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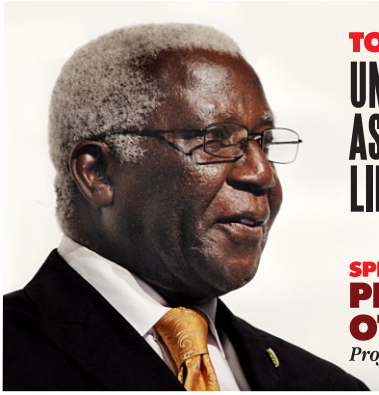

TOPIC:

UNDERSTANDING BIODIVERSITY AS AN INFRASTRUCTURE OF LIFE FOR DEVELOPMENT

SPEAKER:

PROF. ALFRED A. OTENG-YEBOAH, FGA

Professor of Botany, University of Ghana, Legon

DATE: 23RD MAY, 2019 | TIME: 5:30 PM

VENUE: GHANA ACADEMY OF ARTS AND SCIENCES AUDITORIUM

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PROF. ALFRED A. OTENG-YEBOAH, FGA

Professor of Botany, University of Ghana, Legon

Professor Alfred Apau Oteng-Yeboah is a Professor in Plant Biology with special interest in taxonomy, systematics and vegetation studies and a strong advocate for the conservation and sustainable use of biodiversity at the national and international levels.

He was born at Akyem Tafo in the Eastern Region of Ghana and was educated at the AME Zion Primary and Middle Schools, Tafo, Abuakwa State College, Kibi, the University College of Cape Coast, the University of Ghana and the University of Edinburgh. He holds BSc and PhD degrees. He is a Fellow of the Linnaean Society of London, the Ghana Institute of Biology and the Ghana Academy of Arts and Sciences. He is a member of the American Association for the Advancement of Science.

He has held lectureship and other associated administrative positions at the following universities where he has been part of and/or responsible for the training of batches of students for bachelors, masters and doctorate degrees: University of Cape Coast, University of Sokoto, Nigeria, Moi University Kenya and the University of Ghana Legon. He was the Dean of the Faculty of Science, University of Sokoto, Head of the Department of Botany, University of Ghana.

He has also served as a **Deputy Director-General of the CSIR-Ghana** responsible for national research coordination of issues of the environment and health across Ghana.

He has **over 100** publications in books, refereed scientific journals, Conference proceedings and **over 80** articles in other popular information outlets.

Professor Oteng-Yeboah has served on the boards and or councils of many institutions and organizations in Ghana and outside Ghana.

At the **national level** he previously chaired the management boards of 4 CSIR institutes, namely: Forestry Research Institute of Ghana (**FORIG**), Plant Genetic Resources Research Institute (**PGRRI**), Soil Research (SRI) and Water Research Institutes (WRI). He also Chaired the Research Committee of Mampong Centre for Research into Plant Medicine (**CRPM**); the Management Committee of Cocoa Research Institute of Ghana (**CRIG**); the National Biodiversity Committee of the Ministry of Environment, Science, Technology and Innovation (**MESTI**), the Executive Committee within the **EPA** Board; the National Scholarships Review Committee of the Ghana Government Scholarships Secretariat; the Project Advisory Committee of Tropenbos Ghana; and the Board of Governors of West Africa Secondary School Accra and WBM Zion Secondary School at Tafo Akyem. He was a Member of the Council of the College of Health Sciences, University of Ghana, the Council of the Centre for Research into Plant Medicine; the **Board of EPA**; the Governing Council of **CERSGIS** (the remote sensing applications unit located at Legon) and the National Environmental Sanitation Policy Coordinating Council of **MLGRD**.

Presently at the national level, he chairs the National Bioethics and Natural Sciences Committee of the Ghana National Commission for UNESCO, the Board of A Rocha Ghana, the Board of Tropenbos Ghana, the Board of Conservation Alliance. He is also a **Commissioner of the National Commission for UNESCO**.

At the **international level**, he previously chaired the Standing Committee of UNEP-CMS; the Subsidiary Body on Science, Technical and Technological Advice (**SBSTTA**) of the Convention on Biological Diversity (**CBD**) for its 9th and 10th meetings; He also chaired the contact groups on Forest Biodiversity at the 6th Conference of Parties (COP 6) of CBD in the Hague, the Netherlands, Protected Areas at CBD COP 7 in Kuala Lumpur, Malaysia, Marine areas beyond national jurisdiction at CBD COP 8 in Curitiba, Brazil, the Expanded Work Programme on Protected Areas at CBD COP 9, in Bonn, Germany, Satoyama Initiative on sustainable use at CBD COP 10 in Nagoya, Japan, and Capacity Building at CBD COP 13, in Cancun, Mexico.

He was also the Vice-Chair of the Standing Committee of the Convention on International Trade in Endangered Species (**CITES**); the Co-chair of the International Mechanism of Scientific Expertise on Biodiversity (**IMoSEB**), the Co-Chair of the UNEP sponsored Intergovernmental Platform for science-policy interface on Biodiversity and Ecosystem Services (**IPBES**) feasibility, and Co-chaired the 35th Council of Global Environment Facility (**GEF**).

He was also a Member of the Vital Signs Oversight Council of Conservation International, Los Angeles; the Council of **GEF**, Washington; the Council of African Centre for Technology Studies (**ACTS**) Nairobi which he currently chairs; the Task Force for International Union of Forestry Organizations (**IUFRO**), Vienna, Austria; the Board of the Millennium Ecosystem Assessment, Washington; the **UNESCO** International Ethics Committee, and International Biospheres Reserves Review Committee of **UNESCO**, Paris, France, the Board of the African Biodiversity Assessment of IPBES, Pretoria, South Africa.

Currently he chairs the Council for the African Centre for Technology Studies (**ACTS**), Nairobi; the Steering Committee of **IPSI** of the United Nations University, Institute of Advanced Sustainability, Tokyo, Japan. He is also the Vice-chair of the Bureau of IPBES, Bonn, Germany; he is a Consultant to the African Forest Forum, Nairobi, Kenya, UNESCO, UNEP; also a member of the UNEP-CMS Scientific Council, Bonn, Germany; a member of the International Advisory Board of **IUCN Wise-Up** project, Gland, Switzerland; and a member of the International Advisory Board of **UN Environment-WCMC Connect** Project, Cambridge, UK.

He was named the winner of the prestigious international **Midori Prize for Biodiversity in 2014.**

He is married to Rev Mrs Lily Oteng-Yeboah.

He has five adult children, 2 Males and 3 Females.

ABSTRACT

UNDERSTANDING BIODIVERSITY AS AN INFRASTRUCTURE OF LIFE FOR DEVELOPMENT

Biodiversity is a complex enterprise, encompassing four levels of organization: genes, species, populations and ecosystems. At each of these levels, the vitality of life is initiated, mobilized and maintained to provide form, structure and function. At the gene level are the features of DNA, with units of Nucleotides containing organic bases Adenine, Guanine, Cytosine and Thymine often referred to as the 'alphabet of life' to store information and heredity, which are passed on during protein synthesis in the sequencing of amino acids to determine the three dimensional structure of the protein and which in turn dictates its function. Proteins are basically a string of organic molecules which form the basis of living tissues and play the central roles in all biological processes. At the species level are individuals that share similar characteristics and are distinguished from other individuals. Such individuals with similar characteristics have no barriers in breeding and can exchange genetic material through sexual reproduction. At the population level are different species which interact with each other within the spaces they occupy. Ecosystems refer to the interplay of populations with the physical environment to sustain life. This involves a myriad of interactions that have made Earth habitable for billions of years.

The fact of biodiversity as an infrastructure of life is therefore borne out of the view of a characteristic attribute or a phenomenon that is possessed by an entity and which preserves, furthers or reinforces its existence in a given environment. That characteristic is exhibited in all or through some of the following traits of living things: homeostasis, organization, metabolism, growth, adaptation and response to stimuli. This is life. This life is exhibited at the different levels of biodiversity and can be viewed from the level of the gene, the species indicating an organism as a single cell or a multi-celled living unit, the population as an assemblage of different species and at the ecosystem level where they interact among themselves and with the physical environment. From a philosophical view point, biodiversity represents the knowledge learned by evolving species over millions of years about how to survive through the vastly varying environmental conditions Earth has experienced and continues to experience. It constitutes the library of life.

The term Biodiversity is very new, but its concept is not new. Until this term was applied, the concept was commonly used to simply refer to the diversity of life forms, or simply the biological diversity.

The term has come into sharp focus, in the consciousness of the globalized world, within the last three and a half decades, during which it has been used to shape global views on

Sustainable Development, to situate and drive seven global multilateral environmental conventions and to give credence, as a tool and at the same time as a symbol, for national development in the social, economic and environmental spheres of human and national life. Under this conceptualization, it is easy to link the economic, social and environmental goals, growth and development of a community, town, district, country, sub-region and region to its ability to conserve and sustainably manage the biological heritage and ensure the equity of sharing benefits arising from the genetic resources from the area. The contributions of biodiversity to human wellbeing and sustainable development are now fully appreciated by governments and other stakeholders. As a result the structure and status as well as the threats to biodiversity have become a major global concern for all humanity in the goals for sustainable development and for which indicators have been developed.

In this inaugural address, there will be four parts to reflect my contributions to the biodiversity enterprise over the years. The first part will provide a careful elucidation of some selected studies from different disciplines of biological sciences, to illustrate the nature of biodiversity as life's infrastructure. The second part will provide the contributions that components of biodiversity make/provide to humankind which must be conserved and sustainably used. The third part will underline the pressures to which these life infrastructures as biodiversity are subjected at the local, national and global levels in order to satisfy and or provide human needs and which must be controlled. The fourth part will bring to the fore global efforts through multilateralism to shape environmental policies at all levels in the face of the losses and declines in biodiversity to support governments and other stakeholders to apply appropriate legislative actions to sustainably manage biodiversity, enforce equity in the sharing of benefits arising from the use of genetic resources, enhance life on earth and promote sustainable development.

Key words: Biodiversity, infrastructure of life, human wellbeing, multilateralism, sustainable development

5:30 PM

- **Introduction of Chairman**

  Prof. P. K. Turkson, FGA,

  Honorary Secretary, GAAS

- **Chairman's Remarks and Introduction of Speaker**

  Prof. Samuel K. Sefa-Dedeh, FGA;

  Vice President, Sciences Section, GAAS

- **Lecture**

- **Chairman's Closing Remarks**

- **Honorary Secretary's Remarks**

- **Refreshments**

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Since 1973, all newly elected Fellows have had to deliver an Inaugural Address before other Fellows and specially invited guests at evening meetings arranged for the purpose. These lectures are expected to be of a high standard but not so technical as to be beyond the comprehension of non-specialists.

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The Ghana Academy of Arts and Sciences is Ghana's Premier Learned Society. It was founded in November 1959 by Government Instrument of Incorporation. Its aim is to bring together the highest level of intellectuals, experts, professionals in the country to constitute a 'Think Tank' in the Arts and Sciences to enable it advise government and other relevant bodies on issues of importance to national development.

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- Promote the study, extension, and dissemination of knowledge of the Arts and Sciences;
- Promote the establishment and maintenance of proper standards of endeavour in all fields of the arts and sciences;
- Recognize outstanding contributions to the advancement of the arts and sciences in Republic of Ghana;
- Contribute actively to the advancement of Ghana and Africa in particular and the world in general by examining and addressing issues of development; and
- Do any other things that are conducive or incidental to the attainment of all or any of the foregoing objects.

NOTES

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