

IYBSSD

**Ghana's  
report on  
the IYBSSD  
celebration**

Compiled by  
GAAS  
Secretariat

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2022/2023

## List of the events and activities organized in Ghana with a short description, in celebration of the International Year of Basic Sciences for Sustainable Development.

Program	Description
<p>1. Launch of the international year of basic sciences for sustainable development in Ghana (Organized by GAAS at the GAEC-SNAS campus)</p>	<p>Ghana is at the forefront of championing the study of Basic Sciences in education, also mandated by the United Nations General Assembly to celebrate this event. The Ghana Academy of Arts and Sciences (GAAS), Ghana's premier learned society, is spearheading the IBSSD celebration in Ghana. Under the auspices of the Ghana National Commission for UNESCO, Ghana Atomic Energy Commission (GAEC), and other collaborators, the Academy launched the IYBSSD Celebration in Ghana on the theme Significance of Basic Sciences for the Sustainable Development of Ghana on 21 October 2022.</p> <p>The launch was done in a hybrid form with fifty-two (52) people joining online and sixty (60) people attending in person</p>
<p>2. The 12th research seminar of the Ghana Science Association celebrating the international year of basic sciences for sustainable development.</p>	<p>The Ghana Science Association (GSA) Kumasi Branch, in partnership with the Ghana Academy of Arts and Sciences (GAAS) and the College of Science (CoS) at Kwame Nkrumah University of Science and Technology (KNUST), recently hosted a remarkable event – the Celebration of the International Year of Basic Sciences for Sustainable Development (IYBSSD-2023). With a theme that resonated throughout the seminar, "The Role of Basic Sciences for Sustainable Development," the event brought together eminent scientists, young researchers, and scholars, both in-person and virtually, on the 1st and 2nd of March 2023.</p>
<p>3. An outreach by women in nuclear Ghana to the GAEC basic school</p>	<p>As part of the celebrations of the International Year of Basic Sciences for Sustainable Development, Women in Nuclear Ghana, a group of female nuclear professionals undertook an outreach to the Ghana Atomic Energy Commission (GAEC) Basic School. The programme was to educate the public about the importance of science and mathematics for socio-economic development, where they interacted with young girls and educated them on nuclear energy and its benefits to society. The comprehensive and interactive session laid emphasis on the need for young girls to develop interest in science, technology, engineering and mathematics (STEM). The group consisted of accomplished female Scientists and Engineers drawn from different institutions in and outside Ghana.</p>
<p>4. IYEGlobal 8th international day of women and girls in science</p>	<p>Science knows no boundaries, and it certainly should not be limited by gender. It is imperative to provide equal opportunities for both young boys and girls to explore and contribute to the world of science. With this goal in mind, the 8th International Day of Women and Girls in Science, along with the Launch of the IYEGlobal International Year of Basic Sciences for Sustainable Development activities with the foundation, was set to create a platform for accomplished women scientists to mentor and inspire young girls in a rural Ghanaian township.</p>

**LAUNCH OF THE INTERNATIONAL  
YEAR OF BASIC SCIENCES FOR SUSTAINABLE  
DEVELOPMENT IN GHANA**

**GHANA ATOMIC  
ENERGY COMMISSION  
(GAEC), ACCRA,  
GHANA  
21<sup>ST</sup> OCTOBER, 2022**

**Introduction:**

On 21st October 2022, the Ghana Academy of Arts and Sciences partnered with the Ghana National Commission for UNESCO, Ghana Atomic Energy Commission (GAEC), and other collaborators to launch the Celebration of the International Year of Basic Sciences for Sustainable Development (IYBSSD-2023) in Accra, Ghana. The theme of the celebration was “**Significance of Basic Sciences for the Sustainable Development of Ghana.**”

**The Launch:**

The International Year of Basic Sciences for Sustainable Development (IYBSSD) was declared at the 76th meeting of the United Nations General Assembly to emphasize the need for the application of basic sciences in the development of medicine, industry, agriculture, water resources, energy planning, environment, communications, and culture. The celebration was set to be observed from July 2022 through to June 2023.

As a leading country in championing the study of Basic Sciences in education, Ghana was mandated by the United Nations General Assembly to celebrate the IYBSSD. The Ghana Academy of Arts and Sciences (GAAS), Ghana’s premier learned society, along with the Ghana National Commission for UNESCO, the Ghana Atomic Energy Commission (GAEC), and other collaborators, spearheaded the IYBSSD celebration in Ghana.

The launch was conducted in a hybrid form with fifty-two (52) people joining online, and sixty (60) people attending in person. Notable in-person attendees include Prof. Aba Bentil Andam, the Chairman of the IYBSSD Ghana Planning Committee, Emerita Prof. Isabella Quakyi (the Vice President for the Sciences Section of GAAS), Prof. Alfred Oteng-Yeboah (member of the Council of GAAS, who chaired the launch), Prof. Dickson Adomako (Deputy Director General of GAEC, who stood in for the Director-General of GAEC), and Mr. Apollonius O. A. Asare, who represented the Secretary-General for the Ghana National Commission for UNESCO.

The Ghana Academy of Arts and Sciences expresses gratitude to the Ghana Atomic Energy Commission and all collaborators for their generosity and contribution to the successful launch of the IYBSSD celebration in Ghana.

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# Gallery



**THE 12TH RESEARCH SEMINAR OF THE  
GHANA SCIENCE ASSOCIATION  
CELEBRATING THE INTERNATIONAL YEAR  
OF BASIC SCIENCES FOR SUSTAINABLE  
DEVELOPMENT**

**THE KWAME NKRUMAH  
UNIVERSITY OF SCIENCE  
AND TECHNOLOGY, (KNUST),  
KUMASI 8<sup>TH</sup> - 9<sup>TH</sup> MARCH 2023**

**Theme: Celebrating Sustainable Science: The International Year of Basic Sciences  
Seminar at KNUST**

*(Sponsored by International Union of Pure and Applied Physics)*

**Introduction:**

The Ghana Science Association (GSA) Kumasi Branch, in partnership with the Ghana Academy of Arts and Sciences (GAAS) and the College of Science (CoS) at Kwame Nkrumah University of Science and Technology (KNUST), recently hosted a remarkable event – the Celebration of the International Year of Basic Sciences for Sustainable Development (IYBSSD-2023). With a theme that resonated throughout the seminar, "The Role of Basic Sciences for Sustainable Development," the event brought together eminent scientists, young researchers, and scholars, both in-person and virtually, on the 1st and 2nd of March 2023.

**The Program**

The two-day seminar kicked off with an impressive lineup of keynote presentations, providing insights into the latest advancements in basic sciences and their crucial role in sustainable development. Distinguished experts in the fields of biology, chemistry, mathematics, and physics took the stage to share their groundbreaking research and findings.

**Day One: Unveiling the Role of Basic Sciences**

The first day of the seminar was marked by enthusiasm and anticipation as participants gathered at the Aboagyee Menyeh Complex within CoS-KNUST and joined virtually via Zoom and chaired by the provost of the College of Science, KNUST, **Prof. Leonard Amekudzi**.

**Prof. Jacob Agbenorhevi**, who is the honorary president of the Kumasi Branch of the Ghana Science Association gave the opening remark and welcomed participants.

**Prof. Mrs. Abba Bentil Andam**, represented the Ghana Academy of Science.

The representative of IUPAP, **Prof. Mrs. Aba Bentil Andam**, gave a solidarity message on behalf of IUPAP Special Guest of Honor, The VC of the KNUST, Prof. Mrs. Rita Akosua Dickson) delegated the Pro-VC of KNUST, **Prof. Ellis Owusu Dabo**, to present her speech.

The National President of the Ghana Science Association, **Dr. Michael Osae**, gave a solidarity message to the conference.

There were a total of 5 speakers on day 1 of the seminar

First to speak was the leader of the Young Researchers Forum (YRF), **Prof. Marian Asantewah Nkansah**. The second speaker was Rev. Prof. William Obeng Denteh, the Head of the Mathematics Department of the KNUST. He presented on “**basic sciences and the role of mathematics**”.

The third to speak was **Dr. Linus Kweku Labik**, who presented on **Advances in Physics for Sustainable Development**.

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The next speaker was **Prof. Nathaniel Boadi** from the Department of Chemistry, who spoke on "**advances in sustainable chemistry**".

Dr. Bonney also spoke on **microbes and sustainable development goals**.

The next section of the conference was the poster presentation, which was held on the forecourt of the Allotey Auditorium.

## **Day Two: Empowering the Next Generation**

The second day of the seminar commenced with co-chairs Professor Mrs. Ibok and Prof. Sylvester Kwadwo Danuor setting the stage for a series of captivating presentations. Young scientists were given the spotlight to showcase their pioneering research, revealing the potential of basic sciences in shaping a sustainable world. From Mr. Caleb Mensah's work on "Proteome-based Identification of Multi-epitope Subunit Vaccine against Monkeypox Virus" to Dr. Yarhands Dissou Arthur's exploration of "Student's Mathematics Discourse in Ghana," the presentations displayed the diverse and promising contributions of young minds to the field of science.

The individuals presentations on the various topics included:

1. **Mr. Caleb Mensah** presented on "*Proteome-based Identification of Multi-epitope Subunit Vaccine against Monkeypox Virus: an Immunoinformatics Approach*".
2. **Dr Yarhands Dissou Arthur** presented on "*Student's Mathematics discourse in Ghana, the role of Teacher's Ability to Connect Mathematical Concepts to Real Life Problems*".
3. **Monica Nuworkpor** presented on "*Nutritional and Sensory Properties of Breakfast Cereal Made From Sprouted Pearl Millet Incorporated with spices*"
4. **Dr Frederic William Akuffo Owusu** presented on "*Pectin From Different Okra Genotypes in Ghana has Potential as a Suspending Agent in Liquid Formulations*".
5. **Fiifi Amoako Atta Panyin Essiam** presented "*The Relationship Between Food Security, Dietary Intake and Physical Activity Levels and the Development of Elevated Blood Glucose Levels of Adults in Ejisu Municipality*".
6. **Juliet Opoku** presented on "*The Use of Phase Change Material to Influence Storage Temperature and Humidity on Chocolate Sold in Hot Climates*".
7. **Emmanuel Asanted** presented "*Biofilm formation and resistance in Bacteria co-infecting cutaneous leishmaniasis wounds and Antibiofilm Properties of Selected Plants*"
8. **Mr Abed Arkoh Martin** presented on "*Littoral Vegetation and Physio-Chemical Characteristics of the Owabi Lake in Ghana*".
9. **Eureka E. Ahadjie Adomako** presented "*The Role of Basic Sciences in Addressing Global Challenges to Sustainable Development: Experiences from CIFOR-ICRAF*".
10. **Francis Appiah** presented on "*Paper Production From Pineapple Leaf Fibre*".
11. **Elena Takyiwaa Ali** presented on "*In Vitro Antioxidant, Anti-Inflammatory, Antimicrobial and Anthelmintic Activities of Cryptolepsis calophylla Stem*"

Finally, **Emeritus Prof Michael Steinitz**, spoke and gave general advice to young researchers beginning a career in publications. He shared some personal stories to elaborate on the need for good ethics in research, rehashing incidents like plagiarism, inadvertent plagiarism, publications in predatory journals, gift authorship, including authors without their consent, not including contributing authors and others. He advised that one must always have a person proofread their work since it is impossible to proofread one's work. If English is not a first language, get a friend to assist.

There was a total of 137 abstracts from various institutions and departments

There were awards and special recognitions.

# Gallery



# AN OUTREACH BY WOMEN IN NUCLEAR GHANA TO THE GAEC BASIC SCHOOL

GAEC BASIC SCHOOL,  
ATOMIC ENERGY,  
ACCRA, GHANA

**Theme:** Educating the public about the importance of science and mathematics for socio-economic development.

## Introduction

As part of the celebrations of the International Year of Basic Sciences for Sustainable Development, Women in Nuclear Ghana, a group of female nuclear professionals undertook an outreach to the Ghana Atomic Energy Commission (GAEC) Basic School. The programme was to educate the public about the importance of science and mathematics for socio-economic development, where they interacted with young girls and educated them on nuclear energy and its benefits to society. The comprehensive and interactive session laid emphasis on the need for young girls to develop interest in science, technology, engineering and mathematics (STEM). The group consisted of accomplished female Scientists and Engineers drawn from different institutions in and outside Ghana.

## The Team

- Prof Mary Boadu (President, Women in Nuclear Ghana and the Director of RAMSRI, GAEC)
- Prof Elsie Effah Kaufmann (Dean of the school of Engineering Sciences, University of Ghana and the Quiz Mistress for NSMQ)
- Prof Aba Bentil (Particle Physicist)
- Dr Amal Elrefaei (Programme Management Officer, TC Africa Section, International Atomic Energy Agency)
- Mrs Mary Attoh (Headmistress, GAEC Basic School)
- Dr Harriet Danso Abbeam (Research Scientist, NNRI, GAEC)
- Dr Irene Opoku Nti (Research Scientist, NNRI, GAEC)
- Dr Dzifa Denutsui (Research Scientist NNRI, GAEC)
- Miss Adjoa Amponfi (MPhil Student at Graduate school of nuclear and Allied Sciences, University of Ghana)
- Ms Caroline Kachana Pwamang (Research Scientist)

## Objective of the Engagement

- To allay the fears for maths and science among young girls.
- To educate young girls about the application of basic sciences for sustainable development.
- To encourage young girls to pick careers in science and engineering.

## Highlights from the Engagement

**Prof. Mary Boadu**, the President of Women in Nuclear Ghana (WiN Ghana) gave the Opening Remarks as well as the Purpose of the gathering and defined Basic Sciences as the scientific disciplines of mathematics, physics, chemistry, and biology. She added that these subjects are called basic sciences because they provide fundamental understanding of natural occurrences and the processes by which natural resources are transformed.

Speaking at the event, **Miss Adjoa Amponfi**, an MPhil, student at the Graduate School of Nuclear and Allied Sciences took the opportunity to talk to the students about the importance of science and maths and encouraged them not to shy away from these subjects. She recounted her educational as a female science student and shared the scholarship opportunities availed to her through hard work.

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**Prof Elsie Effah Kaufmann** encouraged the students to take their education seriously, particularly the basic sciences as they present a enormous opportunities to females. She added that the basic sciences can provide a strong foundation to propel anyone to be the best or be among the best. She encouraged the students to take advantage of every opportunity that comes their way because what a student does at every level has implications for the next level. She admonished the students to work very hard to realize their dreams as hard work does not kill.

**Dr Amal Elrefaei** enlightened the students on the opportunities in the sciences for women stressing on the sustainable development goal 5 which focuses on achieving gender equality and empowering all women and girls. She revealed that her humble beginning and background did not affect the belief she had in herself as a girl child as well as her interest in science and maths. She therefore charged the young girls to believe in themselves and not underestimate their abilities or be intimidated.

The students demonstrated enthusiasm and appreciation of the presentations through the interesting questions they asked and their request for more of such engagements. It was evident that they were motivated by the achievements of the female scientists and their words of encouragement. All in all, the engagement was successful and met the set objectives.

### Gallery:



Figure 1: Some of the Facilitators of the School Outreach Programme.



Figure 2: A cross section of some of the School Pupils.



Figure 3: A group photograph of the Facilitators and School Pupils.

**Theme: Promoting Gender Equity in Science: Empowering Rural Girls in the Basic Sciences**

**Introduction:**

Science knows no boundaries, and it certainly should not be limited by gender. It is imperative to provide equal opportunities for both young boys and girls to explore and contribute to the world of science. With this goal in mind, the 8th International Day of Women and Girls in Science, along with the Launch of the International Year of Basic Sciences for Sustainable Development activities within the IYEGlobal Foundation, was set to create a platform for accomplished women scientists to mentor and inspire young girls in a rural Ghanaian township.

**The Essence of the Event::**

The program, organized by the IYEGlobal Foundation's primary focus was to bridge the gap between young students, particularly girls, and science in rural Ghana. Historically, many students harbored assumptions that science was not suitable for them, leading to a lack of representation of women in the field. This event sought to change that perception and encourage students to embrace science wholeheartedly, unlocking a realm of possibilities for their future. It aimed to empower young girls by providing them with mentorship from successful women scientists in the district. By engaging with accomplished women in science, the participants had the opportunity to learn, seek guidance, and have their questions answered. This mentorship approach did not only enhance their knowledge but also boosted their confidence, encouraging them to pursue careers in the basic sciences.

**Promoting Gender Equity:**

Gender equity in science is a pressing issue that needs to be addressed. Women have been underrepresented in the basic sciences, and programs such as the International Day of Women and Girls in Science play a crucial role in breaking down barriers and promoting gender equality. By highlighting the accomplishments and contributions of women scientists, the program inspired young girls to envision themselves as future leaders in the field of science. This would help eliminate gender stereotypes and challenge societal norms that discourage girls from pursuing science-oriented careers, especially in rural Ghana.

**Key Activities:**

The event was held at the prestigious PAMO International School in Breman Asikuma, Ghana, on February 9, 2023. The day commenced with opening prayers and an introduction to the purpose of the gathering by Nana Akua Amoah. Accomplished women scientists, including **Dr Adomako** (a resident medical physician), **Madam Dorothy** and her assistants (Nurses and midwives) at the town's hospital, Our Lady of Grace Hospital, **Madam Stella Ahelegbey** (a chemistry teacher) from Accra Girls Senior High School; **Dr Rahima**, a recent graduate medical laboratory technologist; and a guest of honor, a representative from Ghana Commission for UNESCO, **Mr. Apollonius Osei-Akoto Asare** graced the event as speakers and mentors. The participants had the opportunity to engage in a mentorship session, followed by a question and answer segment. It then concluded with closing remarks and group pictures.

**Madam Stella Ahelegbey**, a chemistry teacher from Accra Girls High School, shared her journey and passion for science. Through her engaging words, she shattered the notion that science was exclusive to one gender,

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emphasizing that it is a realm open to all who seek knowledge and contribute to society.

**Dr. Adomako**, a resident medical doctor at Our Lady of Grace Hospital, and **Madam Dorothy**, a senior nurse, both from the same hospital, took the stage as well. Their presence and dedication showcased the significance of science in healthcare and how their careers have a direct impact on the community's well-being.

Dr. Raheema, a laboratory medicine technologist also shared her journey to becoming a medical laboratory technologist. Encouraging them to learn, make positively influential

**Mr. Apollonius Osei-Akoto Asare**, Ghana Commission for UNESCO, educated the students on the activities of UNESCO in the sciences and why it is important for more girls to aspire to venture into the field. He had them ask all their questions concerning their views of the basic sciences, receive guidance and create path for positive attitudinal changes towards their interest in the basic sciences. The students got to understand that the basic sciences are the building blocks of the all scientific inventions and applications, so knowledge and experience in that field is very important for human existence.

The 8th International Day of Women and Girls in Science, alongside the foundations activities launch for the International Year of Basic Sciences for Sustainable Development, was a transformative event for young girls aspiring to make their mark in the world of science. The program's focus on providing mentorship and inspiration from accomplished women scientists directly addressed the need for gender equity in the basic sciences and information sharing. By breaking down gender barriers and encouraging girls to embrace science, the event undoubtedly contributed to creating a brighter and more inclusive future for the basic science. The students were urged to partake in subsequent science and maths quiz to be organized in the district along the science fair also coming up.

#### Gallery:



