



COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH-GHANA

# CSIR NEWS

2022 Edition 2

Volume 3

APRIL - JULY

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*Prof. Paul P. Bosu  
7th Director-General of CSIR-Ghana*

**VISION** Using the transforming power of S & T for wealth creation  
**MISSION:** To become the force for accelerated social and economic development of Ghana through examining, exploring and creating science and technology catalysts for public and private wealth creation

# Message from the D-G

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## Building a dynamic and productive CSIR

I take this opportunity to express my appreciation to the CSIR Council, Management, staff and all our stakeholders for my appointment to the enviable position of Director-General of the foremost public research institution in Ghana. Life in CSIR has been a rollercoaster, beginning from the day I joined for national service in November 1994 to my appointment this May 2022. I have met many, from all walks of life; scientists, academics, policymakers, industry players, businessmen, who have expressed diverse opinions and views on CSIR, and its operations. As a research and development (R&D) institution, some say we are doing very well. But for others, we are not! The verdict on us is like the story of the blind men who tried to describe an elephant. According to the story, one held the leg and concluded that the elephant is like the stem of a tree; another held the trunk and said the elephant is like a long tube; then another held the tail and said it is like long brush.

Just like the blind men, our 13 research institutes have meant different things to different people, stakeholders, at different times. We have been praised and described in the most favourable ways by those who have benefitted from our numerous products and services. We have been bastardized and described in the worst possible ways by those who were disappointed in one way or another. In between the two extremes there is a wide spectrum of opinions about us. What appears to be a consensus among our stakeholders is that, in spite of whatever we have done (or have not), CSIR has a potential that we are yet to fully tap into. Indeed, the mantra, “CSIR is sitting on gold” is frequently heard, stated in one form or another.

The question then is “What do we say of ourselves?” If we are indeed sitting on gold, are we digging deep enough? How does the future look for us? What are the answers to the many other questions that we are frequently confronted with? Firstly, we can say that we have come a long way, we are fighting the good fight, and the sky is our limit! There is so much we have done over the past 60-plus years. In Agriculture and food security! Environment and Natural Resource Management! Industry! Public and Biomedical Health!, and Science Policy, Information and Knowledge Management!

With visionary leadership provided by my predecessor Prof. Victor Kwame Agyeman we have made considerable inroads. For example, between 2015 and 2019, CSIR scientists registered over 80% of the new crop varieties in Ghana. Over the past six months, CSIR-Food Research Institute has developed and packaged 27 convenient foods that are ready for uptake by the private sector. Our scientists at CSIR-Institute for Scientific and Technological Information (CSIR-INSTI) developed the Digital Agricultural Innovation Hub (DAIH), which is a platform that hosts all agricultural technologies and research outputs developed by CSIR over the years, readily accessible by farmers, researchers and other stakeholders. CSIR - Soil Research Institute (CSIR-SRI) has also converted the analogue soil maps of Ghana into digital formats for easy reference by farmers and stakeholders. CSIR-Soil Research Institute is currently working with OCP Group (a Moroccan Chemical Company) to map out acidity levels in selected farming areas in the Ashanti Region, and there are plans to extend this project to cover the entire country. Now every farmer can have the soil and crop specific fertilizer recommendation, a key ingredient for improving crop productivity, thanks to Researchers at CSIR-SRI.

As a new Director-General, I am proud of what we have achieved so far, and I look forward to leading our organization into the future. My vision, which I call “Vision of a Dynamic and Productive CSIR” is to build an institution that performs at its highest possible potential to deliver R&D products and with the full backing of my team of dedicated scientists and staff eager to use S&T to improve lives in a constantly changing society. With this vision and a new Corporate Strategic Plan outlined for the next five years, I am confident that we will make significant progress.

So then, how do we intend to do that? How do we efficiently and effectively dig the gold, buried deep in the ground (ourselves) without resorting to the scraping of the surface pittance, or worse to undertake illegal small-scale mining otherwise known as “galamsey”? What should we do to become the leading science, technology and innovation (STI) institution of Africa that we envision? What should we do if we are to effectively use science, technology and innovation to create wealth for our people?

## Looking into the future!

There is a lot that I envision we will achieve in the next five years during my tenure as D-G. With God Almighty on our side, we will aggressively pursue the four-point agenda in the new Strategic Plan, which is linked to the vision I submitted when I applied for the position. We will improve research delivery as well as technology transfer to ensure that it benefits society even more. We will do all we can to ensure that every Ghanaian everywhere will see, touch and taste CSIR. We will reform our revenue generation strategies in order to meet many of our needs, whether for the financing of research, capacity building, infrastructure and facilities improvement, or visibility programmes. For research financing we will aggressively pursue calls for grant proposals on all fronts through implementation of the Projects Office initiative across all 13 Institutes.

## Infrastructure/facilities

Our infrastructure and facilities need attention. And, we will make every effort to improve our facilities and, as much as possible, replace our equipment to keep up with emerging trends. Progress has been slow in this direction but we are pressing on. This year alone, three of our laboratories have received ISO accreditation, after going through months/years of re-equipping followed by rigorous assessments and validation by international experts. They are the Analytical Soil Lab at CSIR-Soil Research Institute at Kwadaso, Kumasi; the Wood and Furniture Testing Centre at CSIR-Forestry Research Institute of Ghana at Fumesua near Kumasi and the Analytical laboratory at CSIR-Food Research Institute at Okponglo in Accra.

Thanks to government’s timely intervention the encroachment of CSIR-Animal Research Institute lands at Frafraha (Kantamanso) has been halted and illegal structures within the about 200-acre inner perimeter have been demolished and reverted back to CSIR. While processes continue with the remaining portion outside the walled perimeter, I wish on behalf of the entire CSIR fraternity to express our gratitude to the Greater Accra Regional Security Council (REGSEC) led by the Honourable Regional Minister Mr. Henry Quartey for the brilliant exercise.

## Conclusion

As I conclude, I wish to humbly appeal to Government to expedite action on the implementation of the National Research Fund Act, by making resources available for research and development in our beloved country. I invite all and sundry; staff, friends, clients, stakeholders, and indeed all Ghanaians, to lend a hand to our efforts to help build a better Ghana through science, technology and innovation.

# News

## Prof. Bosu takes office as 7<sup>th</sup> D-G of CSIR

Professor Paul Pinnock Bosu was on Friday May 30, 2022 inducted into office as the 7th Director-General of the Council for Scientific and Industrial Research (CSIR).

Delivering his inaugural address, Prof. Bosu appealed to the government to help recover and protect CSIR lands. He said about 800 acres of land that belongs to the CSIR-Animal Research Institute at Frafraha in the Adentan Municipality, Accra has been illegally acquired with the remaining 200 acres which have been fenced off to prevent further encroachment still being encroached on.

'I entreat government and all stakeholders who have a say to help save and protect CSIR lands no matter where they are located' he said. *As part of measure to achieve CSIR's mandate during his tenure, he said there was a lot he had envisioned to be achieved together with the CSIR team in the next five years. 'We will significantly improve results delivery and transfer technologies that we have developed and aggressively pursue financial resource mobilization to ensure that we have resources available to undertake research in that direction' he said. 'We will develop strategies to promote Commercialisation of our research products and significantly improve our writing and translation in general'* Professor Bosu added.

He appealed to government to expedite action on the implementation of the National Research Fund Act in order to make resources available for research and development of Ghana.

In a speech read on his behalf, the Minister of Environment, Science, Technology and Innovation (MESTI), Dr. Kwaku Afriyie said within the next decade, Innovation must account for the largest part of Ghana's Gross Domestic Product (GDP).

'Ghana will achieve this by strengthening the country's innovation ecosystem introducing robust innovation support programmes, developing nationwide infrastructure to support innovation, training our youth and equipping them with tools for creating sustainable innovation and establishing Ghana as they prepare the nation for Technology and Innovation related investments' he indicated.

Prof. Bosu joined CSIR for national service in November 1994, and was given full time appointment as Assistant Research Scientist in October 1995. Through hard work and dedication to duty, he rose through the ranks to the grade of Chief Research Scientist in January 2018.

In 2018, the Northern Arizona University School of Forestry recognized his work with the Distinguished Alumnus Award of the School (the First International Student to receive the Award). In November 2014, the International Tropical Timber Council (ITTC) acknowledged his contributions to the Council's Fellowship programme with a Special Invitation to deliver "His Success Story" at the Opening of the 50th Anniversary Session of the Council, in Yokohama, Japan.

Prof. Bosu served in various positions at CSIR-FORIG, where he spent most of his active research career, including Head of Entomology Section; Head of Biology and Forest Health Division; Head of Ecosystem Science and Climate Division; Head of Biodiversity and Ecosystem Science Unit; and Head of Training and Consultancy Section.

He is a member of the Executive Committee of the Modernizing Agriculture in Ghana (MAG) programme; member of the Advisory Board of the College of Basic and Applied Sciences (CBAS), of the University of Ghana (Legon); and member of the Board of the Centre for Plant Medicine Research (CPMR), Mampong Akwapim.

He has authored and co-authored over 100 publications, which include refereed journal articles, technical reports, books and book chapters and attracted hundreds of thousands of dollars in research funds to CSIR-FORIG through grants for Research and Development (R&D) programmes.

Prof. Bosu is an alumnus of the Kwame Nkrumah University of Science and Technology (KNUST) where he obtained a Bachelor of Science (Hon) and Master of Philosophy (MPhil) degrees in Biological Sciences, in 1994 and 1999, respectively.

He is also an alumnus of the Northern Arizona University (NAU) in Flagstaff, USA where he obtained a PhD in Forest Entomology, specialising in mechanisms of plant resistance to insect pests (in 2003). Prof. Bosu attended the prestigious Adisadel College in Cape Coast.

Prior to his appointment as Director-General, Prof. Paul Pinnock Bosu served as Deputy Director-General for CSIR from January 2019 to April 2022.

*Source: Corporate Affairs Division, CSIR Head Office*



The Council Chair (Prof. Kingsford Adaboah) administering the oath of office

## Over 100 illegal structures on CSIR-ARI land pulled down after minister's 48hr ultimatum



Hundreds of structures unlawfully erected on 200 acres of land belonging to the CSIR -Animal Research Institute (CSIR-ARI) have been demolished at Frafraha in the Adentan Municipality of the Greater Accra Region.

The demolition followed a 48-hour ultimatum given the encroachers by the Regional Minister and Chairman of the Greater Accra REGSEC, Henry Quartey, at a press conference on Monday June 20, 2022 to relocate from the area.

The encroachers had pulled down large portions of a fenced wall that protected the land and built walls and single rooms in front of the hatchery, the meat processing house and the Dairy Processing Unit of ARI, which had blocked access to those facilities by vehicles.



The encroachers had also broken-down portions of a pig sty, destroyed four cattle kraals and replaced them with building foundations.

“The 48 hours elapsed this morning. The REGSEC is here and it is doing its best to secure the land within the 200-acre perimeter that has been fenced,” Mr Quartey said.

The government, under Executive Instrument (E.I. 38) in 1976, established the CSIR-ARI and assigned it over a 1,000-acre land at Adentan-Frafraha, with a mandate to conduct research into the development and transfer of livestock and poultry technologies to communities, farmer groups, private and public organisations. When the land was acquired by the government, all owners, including the original owners at Berekuso in the Akuapem District, were compensated.

However, over the years, some unscrupulous persons have sold over 800 acres of these lands. Recently other developers have also started encroaching on the remaining 200 acres.

In an attempt to stop further encroachment, the institute, in 2017, acquired a loan to fence off the remaining 200-acre portion of the land, but large portions of the fence had been broken down by encroachers.



Source : Corporate Affairs Division, CSIR Head Office

## CSIR-INSTI receives audio-visual equipment from FARA

The CSIR-Institute for Scientific and Technological Information (CSIR-INSTI) has received a donation of Audio-Visual Equipment from the Forum for Agricultural Research in Africa (FARA), the apex continental organisation responsible for coordinating and advocating agricultural research for development in Africa. The ceremony took place at the premises of CSIR-INSTI in Accra on 27<sup>th</sup> May 2022.

The donation of the equipment forms part of the Ghana Knowledge Management for Agricultural Development (KM4AgD) programme initiated by FARA and implemented by a joint team made of members from the Ministry of Food and Agriculture (MoFA), CSIR-Institute for Scientific and Technological Information (CSIR-INSTI) and CSIR-Science and Technology Policy Research Institute (CSIR-STEPRI).

The purpose of the donation was to leverage the expertise of the institutions towards strengthening capacities, outreach and the KM4AgD agenda in Ghana. The items donated comprised five Samsung Galaxy A51 smartphones, one hand-held projector (DCS 1000) with accessories made up of solar panel, bluetooth speaker, keyboard, power bank, tripod stand and a projector screen.

In his opening remarks at the ceremony, Dr. Seth Awuku Manteaw, Director of CSIR – INSTI emphasised the point that the donation would strengthen CSIR-INSTI's knowledge management mandate and ensure the effective integration of science, technology and innovation in the activities of agricultural value chains. He said the donation had opened a new chapter in CSIR-INSTI's collaboration with FARA stressing that "CSIR-INSTI looks forward to an exciting working relationship with FARA going into the future."

Mr. Benjamin Abugri, who is a lead specialist for Knowledge Management, Learning and Communication at FARA also stated that there was the need to bridge the gap between science and practice adding that "the researchers and policymakers are coming up with a variety of solutions to help farmers to manage risks, but the outreach and promotion of these solutions need to be well-structured."

In appreciation for the kind gesture, Mr. Paul Siameh, Director of the Directorate of Agricultural Extension Services of MOFA thanked FARA for the donation. He said, "MOFA Extension Directorate is delighted to be part of the project and indeed most appreciative for the donation of the equipment, which presents an interactive process in which information, knowledge and skills relevant for development would be exchanged between farmers and extension or advisory services."



Director, CSIR-INSTI (3<sup>rd</sup> from the left) receiving the donation from the FARA team



Staff of CSIR-INSTI, FARA team and representatives from MOFA

# Pushing the boundaries of Science and Innovation

## Genetically Modified Organisms (GMOs): the need for a Pod Borer Resistant (PBR) Cowpea and its benefits to national development

Pod borer resistant (PBR) cowpea is a cowpea variety genetically modified (GM) to overcome damage by the legume pod borer, *Maruca vitrata*. This pest is one of the most damaging insect pest on the crop. The legume pod borer attacks the flowers and young developing pods of cowpea and this leads to 20-80% yield loss (Figure 1). Its cryptic behaviour (i.e., it hides inside the flowers and pods) makes the use of insecticides for its control extremely difficult. Thus, farmers typically spray between 8 and 12 sprays just to control this insect and others attacking the crop. This exposes the farmers to pesticide poisoning, pollutes the environment and possible poisoning of unsuspecting consumers when farmers harvest sprayed produce without observing the recommended pre-harvest interval.

The use of GM technology for the development of PBR cowpea was necessitated by the inability of scientists to use conventional plant breeding methods to develop cowpea varieties resistant to this pest. Out of over 15,000 cowpea accessions that were screened globally, none of them possessed traits that could be used in a conventional plant breeding programme to develop legume pod borer resistant varieties. Insecticide use has also not proven to be an effective and sustainable option. Thus, farmers are not able to produce enough quantities of cowpea to meet domestic demands. Consequently, Ghana imports cowpea from countries such as Niger, Burkina Faso and Nigeria.

To increase cowpea yields on farmers' fields so as to meet market demands, the PBR Cowpea project started in Ghana in 2012. The implementation of this project is coordinated by the African Agricultural Technology Foundation (AATF) headquartered in Nairobi, Kenya. Participating countries include Ghana, Burkina Faso and Nigeria. Other collaborating research partners are the Commonwealth Scientific and Industrial organization (CSIRO), Australia and the Donald Danforth Plant Science Center, USA. The first planting of GM cowpea in Ghana took place on 9<sup>th</sup> September, 2013. Many trials have since been conducted under confinement. The last set of trials that contributed to overwhelmingly proving the robustness of this GM cowpea in improving yields were conducted in the 2019 season.

The PBR cowpea presents enormous benefits to farmers and the country as a whole. Currently, PBR Cowpea has been released for cultivation in Nigeria. In Ghana, many cowpea farmers around the major cowpea producing areas are also anxiously awaiting release of this biotechnology product for cultivation. The main benefits of this product to farmers include a reduction in the number of insecticide spray applications from over 8 sprays to only two sprays, thus saving production cost. These two sprays will target the other insect pest of cowpea such as thrips and pod-sucking bugs. The harmful effects of insecticides on the health of farmers and consumers will be greatly minimized because of



reduction in the number of sprays. Hence, our farmers will live healthily and possibly longer. Our environment will be safeguarded from the hazardous insecticides used on cowpea farms. Beneficial insects such as pollinators (e.g., bumble bees) and natural enemies (e.g., predators and parasitoids) will be conserved because of the reduced use of harmful insecticides. Ultimately, yields of cowpea on farmers field will increase by at least 4-folds (Figure 2). This will increase farmers income and also ensure that citizens have access to good quality pesticide-free cowpea at a lower cost. Increased yields also means that Ghana will eventually be able to produce enough cowpea to meet domestic demands and possibly export the excess to neighboring countries. Exporting cowpea to neighboring countries will increase our foreign exchange reserves and thus, contribute towards strengthening our economy.

To release this cowpea variety to farmers in Ghana, the CSIR-SARI submitted an application the National Biosafety Authority (NBA), Kwabenya-Accra, requesting for a permit for environmental release (Figure 3). The NBA is the state agency responsible for regulating safe application and use of genetically modified organisms (GMOs) in Ghana. CSIR-SARI's application is being processed and the institute is optimistic that a permit will be issued for multi-locational trials to be conducted as part of the steps for varietal release in Ghana.



Figure 1. Legume pod borer damaged cowpea pods



Figure 2. A visit to Pod Borer Resistant cowpea field at Manga, Upper East Region by cowpea farmers



Figure 3. Submission of application for environmental release of GM cowpea to the National Biosafety Authority, Kwabenya, Accra

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## CSIR -INSTI develops four digital Agricultural solutions

Author: Akua Boateng Agyenim  
& Patrick Folitse

CSIR-INSTI

CSIR-Institute for Scientific and Technological Information (CSIR-INSTI), with support from the Canadian Government and through the Modernising Agriculture in Ghana (MAG) programme, has developed 4 digital solutions-Digital Agricultural Innovation Hub (DAIH) to facilitate the effective and efficient delivery of agricultural extension to farmers and other actors along the agricultural commodity value chain. The development of the digital solutions is in line with the objectives of the MAG programme that seeks to improve food security and also to make the agriculture sector more modern, equitable and sustainable, as well as offering a comprehensive market-oriented approach to farming.

The Ministry of Food and Agriculture and the Council for Scientific and Industrial Research (CSIR) has institutionalised linkages through the creation of Research Extension-Farmer Linkage Committees (RELCs) which were to serve as an interface between the National Agricultural Research System (NARS) and the National Agricultural Extension System (NAES). The primary purpose RELCs is to create a bridge between research, extension, farmers and agribusiness.

It is in line with the objective of bringing CSIR technologies closer to the End-User for easier adoption that these Apps have been developed:

**AGRITECH ADVISOR** is a mobile app that provides a platform for questions to be asked on specific agricultural related needs. End-users and experts on the platform are by default enabled

and given the opportunity to provide answers and vote on the accuracy of answers. It can be downloaded via Google play store and requires the End-user to register and login. There are six subject areas one can access information from: Crops, Forestry, Industry, Food, Technology and Aquaculture.

**CSIR TECHNOLOGIES** The main aim of this deliverable was to find out how research work impacts economically on society. This portal is meant to showcase all CSIR Technologies to the international community. The portal displays four (4) subject areas and interactive map of Ghana. The subject areas are Thematic and Soil Maps of Ghana, Agriculture Technologies, Agro Inputs & Seed Stores and Experts Reports and Newsletters. These subject areas are colour coded with corresponding colours and numbers displayed on the interactive map of Ghana.

**AGRICULTURAL RESEARCH MANAGEMENT REPOSITORY (CSIR Space)** hosts plethora of research and resource materials developed by all 13 Institutes of CSIR. They include Annual reports, Conference/Journal papers, Edited Research/ Technical Reports etc. Repositories are important tools for preserving an organization's legacy; they facilitate digital preservation and scholarly communication.

**KUAFO MARKET PLACE** provides the digital platform where buyers and sellers along the agricultural value chain can engage. Colourful images of the seller's produce are displayed which enhances the visibility of the items being sold. Interested sellers who want to display their goods have to login and register and after vetting, their goods and services will be displayed on the website ([csirgh.com](http://csirgh.com)).

As part of the operationalisation and sensitisation of the digital solutions, diverse tools have been employed to drive publicity by a team of officers from CSIR-INSTI. These tools include: bulk SMSes circulated to Districts, Municipal and Regional Agricultural directors, extension officers, Farmer Based Organisations (FBOs), Agricultural agencies and other related organisations nationwide.

Accra, Eastern, Central, Western, Western North, Volta, Ashanti, Bono, Upper West and Upper East respectively. Training sessions have also been conducted for stakeholders in three regions namely Central, Eastern and Ashanti regions.



Besides, there has been awareness creation for Research Extension-Farmer Linkage Committees (RELCs) and other stakeholder in 10 out of the 16 regions of Ghana. These regions are Greater



Savior Multi-Purpose Cooperative Members



Women in Poultry Farming At Kwabre East



Stakeholders at the RELC meeting, Ho, Volta Region

Additionally, a documentary on the DAIH was produced and aired on the national television station, *Ghana Television* among other tv and radio programmes. GTV – Farmer’s Week, UTV – Ayeeko, JOY TV - Tech Thursday, Joy TV - Tech Thursday, Joy Business, Luv FM, and all Multimedia platforms, CITY FM – City Trends (Podcast) have been the media partners that have been engaged in the sensitisation drive.



Other tools for sensitisation have been circulation of posters, pull-ups, flyers and stickers to farmers, agencies and other actors along the value chain. Awareness has also been created among other

stakeholders and donor partners such as the Canadian High Commission, MAG secretariat, FARA, KOPIA, International Water Management Institute, Ministry of Environment, Science, Technology & Innovation (MESTI), Peasant Farmers Association of Ghana and many others. Social media channels such as You tube, Twitter, Instagram and Facebook have been used to promote the APPs to a wider audience in Ghana and in so many countries.

Currently, Kuafo Market Place has 363 users and 287 products being displayed for commercial transaction, the CSIR Technologist portal has 1894 inputs, and the Agricultural Research Management Repository (CSIR Space) now hosts 2090 of Annual reports, Conference/Journal papers, Edited Research/ Technical Reports of all 13 Institutes of CSIR.

CSIR-INSTI’s achievement of Digital Agriculture Innovation Hub (DAIH) initiative on its contribution toward the modernisation of agriculture programme in Ghana has been phenomenal. The Institute has leveraged on the four digital solutions developed to sustain communication, education and public awareness creation among actors along the Agriculture Value Chain. The Institute envisages to organise more training to ultimately intensify digital technologies in agricultural extension and advisory services in Ghana.

# Bridging the gap between technology and end-users



**Dr. Jerry Nboyine**

Dr. Jerry Nboyine is a Senior Research Scientist (Entomologist) with the Savanna Agricultural Research Institute of the Council for Scientific and Industrial Research (CSIR – SARI). He has immense interest in sustainability in agricultural production practices, especially in the area of minimizing pesticide loads in farming systems.

Dr Nboyine's interest in promoting cost-effective and environmentally benign sustainable pest management practices among resource-poor farmers in particular has led to his research focusing on plant-based and microbial pesticidal use in crop production. His works also exploits the potential of combining host plant resistance with minimal insecticide use to produce safe food for human consumption. Jerry's interest in host plant resistance goes beyond the use of conventional breeding practices to include exploiting genetically engineering crops for pest resistance.

As the Lead Scientist for the Pod Borer Resistant (PBR) Cowpea project, Dr Nboyine and his team worked towards releasing the first ever genetically modified (GM) crop in Ghana. The PBR cowpea project is funded by USAID through the African Agricultural Technology Foundation (AATF) which has its Head Office in Nairobi, Kenya. This GM cowpea was developed to contribute to hunger reduction and improve nutrition by mitigating damage caused by the legume pod borer, *Maruca vitrata*, in cowpea cultivation. The legume pod borer is a major insect pest of cowpea and it causes up to 80% yield loss on farmers' field. Since, cowpea is a major source of good quality protein and it is popularly referred to as the "poor man's meat", there was a consensus among African Scientists that reducing legume pod borer infestations was necessary to increasing access to the grains of this crop.

To achieve the overall objective of cowpea farmers having access to seeds of this pod borer resistant cowpea, Dr. Nboyine led his team to undertake the first step of submitting a comprehensive dossier for environmental release of the source of the resistance gene (known as event 709A) to the Institutional Biosafety Committee (IBC) of CSIR – SARI for review in August, 2020. Subsequently, the supporting dossier and completed application form were submitted to the National Biosafety Authority (NBA) on 14<sup>th</sup> January, 2021. This historic event was led by the then Director General of the CSIR, Professor Victor Agyeman, and the Acting Director of CSIR – SARI, Dr Samuel Saaka Buah.

Dr. Nboyine and his team successfully responded to all deficiencies in the application that were identified by the NBA and on 18<sup>th</sup> February, 2022, the application was placed in the notice of public gazette as required by law. A 10-year permit was eventually issued to the CSIR on 30<sup>th</sup> June, 2022. The issuance of this permit was good news for the CSIR, farmers, lovers of science and to all consumers of cowpea products. With this permit, CSIR – SARI can proceed to conduct multi-locational trials which will eventually lead to the release of a variety for farmers to cultivate.

Dr. Nboyine's and his team are excited about the permit they have received from the NBA and will commence multi-locational trials for the GM cowpea in 2022 cropping season. They have successfully introduced the gene that confers resistance to the legume pod borer into five commercial varieties of cowpea known as Songotra, Padi-tuya, Apagbaala, Kirhouse benga and Wankae. But for the 2022 multi-locational trials, only Songotra will be used. Seed multiplication is ongoing to ensure availability of sufficient quantities of seeds for field testing of the other varieties in 2023.

Dr. Nboyine is excited that the new GM cowpea variety, when released, will significantly contribute to reduce Ghana's foreign exchange losses through the current high volumes of cowpea imports from neighbouring countries. He is also excited that the health of cowpea farmers and consumers as well as our environment will be protected from the hazardous effects of excessive insecticide use in the cultivation of the crop. On issues of seed availability and cost, Dr Nboyine assures all farmers that seeds will be available in insufficient quantities for all those

who want the plant the variety and that it will be marketed using existing seed system that is handled by the Ministry of Food and Agriculture.

Dr. Nboyine and his team continue to educate the public on the safety of bioengineered crops for food and feed and the importance of such crops to national development. He uses scientific data from the cowpea project and other peer reviewed data to sensitize the public on the GM technology. He emphasizes the need for Ghanaians to accept GM as part of the tools needed for food security amidst growing human populations and declining areas for agricultural production.

Dr. Nboyine has 64 publications to his credit and these comprise 31 refereed journal papers, 2 book chapters, 14 conference papers, 3 manuals and 14 extension leaflets. He is the Chairman of CSIR-SARI Publication and Editorial Committee and Team Lead for the Northern Region Farming Systems Research Group (NRFSRG). Jerry is also the Lead Scientist for the Peanut Innovation Laboratory project which is a USAID funded project through collaboration with North Carolina State University, USA. He previously collaborated with CABI West Africa and these led to significant knowledge and contributions to fall armyworm ecology and management in Ghana. He was among the team of scientists that revised the current national pest list for Ghana.

Dr Nboyine hold's a PhD in Ecology from Lincoln University, Canterbury, New Zealand and a Master of Philosophy degree in Entomology from the University of Ghana, Legon. He is Married with three children.

# Going the extra mile



**Mr. Kassim Issaka**

Mr. Kassim Issaka is a staff of CSIR Head Office and was born on **23<sup>rd</sup> March, 1971** at Bawku Upper East Region. He was employed on **1<sup>st</sup> July, 2000** and his current position is Supervisor Grade 1. The name of his parents are Alhaji Kassim and Madam Alimatu Haruna.

Mr. Kassim Issaka was employed into the CSIR Head Office as a Cleaner/Labourer. He showed interest in gardening work more than what he was employed for.

His interest in the gardening work led him to undertake a training in gardening in general at the Department of Parks and Gardens in Accra.

In 2001, he was assigned as a Gardener to CSIR Bungalows at East Cantonment residences of the Director of Finance and Deputy Director General respectively for quite a long while before being reassigned back to the Head Office in 2007.

Due to his hard work and efficiency, he was recommended by his immediate Supervisor, Mr. Seth Clotley (Head of Maintenance) to Management to take up the flower gardening of the Head Office at the time a need had arisen to beautify the compound with green grassing and planting of flowers.

He indeed displayed skills in the job he was doing, he does not wait to be instructed or told what to do, and he also properly scheduled days for weeding, planting, spraying chemicals etc.

Mr. Kassim Issaka can be said to be the brain behind the beautiful flower garden with the colours of the Ghana Flag surrounding the Roundabout situated right in the heart of CSIR Head Office between the Administration and AgSSIP Blocks, which was constructed by the Staff of the Maintenance Section in the year 2007, and the flower plant at the back of the road curbs and other places on the compound.

He is always seen smiling and busily working, and is unperturbed when working in good or adverse weather. He even sometimes comes during the weekends at his own expense without requesting allowance. He really enjoys the flower gardening work; he does it wholeheartedly, and this can be seen translating in the flourishing of the flowers on the CSIR Head Office Compound.

He was upgraded by the Council to the grade of Senior Headman (Gardener) from 1<sup>st</sup> January 2008 and was later upgraded to the grade of Supervisor grade II on 1<sup>st</sup> January 2011.

Since 1<sup>st</sup> January 2015, he has been promoted to the grade of Supervisor Grade I to date.

# Milestones & Appointments



**Prof Charles Tortoe**

Prof Charles Tortoe, a Chief Research Scientist has been appointed as the substantive Director for the CSIR- Food Research Institute. Prior to his appointment in July 2022, he was the acting Director for the institute.

Prof Tortoe is an accomplished Food Scientist expert with special focus on Food processing and preservation of root and tuber crops, fruits and vegetables and cereals and legumes.

Product development, food security, food safety and quality control, Hazard Analysis Critical

Control Points (HACCP), training, development and promoting farmers, processors, Micro-Small-Medium Scale Enterprises, organization and technology transfer for Farmer Based Organizations, Processors, Micro-Small-Medium Scale Enterprises and Business Incubations on food commodities.

He has worked on several projects including: World Bank/GoG West Africa Productivity Programme (WAAPP-2A) on Root and Tubers; DFID/Street Foods Project; WFP Process for Progress (P4Ps) Programme on cereals and legumes; EU/Cassava Small Medium Scale Enterprises Project; CSIR-FRI/WAAPP Yam Project; Millennium Development Authority (MIDA) of the Millennium Challenge Account-Ghana; FARA-BIOMASSWEB Project on Plantain Utilization; CSIR-FRI/TNO-Netherlands Fruits Project; GIZ German Government Dried Fruits Project; EU Gratitude Project on Cassava and Yam; Mitsubishi Research Institute Yam Project; 2FAS/INSIDER European Commission Project on Food Micronutrients Deficiencies; and DANIDA/Ghana Street Food Project.

He has served the Council a little over 23years.





**Dr. Edward Yeboah**

Dr. Edward Yeboah has been appointed as the substantive Director for Council for Scientific and Industrial Research-Soil Research Institute in Kumasi, Ghana. Prior to his appointment he was the acting Director for the institute.

Dr. Yeboah has contributed immensely in the area of research and development in Ghana with extensive networks of collaborators in Africa, Europe, USA and Australia.

He is an accomplished Soil Fertility Expert and has strong interest in unravelling the mechanisms underlying nutrient and soil organic matter dynamics in tropical agro ecosystems.

Dr. Edward Yeboah works extensively with farmer groups, input suppliers, stakeholders in agricultural research and development to develop innovations, build capacity, and promote information exchange on soil fertility management practices for enhancing productivity of agriculture in Africa.

He has published widely and a proficient reviewer. Edward has received several awards including

the Prestigious Rothamsted International African Fellowship, National Best Researcher Award and twice recipient of IFS Funding and currently the President of IFS Ghana Alumni Association.

He has a PhD in Soil Science, MPhil Soil Science and BSc. Agriculture from University of Ghana, Legon.

Dr. Yeboah has served the Council for a little over 23years.



**Dr. Francis Kusi**

Dr Francis Kusi, a Principal Scientist has been appointed as the substantive Director for the CSIR- Savanna Agricultural Research Institute. Prior to his appointment he was the acting Deputy Director, Council for Scientific and Industrial Research (CSIR) - Savannah Agricultural Research Institute (SARI), Nyankpala, Tamale in the Northern Region of Ghana. His area of expertise is Host Plant Resistance Etymology with special skills and knowledge in application of molecular tools to search and develop resistant varieties.

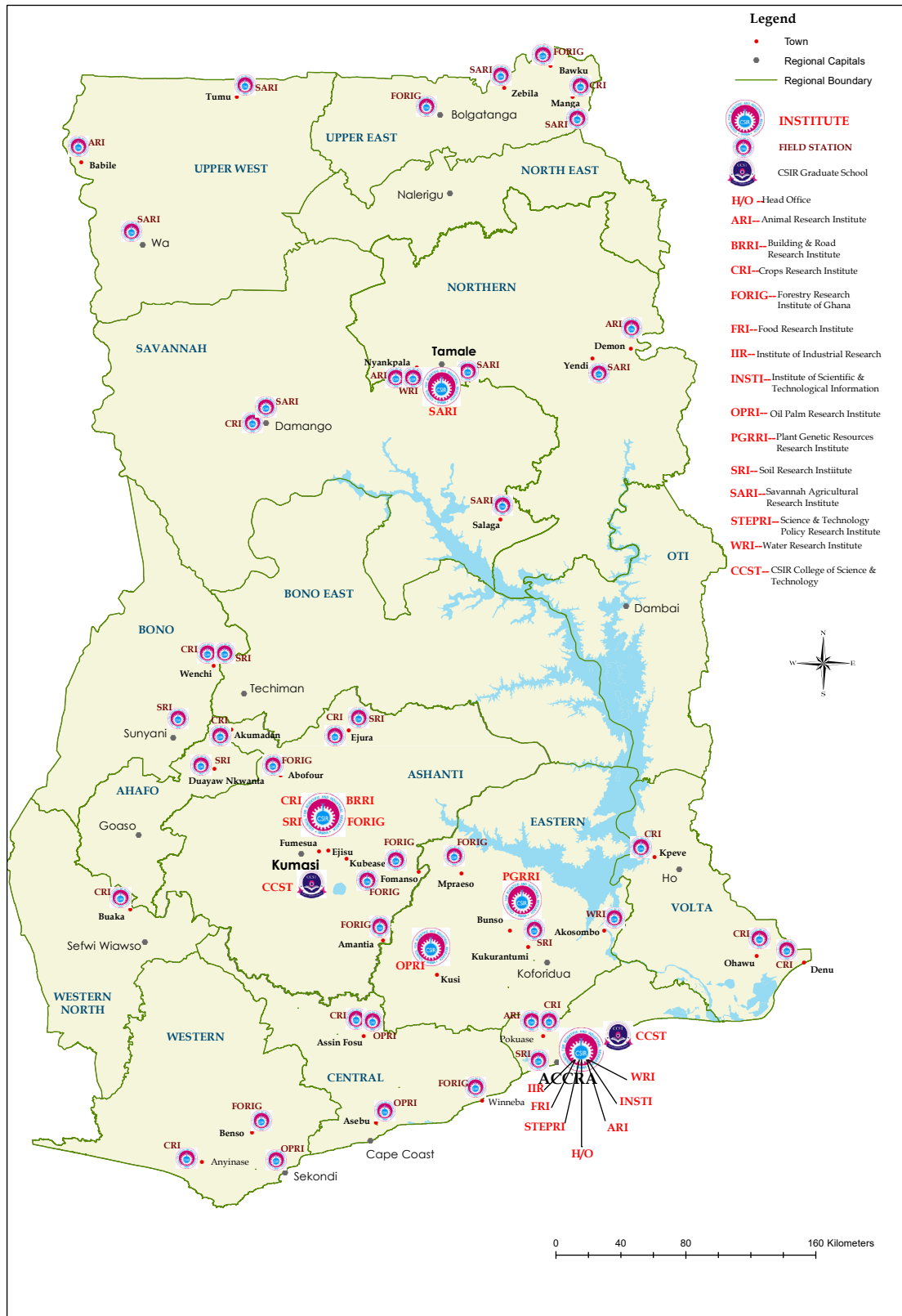
He has been involved in the following activities and projects:

- a. Attracted funding from Kirkhouse Trust to train 3 Phd and Two MPhil students for CSIR-SARI from 2016 to date

- b. Attracted funding between 2013 to date from Feed the Future LIL and ILRC projects through UC Riverside and Kirkhouse Trust to improve research facilities at Manga Station of CSIR-SARI
  - c. Led a team to release five (5) Frafra potato varieties for the first time in Ghana in 2017.
  - d. Led a team to develop and released five (5) aphid and Striga resistant Cowpea varieties using marker-assisted backcrossing in 2016 and was adjudged the National Best Agricultural Researcher in 2016.
  - e. Led a team to develop and out-scaled stem cutting propagation method for large scale cultivation of Frafra potato. This has now made it possible for large scale production of Frafra potato which was previously limited to about 1/8 of an acre due to inadequate quality planting materials at the time of planting.
  - f. He led a team to develop and out-scaled Integrated Management strategies to extend shelf-life of yam from 3 to 7 months, WAAPP 1A 2012. led a team to developed and out-scaled Integrated Pests Management Strategies to manage pests and diseases of onion, pepper and tomato under irrigation, supported by FABS in 2013.
  - g. Identified cowpea genotype resistant to cowpea aphid (SARC1-57-2), which has become one of the important cowpea breeding material for Breeders since 2011 and identified DNA marker that is tightly linked with aphid resistance locus.
  - h. His area of expertise is Host Plant Resistance Etymology with special skills and knowledge in application of molecular tools to search and develop resistant varieties.
- Prior to his appointment, Dr. Kusi had served the Council for over 28 years

# OUR FOOTPRINTS

## INSTITUTES & FIELD STATIONS OF CSIR - GHANA



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**Editorial Advisors:** Prof. Paul Bosu, Deputy Director-General, CSIR-Ghana; Dr. Seth Awuku Manteaw, Director, CSIR -INSTI.

DESIGNED BY CSIR - INSTI PRINTING AND PUBLISHING DIVISION (0302 780709)