



# IIR Newsletter

Maiden Edition

Volume 1

Issue 1

June 2025

## In this Edition

Director's Message

Editorial Board

About CSIR-IIR

CSIR-IIR Technologies

News

CSIR products & Services

Contact page



## A New Phase for CSIR-IIR: A Blend of Innovation, Commitment, and Corporate Renewal

Page 06

About CSIR-IIR –  
CSIR Corporate/ IIR

Page 04 >



The Olonka  
Measuring Scale in  
Ghana: Tradition vs.  
Modernization

Page 11 >



Engineering  
Solutions for  
Local Challenges

Page 09 >

# Director's Message



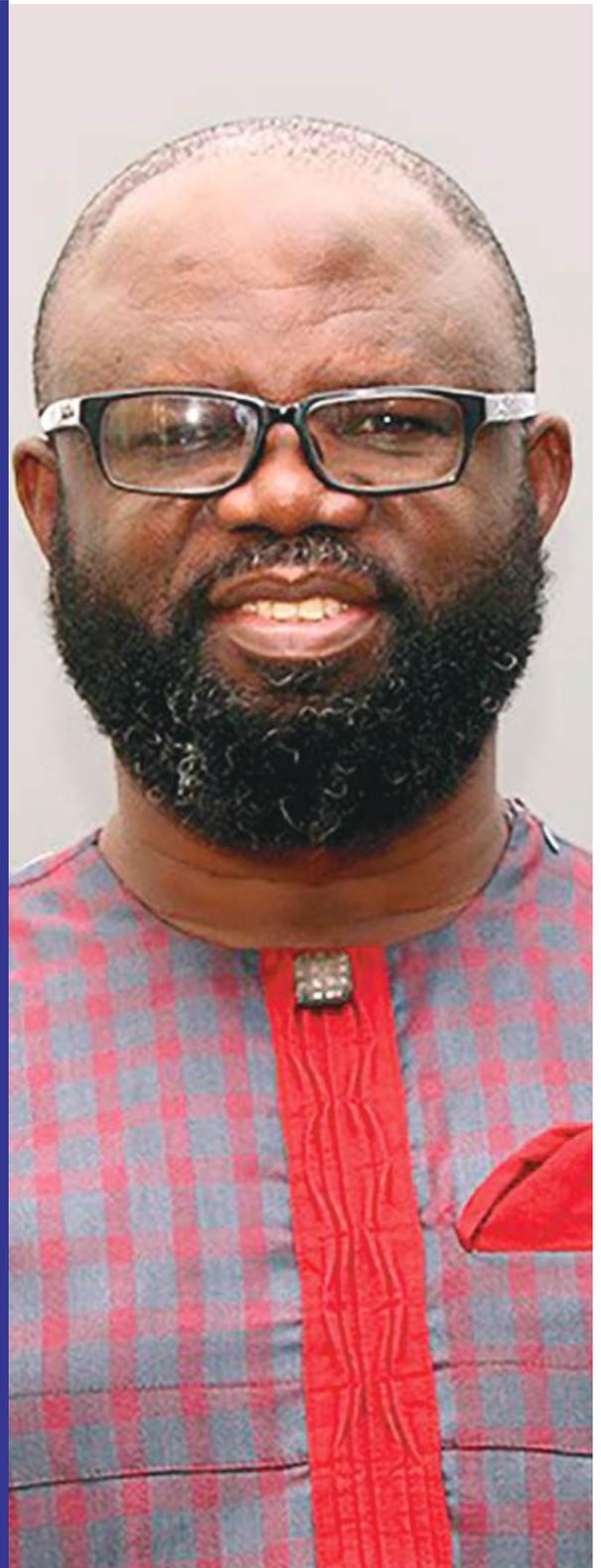
Welcome to the first edition of the IIR Newsletter, the official newsletter of the CSIR- Institute of Industrial Research (IIR). As we embark on this exciting journey of innovation and progress, it is my privilege to share with you the strides we are making in cutting-edge research and technology development.

At CSIR-IIR, our resolve is to remain focused on Industry-driven R&D and services, product development, quality assurance (testing & certification) and capacity building (training). We pursue these through partnership with government and private sector including to revolutionize Industry (SMEs) by the use of Emerging Engineering Technologies.

This Newsletter will serve as a window into the world of CSIR-IIR, showcasing the impactful work of our scientists, the technologies we've developed, and the projects that are helping us push boundaries.

In this maiden edition, you will find highlights of our technologies developed, programs, and upcoming initiatives that will drive industrial growth and technological advancement.

Our commitment to research excellence and innovation is at the heart of everything we do. We invite you to explore, learn, and connect with us as we continue to pave the way for future industrial breakthroughs.



**Dr. Francis Boateng Agyenim,**  
Director, CSIR-IIR



## CSIR-IIR Newsletter Editorial Team



**Mr. Reginald Atiemo**  
(Member)



**Ms. Armanda Agbesu**  
(Member)



**Ms. Marcellina Adomah**  
(Secretary)



**Mr. Japhet Otchere Gyamfi**  
(Editor)



**Mr. Ekow Quayson**  
(Graphic Designer)

**Photo Credit:** Public Relations Office, CSIR-Institute of Industrial Research

## Editorial Advisors



**Dr. Francis Boateng Agyenim**  
(Director, CSIR-IIR)



**Dr. William Owusu Oduro**  
(Deputy Director, CISR-IIR)

# ABOUT CSIR-IIR

The CSIR-Institute of Industrial Research (CSIR-IIR) is one of the thirteen (13) Institutes of the Council for Scientific and Industrial Research (CSIR) which Ghana's foremost industrial research and development organization and the premier research organization dedicated to advancing industrial research and development in various sectors.

Established under the Council of Scientific and Industrial Research (CSIR), the institute is committed to fostering innovation, enhancing technological advancements, and contributing to the nation's industrial growth. It is mandated to

undertake research into process and product design and development, promote adaptive technologies, scientific instrumentation and calibration, as well as repair of precision equipment.

Research and development activities are conducted in Six (6) technical divisions of the Institute which are; Sanitation and Environmental Management Division (SEMD), Energy Technologies Division (ETD), Metrology, Materials and Manufacturing Division (MMD), Engineering Design and Prototyping Division (EDPD) and Emerging Engineering Technologies (EET). These divisions are supported by Human Resource and



Administration, Finance and Accounts, Business and Information Services and Project Resource Mobilization Division (PRMD).

The Institute runs two ISO Accredited Labs for calibration of equipment and testing of cookstoves. We recognize the importance of private participation in what we do and therefore established the Industrial Innovation Hub (i2-Hub) which is a co-working space for private businesses who we support with research and development. CSIR-IIR offers agricultural solutions and engineering consultancy services through developing tailor-made SOPs, industrial process optimization, fabrication of agric and engineering systems and the development of waste to energy solutions for industry.

With this unique combination of expertise in applied research and scientific instrumentation, the CSIR-IIR transfers and delivers technological solutions and other commercialisation activities to public entities and private businesses.

Consequently, the institute has embarked upon visibility programmes, which avails itself to consulting services that demonstrate impact of CSIR-IIR research and commercialisation on its publics. Such services and others also greatly rekindle our quest to fulfil our mandate to drive national development and global competitiveness in industry through scientific and technological research.

In recent years the CSIR-IIR is developing and optimizing CNC systems to enhance production efficiency, accuracy, and versatility which are cornerstones for modern manufacturing, enabling precise control of machinery through computer programming. The Institute is also advancing Foundry technology to improve quality, efficiency and environmental sustainability as part of our efforts to break the frontiers of emerging engineering technologies in Ghana.

The CSIR-IIR seeks partnerships with both private and public institutions to drive investments to pursue its programmes and projects.





## A New Phase for CSIR-IIR: A Blend of Innovation, Commitment, and Corporate Renewal

The CSIR-Institute of Industrial Research (CSIR-IIR) has entered an exciting new phase marked by visible transformation, renewed commitment, and an enhanced sense of institutional pride. In a bold step towards revitalizing its physical environment and reinforcing its corporate identity, the Institute has undertaken significant renovation works, landscaping projects, and beautification initiatives that signal a reawakening of purpose.

One of the most noticeable changes is the improvement of the Institute's physical infrastructure. Key facilities have undergone much-needed renovations, restoring their functionality and aesthetic appeal. This has not only created a more conducive atmosphere for research and collaboration but also reinforced the

Institute's commitment to operational excellence.

Complementing the renovations is a comprehensive landscaping project that features the installation of durable pavement blocks and strategic greening of the compound. The formerly dusty or uneven walkways have now been replaced with well-laid pavement blocks that improve accessibility, reduce erosion, and provide a cleaner, more professional appearance. The landscaping effort introduces a fresh and welcoming ambience that reflects the innovative spirit of the Institute.

What stands out even more is the unity and dedication demonstrated by staff members. In an inspiring show of ownership and volunteerism,



staff across departments contributed financially towards the procurement of flower pots and ornamental plants. This initiative, driven from within, reflects a shared vision for the future and a collective desire to project a positive image of CSIR-IIR to all visitors, partners, and the general public.

The importance of these efforts extends beyond physical aesthetics. The transformation is a strategic move to reposition CSIR-IIR in the minds of stakeholders as a vibrant, forward-thinking, and professional institution. First impressions matter especially in a competitive research and development landscape where visual presentation often influences credibility, trust, and opportunities for collaboration. The Institute's new look now mirrors the excellence of its scientific output, the discipline of its researchers, and the value of its partnerships.

Moreover, a renewed and well-maintained physical environment boosts staff morale, enhances productivity, and promotes a culture of excellence. It demonstrates that the Institute not only invests in research and innovation but also in the wellbeing of its people and the image it presents to the world.



The CSIR-IIR's Management expresses its profound appreciation to all staff for their support and involvement in this transformation. The new phase of CSIR-IIR is not just about buildings and beautification—it is about identity, unity, and forward momentum. With continued collaboration and commitment, the Institute is poised to achieve even greater heights in research, innovation, and industrial relevance.



# CSIR Teams Up with MMDAs and MEST to Mark World Environment Day in Accra: "Rethink Plastic Pollution, Act Now!"

The World Environment Day 2025 was commemorated on Thursday, 5th June 2025 under the global theme "Ending Plastic Pollution". The Council for Scientific and Industrial Research (CSIR) joined other stakeholders in the commemoration organised by the Ministry of Environment, Science, and Technology (MEST) through the Environmental Protection Agency at Kwabenya Senior High School in Accra.

The ceremony which was graced by the President of the Republic of Ghana, H.E. John Dramani Mahama, brought together a wide array of dignitaries and stakeholders, including heads and staff of the six agencies under MEST, Metropolitan, Municipal and District Assemblies (MMDAs), officials of various government agencies, members of the diplomatic corps, corporate representatives, youth groups, students and members of the general public.

The celebration featured a grand durbar with side exhibitions and media engagements. To showcase initiatives and contributions toward environmental sustainability a tree planting exercise was carried out on the school premises. Speeches from key stakeholders, including the MEST Minister, with President Mahama delivering the keynote address.

In his speech, the President emphasized on the need for a cleaner environment and called for sustained environmental actions for the enforcement of environmental protection laws, including a proposed ban on Styrofoam plastic products in Ghana. He was conducted on a tour of the exhibition stands after which he launched the symbolic tree planting initiative dubbed "One Child, One Plant" campaign, a national initiative spearheaded by MEST to promote environmental



awareness among the youth.

The Council for Scientific and Industrial Research (CSIR), Ghana's foremost scientific research institution under MEST was represented at the event by Dr. Boniface Yeboah Antwi, a Research Scientist of the CSIR-Institute of Industrial Research (IIR) and Mr. Victor Nketia, an Assistant Research Scientist of the CSIR-Plant Genetic Resources Research Institute (PGRRI) who also participated in the exhibition and supported the tree planting exercise.

A highlight of the exhibition showcased upcycled and repurposed products crafted from plastic bottles and Styrofoam packaging bowls from IIR as well as some plant varieties and their economic benefits from CSIR-Plant Genetic Resources Research Institute (PGRRI). Patrons were astonished by the creativity and ingenuity exhibited.



# Engineering Solutions for Local Challenges

As part of its mandate to develop practical technologies for national development, a team of engineers at Ghana's Council for Scientific and Industrial Research - Institute of Industrial Research (CSIR-IIR) have developed two groundbreaking solutions addressing critical sectoral challenges. Led by mechanical engineer Mr. Baffour, the innovations demonstrate CSIR's commitment to creating locally-adapted technologies that enhance productivity and sustainability.

The first innovation is a heavy-duty industrial mower specifically designed for Ghana's challenging terrain. Unlike imported alternatives, this robust machine features a six-horsepower petrol engine and reinforced carbon steel construction.

After extensive prototyping that included replacing trans bearings with more durable hall bearings, the team at IIR created a mower capable of efficiently cutting through 10mm-thick vegetation while withstanding demanding usage conditions.

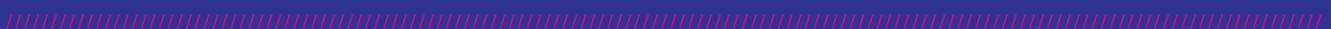
For the agricultural sector, the team developed an automated Palm Kernel Separator that revolutionizes traditional processing methods. This innovation replaces labor-intensive, unhygienic mud-water separation techniques with a mechanized system featuring a rolling chamber, conveyor belts, and integrated waste collection. With a processing capacity of 400kg



per hour - compared to several days required for manual methods - the separator significantly improves efficiency while maintaining better hygiene standards.

These innovations exemplify CSIR-IIR's approach to problem-driven research and development. Currently being deployed on a pilot basis, the technologies demonstrate how locally-developed solutions can address specific challenges in Ghana's industrial and agricultural sectors while creating opportunities for technology transfer and commercialization.

As part of CSIR's broader mission, the Institute continues to refine these technologies while exploring partnerships for scaling up production and deployment across relevant sectors of the economy.





## CSIR-IIR Leads Mangrove Conservation Initiative through Community Engagement in Kodzi

The Council for Scientific and Industrial Research - Institute of Industrial Research (CSIR-IIR) recently conducted a sensitization program at Kodzi, emphasizing the dual importance of mangrove conservation and sustainable energy alternatives. The initiative highlighted CSIR's commitment to environmental protection while addressing Ghana's energy needs through innovative solutions.

Dr. Latifatu Adjah, a research scientist at CSIR-IIR, underscored the critical role of mangrove ecosystems in coastal protection and biodiversity preservation. "Our research demonstrates that healthy mangrove forests serve as natural barriers against erosion while supporting fish breeding grounds". The program educated community members on sustainable harvesting techniques and replanting strategies to ensure long-term ecosystem viability.

Complementing the environmental focus, Dr. Tagbor, the project lead presented CSIR-IIR's work on biomass briquettes as an eco-friendly energy alternative. She mentioned that the briquettes, made from agricultural waste and mangrove byproducts, offer a cleaner burning fuel compared

to traditional charcoal. The technology provides income opportunities for local communities while reducing pressure on forest resources, she intimated.

The event featured practical demonstrations of briquette production, showcasing how coconut husks, sawdust, and other organic materials can be transformed into efficient fuel sources. Participants learned about the economic and environmental benefits of adopting these sustainable practices.

This integrated approach reflects CSIR-IIR's holistic strategy for addressing climate change challenges. By combining mangrove conservation with renewable energy solutions, the Institute is creating scalable models that balance ecological protection with community livelihoods. Future programs will expand training on these technologies while monitoring the restored mangrove sites to measure environmental impact.

CSIR-IIR plans to foster partnerships with local stakeholders to ensure widespread adoption of these sustainable practices in the coastal communities.





# The Olonka Measuring Scale in Ghana: Tradition vs. Modernization

In Ghana, the use of the "Olonka" measuring scale has been a longstanding tradition that has shaped how groceries and goods are measured in local markets. This scale, which is a container, typically made of a plastic or aluminum bucket, has become synonymous with Ghanaian trade practices. It has served as a cultural symbol of local commerce for decades.

However, as the world moves toward standardized, internationally recognized measurements, many are questioning whether the time has come for Ghana to embrace the metric system, particularly the kilogram (kg), for measuring groceries. This article explores the role of the Olonka, its limitations, and why it's time for Ghana to transition to using the kilogram and ensure proper calibration of measuring

equipment.

## What is the Olonka Measuring Scale?

The Olonka is a traditional unit of measurement commonly used in Ghana, especially in local markets, for weighing produce, grains, fish, and other goods. The term "Olonka" is often used to describe both the container itself and the amount of goods it holds. The weight of an Olonka is inconsistent and varies depending on the size, shape, and design of the container. It is typically used by vendors to weigh and sell goods like rice, beans, yams, tomatoes, and more.

While the Olonka has been a staple in local markets, its design is not standardized, which



introduces several problems in ensuring accuracy in trade. The size of an Olonka can differ from one vendor to another, leading to discrepancies in measurements. This often leaves consumers at the mercy of the vendor's integrity, with some vendors potentially using larger or smaller containers to manipulate the weight.

### Shortcomings of the Olonka Measuring Scale

**Inconsistency:** One of the primary drawbacks of using the Olonka is the lack of consistency in its size. The containers vary greatly in volume, meaning an "Olonka" from one seller could weigh much more or less than the same "Olonka" from another seller. This inconsistency can lead to unfair pricing and disputes between buyers and sellers.

**Lack of Standardization:** Unlike the kilogram, which has a fixed, universally recognized standard, the Olonka is not standardized. As a result, there is no uniformity in the way goods are measured across different markets, making it difficult for consumers to compare prices or ensure they are receiving the correct quantity. Furthermore, without standardization, vendors may inadvertently (or purposefully) provide inaccurate measurements, leading to mistrust in the marketplace.

**Vulnerability to Fraud:** Some vendors may exploit the variability of the Olonka by using containers that are slightly larger than average to sell goods in smaller amounts, thus charging consumers more than what they are actually receiving. This practice can undermine the integrity of the marketplace and erode consumer confidence.

**Limited Precision:** The Olonka is a rudimentary form of measurement that is limited in precision. When it comes to selling goods like fruits, vegetables, or spices in specific quantities, the Olonka doesn't offer the level of detail needed. In

modern markets, accuracy is vital, especially with fluctuating prices and the growing need for transparency in transactions.

The Case for Switching to Kilogram (kg) Measurement.

The need for Ghana to switch to the kilogram (kg) as the standard unit of measurement for groceries and other goods is driven by several factors that align with modernizing the economy, ensuring fairness, and integrating Ghana into the global market system.

**Global Standardization:** The kilogram is part of the International System of Units (SI), which is used globally. This transition would allow Ghana to align with international measurement standards, facilitating trade and communication with other countries. Adopting the kilogram would eliminate the need for cumbersome conversions and reduce confusion among vendors and consumers.

**Accuracy and Precision:** The kilogram is a precise unit of measurement that allows for greater accuracy when weighing goods. This would reduce discrepancies in trade and ensure consumers receive the exact amount they pay for. In industries where exact weights are important—such as agriculture, food production, and logistics—using the kilogram would guarantee fairer pricing.

**Transparency and Consumer Protection:** By switching to kilograms, Ghana would take a major step in consumer protection. The uniformity and accuracy of kilograms would reduce the opportunity for fraud and manipulation of measurements. A shift towards this system would increase confidence among consumers and ensure they are getting their money's worth, particularly in informal and traditional markets.

**Facilitating E-commerce:** With the rise of online shopping and digital marketplaces in Ghana, there is an increasing demand for standardization



in pricing and measurements. In order to compete on a global scale, online sellers will need to use standardized measurements like kilograms to help consumers easily compare prices, quantities, and shipping costs.

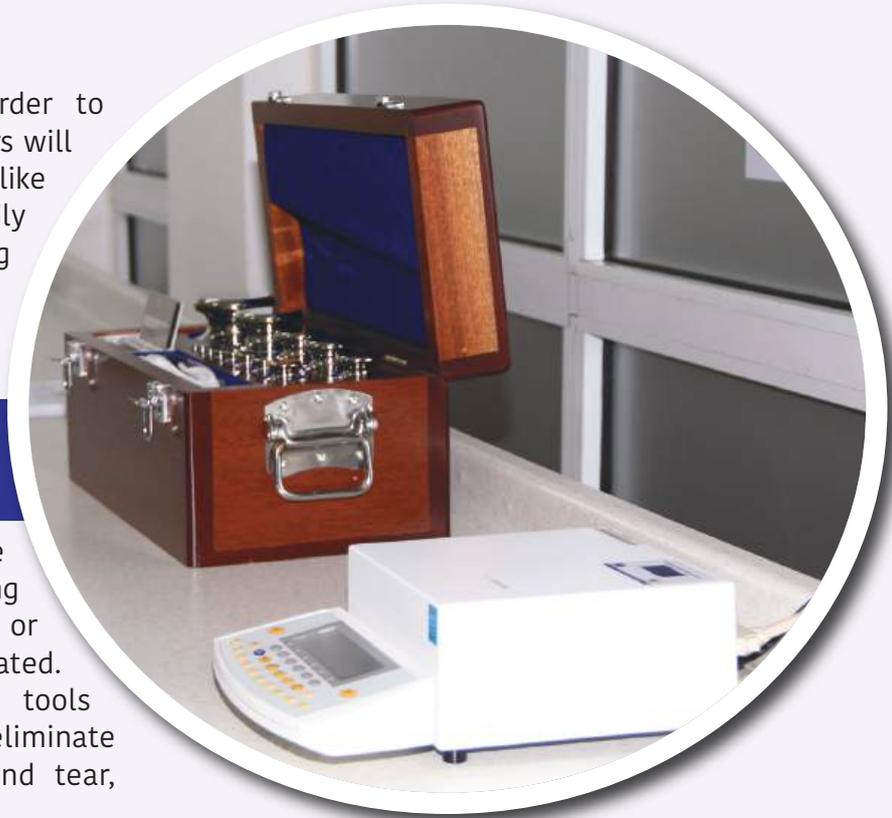
### The Importance of Calibrating Measuring Equipment

In addition to the shift toward the kilogram, it is crucial that all measuring equipment in Ghana, whether for retail or industrial purposes be properly calibrated. Calibration ensures that measuring tools provide accurate readings and helps to eliminate errors that could arise from wear and tear, environmental factors, or improper use.

**Ensuring fair trade:** Properly calibrated measuring devices ensure that goods are sold at accurate quantities, benefiting both the seller and the buyer. If a scale is not calibrated properly, it could under-weigh or over-weigh products, resulting in either unfair charges for consumers or financial losses for sellers.

**Compliance with Regulations:** Accurate measuring equipment is vital for ensuring compliance with Ghana's trade regulations. Regulatory bodies in Ghana and the broader Economic Community of West African States (ECOWAS) require that commercial scales be periodically checked and calibrated. This would improve market oversight and safeguard the rights of consumers and traders alike.

**Boosting Consumer Confidence:** Calibration helps to build trust between consumers and vendors. If consumers know that the scales used in markets are regularly calibrated, they are



more likely to trust that they are being sold the correct quantity of goods. This will improve business practices and create a more competitive marketplace.

### Conclusion

The Olonka has been an integral part of Ghana's traditional marketplace for generations, but its limitations are clear in the face of modern trade practices. Transitioning to the use of the kilogram as the standard unit of measurement would align Ghana with global standards, improve market fairness, and ensure more accurate and reliable measurements for consumers. Additionally, proper calibration of measuring equipment would further bolster trade integrity and foster greater consumer confidence. As the world advances, Ghana too must embrace the opportunities for progress, ensuring its market systems are transparent, fair, and efficient for all stakeholders





## Parliamentary Select Committee Commends CSIR

The Environment, Science and Technology Committee of parliament has paid a working visit to the CSIR-Institute of Industrial Research (IIR), to learn first-hand the operations of CSIR and identify ways of supporting the Council.

In his introductory remark, the Director General of CSIR, Prof. Paul Pinnock Bosu thanked the team for coming and their commitment to see CSIR grow. He used the opportunity to request for support for the amendment of the CSIR Act 1996 which according to him is very old and needs amendment to modernize and expand the Council's role.

After comprehensive presentations from various

Heads of Institutes, Hon. Prof. Hamza Adam, ranking member of the committee and the leader of the delegation said urged the government to increase budgetary support for the Council for Scientific and Industrial Research to enable it carry out its mandate effectively. He commended the CSIR for its achievements so far and also for its enormous potential to do more towards addressing Ghana's technological challenges.

The team was conducted round the CSIR-Institute of Industrial Research workshops and laboratories by the Director General, CSIR, the Director, CSIR-IIR and in the company of other Management members and staff.







## Botswana Minister of Higher Education Visits CSIR-Institute of Industrial Research, Ghana

In a bid to modernize Botswana's Technical and Vocational Education and Training (TVET) system, Hon. Prince Maele, Botswana's Minister of Higher Education (Technical & Vocational), led an eight-member delegation on a visit to Ghana.

The Botswana team, comprising education policy experts and technical trainers, embarked on a day visit to the Council for Scientific and Industrial Research-Institute of Industrial Research (CSIR-IIR) which has been a direct beneficiary of the TVET upgrading program to study Ghana's successful TVET frameworks including institutional realignment, curriculum development, public private partnerships, and gender inclusion measures.

The team was welcomed to the Institute by the Director, Dr. Francis Boateng Agyenim and engaged them briefly in a round table meeting as tradition demands to know the purpose of their visit. The highlight of the visit was the immersive tour of the Engineering Design and Prototyping Division which does a lot of welding and fabrication of equipment. The team also witnessed advanced CNC machining and precision component fabrication, along with hands-on foundry demonstrations from molding to casting that underscored practical relevance for industries such as automotive and agriculture. They observed a diverse cohort of trainees with women comprising a strong share engaging in competency-based, industry-aligned training programs.



Hon. Maele expressed his excitement about the wonder initiative. I am very much impressed with my experience so far and this has reiterated my conviction that indeed TVET should drive development in Africa, he remarked.

The visit concluded with commitments to launch educator and trainee exchange programs, adapt CSIR-IIR's CNC and Foundry curriculum modules for Botswana's TVET schools and develop joint facilities and learning platforms.



# 283rd DMC in pictures





## CSIR PRODUCTS & SERVICES



**Food Research Institute**  
Mushroom Production



**Institute of Industrial Research**  
Metrology Laboratory



**Animal Research Institute**  
Parasitological Analysis



**Oil Palm Research Institute**  
Palm oil analysis

### Contact

#### Ghana Post

Address GD – 161 – 5333

#### Physical Accra

92 Boundary Rd.  
Otinshi, ARS Junction  
Near American House, East Legon

#### Postal Address

P. O. Box LG 576, Accra



 [info@csir-iir.com](mailto:info@csir-iir.com)

 0302 500 193 (5)

 <https://csir-iir.com/>

### Follow Us

