly and interestingly. He encouraged me a lot and sometimes would give me books from the library and his own notes to study.

In the University, my Microbiology lecturer also influenced me, and as a result, I had the DANIDA scholarship from his project.

WHAT ARE YOUR RESEARCH INTERESTS IN GENERAL AND CURRENT RESEARCH?

My research interest is in Food Science and Technology, Food Microbiology and Biotechnology, Food Fermentations, Microbial Ecology and Food Safety.

My current research is in indigenous fermented foods of Northern Ghana, their processing, Microbiology and Safety.

IS YOUR RESEARCH FUNDED AND BY WHO?

Not funded.

HOW MANY PEOPLE ARE IN YOUR RESEARCH TEAM? INDICATE THEIR GENDER AND LEVELS OF EDUCATION.

For now, my research team are my students.

WHAT ARE THE EXPECTED OUTCOMES OF YOUR RESEARCH?

Provide detailed microbiological knowledge of the indigenous fermented foods of northern Ghana.

HOW HAS YOUR RESEARCH CONTRIBUTED TO KNOWLEDGE AND IMPROVEMENT OF LIFE OR SOCIETY?

It has led to knowledge on the safety of locally fermented foods.

WHERE DO YOU SEE THE FUTURE OF YOUR RESEARCH?

That my research will lead to the industrialization of the locally fermented foods in Ghana

WHAT EXTRA-CURRICULA ACTIVITIES ARE YOU INVOLVED IN?

I am involved in my local church women ministry

HOW DO YOU FIND WORK-LIFE BALANCE?

I am still trying to find my balance.

HOW DO YOU UNWIND; ANY HOBBIES?

They are cooking, reading motivational books and travelling.

ADVICE TO YOUR YOUNGER SELF?

I will advise her to always be patient with herself and to quickly forgive herself for the mistakes she makes.



INSTITUTE OF INDUSTRIAL RESEARCH, IRR-CSIR, ACCRA-GHANA



Dr. (Mrs) Latifatu Adjah

BACKGROUND INFORMATION: Growing up, Educational background, Current qualification, Status and Workplace

Dr. (Mrs) Latifatu Adjah is my name. I grew up in Madina, a suburb in Accra – Ghana, where I had my primary education. I then continued to the West Africa Senior High School, where I pursued General Science after a failed attempt to read Business at Labone Senior High School. During my Senior High School days, I got very interested in physics and chemistry. I was involved in physical science projects. One of the physics projects was the engineering of an inventor for the conversion of direct current in batteries to alternating current, which we exhibited at the Accra Conference Centre. I was also part of the group that revived the school's Science Club.

I had admission to read Chemistry (major) at the Kwame Nkrumah University of Science and Technology by dint of hard work and determination.

In 2010, I completed with a BSc (Hons) Second Class – Upper Division at the end of my course. I loved chemistry and how it plays in real-life situations. I was interested in seeing chemistry practically. As a student, I was always finding ways of using chemicals to make products. My interest was heightened by TRATECH (a trade and technology exhibition organized yearly by the SRC). In my third and final year in the University, I became the leader of TRATECH in the Department of Chemistry. As a National Service person, I led the group responsible for product development in the Department in addition to helping with tutorials. We developed products such as aftershaves, liquid soap, lip balms, hair creams, etc.

After my National Service, I was recommended for a scholarship to go and undertake my postgraduate studies in South Korea. I diligently went through my studies at Hanbat National University, South Korea, obtaining the Master of Engineering degree in Applied Chemistry in 2014 and Doctor of Philosophy degree

in Chemical and Biological Engineering in 2017. I am currently employed as a research scientist at the Institute of Industrial Research of the Council for Scientific and Industrial Research (CSIR) in Ghana. I am also married with two children.

HOW DID YOU END UP AS A SCIENTIST?

I did not imagine a particular occupation even though I was interested in chemistry; however, I took a keen interest in solving chemistry related problems. As indicated in my background information, I was interested in seeing chemistry in action and always envisaged an experience that goes along with success in creating things and solving problems. I drew some inspiration from the problems in the environment and tried to find solutions. My first undocumented problem-solving research was at the Ghana Atomic Energy Commission, where I did a three-month internship while waiting to start my National Service.

I realized almost all the air conditioners at the Commission had water dripping on the floor, which was destroying the building walls, and so I thought of how to collect the wastewater and put it to use. After a number of tests and analyses, I concluded that the collected water could be used for less sensitive experimental works without contamination. The Department of Chemistry of the Ghana Atomic Energy Commission is currently using that idea to prevent water wastage today.

WHO WERE YOUR ROLE MODELS OR GREATEST INFLUENCERS WHILE GROWING UP?

Throughout my whole life, my most outstanding mentor has been my mother. Even though she did not have formal education, she went through thick and thin to get all her children educated. Her role



ECO-PAVE Research group in a photograph with the Director (Right), the head of Sustainable Energy technologies (left), of the Institute of Industrial Research and a UNDP representative (second from left), at CSIR-IIR, 2020

in my life has been tremendous. Another person I want to acknowledge is my senior high school Physics teacher (Mr. Dominic Julius Cudjoe), who was very instrumental in my formative years. I still remember my visits to his laboratory for pep talks. He was very poised at making sure I got good grades and encouraged me to pursue science as a major. At the Department of Chemistry of the KNUST, Mr. J. K. Tuani (Lecturer in Organic Chemistry) discovered my potential in developing chemicals and cosmetic products. He gave me various assignments in the laboratory, which developed my skills in the measurement and formulation of products. Professor Bright Ray Voegborlo also pushed me to the limits by helping me to think analytically during my project work. Professor Johannes Awudza, the Head of Department during my national service year, encouraged me to involve myself in other non-science activities and subject areas for holistic development. Professor Marian Asantewah Nkansah and Dr. Mercy Badu were the only female lecturers in the Chemistry Department when I was a student. It was an inspiration meeting both of them. I always looked up to them and forged ahead. I cannot end without mentioning my Masters and PhD supervisor, Professor Jang Myoun Ko (Hanbat National University, South Korea). He added more meaning to my vision of becoming a scientist.

WHAT ARE YOUR RESEARCH INTERESTS IN GENERAL AND CURRENT RESEARCH?

My research interests revolve around developing local materials for energy storage devices such as batteries, supercapacitors, solar cells and developing sustainable solutions to harvesting and storing energy. In addition, I am also interested in applying new chemicals and their behaviour at the nano-scale. I am also involved in waste management, particularly electronic waste (e-waste), plastics, and agricultural waste recycling. Currently, I am the Principal Investigator of a UNDP funded project dubbed "Transformation of Municipal Solid Waste into Sustainable Resources for Pavement Construction in Ghana (ECOPAVE)."

IS YOUR RESEARCH FUNDED, AND BY WHOM?

The project, ECOPAVE, is funded by UNDP under the Waste Recovery Innovative Challenge (WRIC) Initiative, (UNDP/GHA/WRIC/10/2019).

HOW DID YOU SECURE THE FUNDING?

The funding was secured through a proposal submitted to UNDP. The project seeks to blend agricultural and plastic waste to form a water-resistant bituminous surface material for pavement construction including roads, playgrounds, markets,



Producing hydroxyl radicals for the decomposition of oil

and bus terminals to reduce the waste generated and pavement construction cost in the country.

HOW MUCH IS THE GRANT?

Forty thousand United State Dollars (\$ 40,000)

	Name	Gender	Level of Education
1	Dr. Mutala Mohammed	Male	PhD
2	Dr. Mrs Trinity Ama Tagbor	Female	PhD
3	Dr. Margerat Mary Nimoh	Female	PhD
4	Samuel Tekpetey	Male	MSc.
5	Ekua Afrakumah	Female	MSc.
6	Rejart Adomah	Female	BSc.

WHAT ARE THE EXPECTED OUTCOMES OF YOUR RESEARCH?

Some outcomes include the construction of a pavement with a minimum area of 10 X 7.3 m² with the best performing composite material, increase understanding of the concept of circular economy, and its contribution to the achievement of the SDGs. Others are the preservation of the natural aggregate, reduction of the cost of construction materials, will increase employment and income for women and youth.

HOW WILL YOUR RESEARCH CONTRIBUTED TO KNOWLEDGE AND IMPROVEMENT OF LIFE AND THE SOCIETY?

The utilisation of plastics and agro-processing waste in bituminous mixtures is supposed to enhance the properties and strength of the asphaltic mixture used for pavement construction in Ghana. Additionally, this research will provide a solution to plastic waste disposal and various defects in pavement constructed in the country, i.e. potholes, corrugation, and ruts. The application of these waste materials holds the key to sustainable construction materials in the context of

Bio-economy, climate, and drive towards achieving at least five of the Sustainable Development Goals (SDG: 1, 6, 9, 12, and 13). The project can contribute to reducing the amount of bitumen in the conventional asphaltic mixture by about 10 – 30 %.

WHERE DO YOU SEE THE FUTURE OF YOUR RESEARCH?

The future of my research looks promising. My interests are very relevant because Ghana and other countries in Africa are still developing. I am optimistic that my exposure and collaboration will help me reach greater heights. I look forward to fulfilling my career and causing a positive change.

WHAT EXTRA-CURRICULA ACTIVITIES ARE YOU INVOLVED IN?

I am involved in the training of women and youth in cosmetics and household chemicals production. Though the local cosmetic and soap producing industry is picking up, there are challenges with the packaging and distribution of these products because they do not meet International standards. This periodic training programme exposes potential producers/manufacturers to the nitty-gritties in product manufacturing, development, certification, and registration. The training programme partners with the FDA (Food and Drugs Authority), GSA (Ghana Standards Authority), Registrar General Department, and CSIR-INSTI to better empower unemployed women, youth and to enhance the activities of already existing local producers/manufacturers. In the past year, one hundred and twenty-two (122) women, youth, and the physically challenged have been trained in the production of hand sanitizer, cosmetics, and soap. I am also committed to the mentorship of female students, particularly those in STEM fields.

HOW DO YOU FIND WORK-LIFE BALANCE?

Work-life balance has not been an easy one for me. As a career and family woman, it has become very challenging because of the amount of time needed to conduct research, write proposals, engage in products development, and still attend to family needs. I am still working on getting a good balance. Time management is the root of a healthy work-life balance. I try to manage my time well to attend to household and work issues. For instance, to engage in a bit of exercise in the evening because it is impossible

in the mornings, have family prayers in the evenings and attend to my children. I try to set attainable goals to enable me achieve most of my objectives. I am thankful to God for the strength.

HOW DO YOU UNWIND, ANY HOBBIES?

Reading, watching movies, cooking and playing games on the phone are activities I do to escape the occasional feeling of stress.

ADVICE TO YOUR YOUNGER SELF?

Discover/know God and build that personal relationship with him. Do not worry about the future because it will take care of itself but set goals. Whatever you find yourself doing today, do it as if you have an opportunity to change someone or a situation. When you get the opportunity to cause a change, do it without personal interests. Do not be afraid to make mistakes because they make us better.

ANY FINAL WORDS?



A tour with the family to the Hallason (Halla Mountain), at Jeju Island, South Korea, 2017



Preparation of Plastic/palm kernel shell composite at the Zhongmei Group laboratory, Pokuase

Department Of Applied Chemistry and Biochemistry of the C.K. Tedam University of Technology and Applied Sciences, Formerly UDS, Navrongo-Campus



Dr Mary-Magdalene Pedavoah

BACKGROUND INFORMATION: Growing up, Educational background, Current qualification, Status and Workplace

I am Dr. Mary-Magdalene Pedavoah. I had my basic education at the Bagabaga Demonstration Primary School and Kanvilli Presby JSS, both in Tamale. Later, I enrolled in Tamale Secondary School (TAMASCO) to pursue General Science. I hold a BSc. in Applied Chemistry and Environmental Science from the University for Development Studies, Master of Science and PhD in Physical Chemistry from the Kwame Nkrumah University of Science and Technology, Kumasi. I also have a certificate from the Institute for Climate Protection, Energy and Mobility (IKEM) Berlin, Germany. I am the first female lecturer in the Department of Applied Chemistry and Biochemistry of the C.K. Tedam University of Technology and

Applied Sciences, formerly UDS, Navrongo-Campus. I am married and have five children.

HOW DID YOU END UP AS A SCIENTIST?

Pursuing a career in STEM was a childhood dream. Initially, I wanted to be a medical doctor because I was only exposed to few options at the time. With no previous knowledge in science and a mentor in my family and community, I just wanted to be a doctor. My desire was so strong that, my parents who were both teachers and siblings called me Dr. Magdalene. Fast forward, I am a doctor today. Though I wear a white lab coat, I am a different type of doctor from what I envisioned as a child. I hold a PhD in Chemistry.

WHO WERE YOUR ROLE MODELS OR GREATEST INFLUENCERS WHILE GROWING UP?

As a child I had no role models. I just admired women who had excelled in various fields, especially, Professor Marian Awura Ama Addy of the National Science and Maths Quiz fame. I had this burning desire to excel too, because my dad had told us that, he was not ready to beg for placement in schools for any of his children. A childhood school mate and friend who is a medical doctor today, encouraged me.

WHAT ARE YOUR RESEARCH INTERESTS AND CURRENT RESEARCH?

Renewable energy and green chemistry-related research are of great interest to me. On a broader scale, however, with my background in chemistry I do research related to Chemical Kinetics and catalysis, Biofuel, bio-based heterogeneous catalyst, Biodiesel production and analyses, and characterisation and applications of alternative feedstocks for biodiesel.

IS YOUR RESEARCH FUNDED AND BY WHOM?

Currently, I do not have any funded project. I however, had a grant from IFS a couple of years back.

HOW DID YOU SECURE THE FUNDING?

I came across the IFS call through search engines on grants. It was a call for collaborative research for early career scientists across Africa. I applied online, formed a group with four others (3 Nigerians and a South African) who shared similar research interest. Our team went through the various stages and was judged the best collaborative research team. Each team member was given an individual grant for his/her part of the project.

HOW MUCH IS THE GRANT?

I received a little over USD 12,000.00, for the purchase of some equipment and other related costs for the project.

HOW MANY PEOPLE ARE IN YOUR RESEARCH TEAM? INDICATE THEIR GENDER AND LEVELS OF EDUCATION.

The IFS team was made of five members; two females and 3 males. We have maintained our network, but family and school have slowed down our collaborations.

WHERE DO YOU SEE THE FUTURE OF YOUR RESEARCH?

It is my hope that through my research, some neglected and underutilised bioresources would be identified and used for the development of functional materials with application in renewable energy, catalysis and other biocomposites.

The long-term goal of my research is for the socio-economic advancement in rural communities and improved livelihoods of especially women involved in the cultivation and processing of these resources.

WHAT EXTRA-CURRICULAR ACTIVITIES ARE YOU INVOLVED IN?

I volunteer for STEM NGOs as a resource person and engage in activities that promote the interest in science education among girls.

HOW DO YOU FIND WORK-LIFE BALANCE?

Hmmmmm! I guess work-life balance (101) should be a course for every career woman. As a mother of five, with all children in basic schools, and an early-career faculty your guess is as good as mine. Though a big challenge, I try to have family time, grabbing some pizza, going site-seeing, shopping etc. The demands sometimes, make the situation unavoidably difficult. Thus, I end up with very little to no time to relax.

HOW DO YOU UNWIND, ANY HOBBIES?

The soothing words of some inspiring music or motivational speeches give me a breath of fresh air. I also enjoy gardening, visiting parks and the beach.

ADVICE TO YOUR YOUNGER SELF?

Take advantage of the current technology-related opportunities. Learn more soft skills, network and collaborate with others. Get some exposure, boost your confidence and have a positive mindset.

ANY FINAL WORDS?

I believe we should make the best of every opportunity that comes our way, so that one day you don't say oh I could have done this or that. Also, as women, whose career paths are automatically slowed down by the family, we should remain focused, determined and persevere in the face of all challenges. Above all remember it is your own story.

BUILDING AND ROAD RESEARCH INSTITUTE OF COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH, GHANA

BACKGROUND

INFORMATION: Growing up, Educational background, Current qualification, Status and Workplace.

My name is Arc. Mrs. Rosemary Cobbinah. I was born in Kumasi - Ghana. I am from a family of five children and I am the last born. I am married to Arc. Nana Agyeman Cobbinah with two children.

I attended KNUST Nursery school, Primary and Junior Secondary School. I furthered my education at Holy Child School, Cape Coast and proceeded to study Architecture at the Kwame Nkrumah University of Science and Technology (KNUST) where I obtained a Bachelor of Science degree in Architecture, Post Graduate Diploma in Architecture and Master of Science degree in Architecture. I also obtained a Diploma in Project Management from Institute of Commercial Management, UK and I am currently a second year PhD student in Architecture, KNUST.

I work at the Building and Road Research Institute under the Council for Scientific and Industrial Research, Ghana and I am a Research Scientist (Architect). I am also the Secretary to the Ghana Institute of Architects - Northern Chapter and a Board Member of the Architects Registration Council - Ghana.

HOW DID YOU END UP AS A SCIENTIST?

I ended up as a scientist when I came to work at the CSIR - Building and Road Research Institute, Kumasi. CSIR



*be prayerful and
always ask God for
directions in life*

- BRRRI is a Research Institute and the core mandate of the workers are to produce research documents and activities in their areas of specialization or through collaborative work with other closely related researchers aside other mandates such as drawing and consultancy services. As an Architect, Architectural research is an intrinsic part of every project work; that is understanding the client needs, evaluating the project context, assessing the various performance and characteristics of materials and building components through research. I therefore developed the passion for research from my senior colleagues who were able to turn concepts and science through research into images and plans. I was taught how to precede my work with research, documents and design with the results as an employee of CSIR - BRRRI.

WHO WERE YOUR ROLE MODELS OR GREATEST INFLUENCERS WHILE GROWING UP?

While growing up, I had the passion for buildings and the environment in which they sit in, creative works and taking pride in the process of making projects. My parents also had friends who were Architects (both in practice and academia) and well established too. I was influenced by their projects and the creative nature of it. One of them is the Late Arc. Ben Odame who was a Lecturer and was also into private practice.

WHAT ARE YOUR RESEARCH INTERESTS IN GENERAL AND CURRENT RESEARCH?

My research interest is on sustainable architecture; and that deals with researching into the design scheme, the construction, maintenance and demolition of buildings with major principles i.e. resources efficiency, life cycle cost and humane adaptation. Currently I am researching into sustainable hotel buildings since it has been identified as a silent destroyer of the environment through resource depletion and disruption of ecosystems, because of the infrastructure it requires.

IS YOUR RESEARCH FUNDED AND BY WHO?

Yes, my research was funded by the Covid 19 Response Fund

HOW DID YOU SECURE THE FUNDING?

The funds was secured by the Council for Scientific and industrial Research - Water Research Institute, Ghana.

HOW MANY PEOPLE ARE IN YOUR RESEARCH TEAM? INDICATE THEIR GENDER AND LEVELS OF EDUCATION.

There were five main people in the research for the design of the Covid-19 and other infectious disease Laboratory Centre. The Director of CSIR - BRRRI (Ph.D.), Director of CSIR - WRI (Professor), myself the Architect - a PhD student and the only female, a Quantity Surveyor (MPhil) and a construction Engineer (MPhil) were the members in the research team.

WHAT ARE THE EXPECTED OUTCOMES OF YOUR RESEARCH?

The expected outcome of the research was to design, produce bill of quantities and construct an infectious disease laboratory. The laboratory was finally built in Accra at the CSIR - head office. The laboratory is expected to test for Covid 19 and other infectious diseases in Ghana.

HOW HAS YOUR RESEARCH CONTRIBUTED TO KNOWLEDGE AND IMPROVEMENT OF LIFE AND THE SOCIETY?

The research has contributed to the design development and building of the Covid 19 and other Infectious Diseases Research and Laboratory for Ghana. The building was furnished with all the necessary equipment to international standards for the laboratory to test Covid-19 and to test and perform various experiments into other infectious disease in Ghana

WHERE DO YOU SEE THE FUTURE OF YOUR RESEARCH?

The joy of every Architect is to see her design being built, particularly when you have a design scheme that affects a lot of people. It is with the hope that such a sustainable building project like the Covid 19 and other infectious disease centre would serve as a centre to collect data to improve upon the subsequent ones that can be replicated in other regions in Ghana.

WHAT EXTRA-CURRICULAR ACTIVITIES ARE YOU INVOLVED IN

I plan for events such as birthday parties and Brunch. I also do interior decor for clients, family and friends.

HOW DO YOU FIND WORK-LIFE BALANCE?

Work and life balance for a woman and married too with children is very tough but there are ways to take care of some of the activities. The first thing I do is that I prioritise my time into 3 parts and that is family, work and personal time. I also try as much as possible to avoid time wasting and manage my time well. Finally, there are also some sacrifices I do make as a career and family woman.

HOW DO YOU UNWIND, ANY HOBBIES?

Most often I play and dance with my children. I also love travelling around Ghana. It's an eye opener for future research and design.

ADVICE TO YOUR YOUNGER SELF?

My advice is that invest your time in friendships that will pull you to do things that are beneficial in life. You will have to follow your passion and read good books.

ANY FINAL WORDS?

Be prayerful and always ask God for directions in life.





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