



**FEDERAL UNIVERSITY OF TECHNOLOGY
MINNA**

**STOMACH INFRASTRUCTURE,
AGRIPRENEURSHIP
AND OUR ENVIRONMENT**

By

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B.Eng., M.Eng. (UNN), PhD (Minna), PGDE (Kaduna)

Professor of Agricultural Engineering

Department of Agricultural and Bioresources Engineering

Federal University of Technology, Minna

INAUGURAL LECTURE SERIES 32

11TH DECEMBER, 2014



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Profiling the Inaugural Lecturer

Ogbonnaya Chukwu was born on 15 July, 1965 in a rural subsistence farming and wine tapping village, Obuno, in Amanator, Onicha Igboeze, Ebonyi State, Nigeria, where he lived and obtained his primary and secondary education. He attended Onicha Central School, Ebonyi State from 1972 – 1977, where he passed the first school leaving certificate at Credit level. He attended Government Secondary School, Afikpo, Ebonyi State where he obtained his WASC/GCE in Division one in 1982. He attended the department of Agricultural Engineering, University of Nigeria, Nsukka (UNN) and graduated with a bachelor's degree in Agricultural Engineering with first class honours (*cum laude*) in 1987 and became a recipient of Engr. Prof. E. U. Odigboh's prize for students graduating with first class honours. In 1985/86 session, he was the Secretary, Nigerian Universities Engineering Students' Association (NUESA), UNN Chapter; Secretary, Ohaozara Federation of Undergraduates, UNN Chapter; and Secretary, Agricultural Engineering Students' Association, UNN. In that session his CGPA dropped from 3.21 to 3.18 on 4 points scale and as a result he quitted students' unionism and politics. He obtained his Master's degree in Agricultural Engineering (Crop Processing & Storage) in the Department of Agricultural Engineering, UNN in 1995 and his PhD in the Department of Agricultural Engineering, Federal University of Technology (FUT) Minna in 2006, specialising in Food Engineering. In 2007, he obtained postgraduate diploma in education (PGDE) (Science Education) from the National Teachers' Institute (NTI), Kaduna.

His working experiences span from 1987 to date. He did his compulsory national youth service corps (NYSC) between 1987 and 1988 in the Departments of Mathematics and Physics, Federal College of Education (FCE) Kontagora, Niger State, Nigeria where he was appointed Head, Department of

Mathematics during the 1988/89 contact session. In 1988 he was employed as a Lecturer in the Department of Technical Education, FCE Kontagora and joined the services of FUT Minna as an Assistant Lecturer in the Department of Agricultural Engineering in 1992. When he completed his Master's degree, he was upgraded to the rank of Lecturer II in 1995; promoted to the rank of Lecturer I in 1999; Senior Lecturer in 2006; Associate Professor in 2009 and Professor in 2012. Between 2008 and 2009, he was a Visiting Consultant to the Department of Soils, Water and Agricultural Engineering, Sultan Qaboos University Muscat, Oman. He has held many administrative and management positions and served in many Committees (both statutory and ad hoc) in FUT Minna including: Senate member; deputy Dean, School of Engineering and Engineering Technology; member, Postgraduate School Board; member, University Board of Research; Director of collaborations, affiliations and linkages and Council member.

His research interest includes nutritional analysis of agricultural products; impact auditing of food processing industries; impact prediction, simulation and modelling; assessment of grain storage methods, structures and losses; sorption models and farm products stability during storage; and mapping postharvest losses of farm produce. He has supervised 78 undergraduate students; graduated 2 doctorate students and co-supervised one (now a Professor and seated in this hall) and currently supervising three. He has also graduated 6 master's students and currently supervising 4 in Nigeria and South Africa; and has graduated 8 postgraduate diploma students. He has published **62** journal papers (**10** in national and **52** in international journals) and **11** conference proceedings (national and international). He has also presented **11** conference and workshop papers (national and international); **9** invited papers at conferences, seminars, and occasional publications and has **2** technical papers to his credit. He is a member of **7** professional

bodies (national and international) including Council for the Regulation of Engineering in Nigeria, Nigerian Society of Engineers, Nigerian Institution of Agricultural Engineers, American Society of Agricultural & Biological Engineers, Asian Association for Agricultural Engineering, European Society of Agricultural Engineers and Teacher's Registration Council of Nigeria. He is a Fellow of African Scientific Institute (fASI).

He is a reviewer to many national and international journals including international journal of association for modelling and simulation techniques in enterprises, Lyon France; international journal of postharvest technology and innovation, Switzerland; Caspian journal of environmental sciences, University of Guilan, Iran; agricultural engineering international (CIGR); Pertanika journal of science and technology, University Putra Malaysia. He is a member, board of trustees, international centre for integrated development research; editor and member of editorial board, international journal of agricultural engineering and member, editorial board, international journal of postharvest technology and innovation, Switzerland. He is an external examiner to many universities at home and overseas and chief examiner to National Examinations Council (NECO) Nigeria since 2000. He was an examiner to the West African Examinations Council (WAEC) from 1989 to 2011 before he voluntarily retired. He was Treasurer, Academic Staff Union of Universities (ASUU), FUT, Minna Chapter from 1998 – 2000.

He is a minister of the gospel of Jesus Christ and loves the Lord. He is married to Nnenna and they have four children; Gideon (21), Marvellous (17), Daniel (15) and Mercy (10).

STOMACH INFRASTRUCTURE, AGRIPRENEURSHIP AND OUR ENVIRONMENT

I would like to begin this lecture by thanking the Almighty God who put it in the heart of my late brother, Dennis Chukwu, to ask my parents to send me to school. Due to his advice, I was picked from the backside of Nkwo forest of Onicha Igboeze where I was busy tending my father's goats and gathering mushroom to enrich the family meals of *akpu* (cassava meal), *ofe egusi* (melon soup) and *ofe achi* (from seeds of mahogany tree) and registered into primary one in 1972 in Onicha Central School. Today, the village boy, goat tender and mushroom gatherer is a Professor standing before men and women of repute and honour to deliver an inaugural lecture. To God is the glory.

An inaugural lecture is an occasion of significance in the career of an academic staff member in the University. An inaugural lecture provides Professors with the opportunity to inform colleagues, the campus community and the general public of their work to date, including current research and future plans. An inaugural lecture is a ceremonial occasion, and academic robes are worn by the inaugural Professor and the rest of the platform party.

1. Introduction

Over the past fifty years, the environmental problems experienced throughout the world have forced both developed and developing countries to question and re-assess their methods of planning and administration of their environment (Chukwu, 2005). For quite some time now the issue of development vis-à-vis environmental protection has become one problem that has continued to generate heated debate especially in developing countries. This is so because, first, environmental quality itself is part of the improvement in welfare that development attempts to bring. If however, the benefits from provision of more foods for the people and raising incomes offset the costs imposed on health and the quality of life

by pollution, this cannot be called development. Secondly, environmental damage can undermine future productivity. Consequently, the need to audit the environmental impact of food processing industries was recognised by the Governing Council (GC) of United Nations Environmental Programme (U N E P) in 1990 (UNEP/GC, 1990).

Establishment of a food processing industry and in general, industrialisation is an activity promoted by governments in their developmental strategies to make a significant contribution to enhancement of human welfare through the provision of value-added food products. Food processing industrial operations or processes involve the conversion of raw materials and resources into semi-finished and/or finished products. As the conversion can never be completely total, residuals in the form of energy and matter will be formed. If the residuals are not utilised they become waste, and, if discharged into the biosphere, can become pollutants to receiving bodies such as air and water (World Bank, 1978). The degree to which the pollutants affect the physical environment depends upon their quantitative and qualitative characteristics as well as the receiving media. Some pollutants are readily biodegradable, while others persist for a long time and may not even decompose. Also, some pollutants have low toxicity, whereas others are highly toxic and/or carcinogenic even in trace quantities. In addition to effects on the physical environment, food processing industries also have societal impacts. Their impacts are generally much more difficult to assess and often cannot be perceived at the initial stages because of complex interacting, synergistic and symbiotic factors which do not follow any known rules. As these societal impacts can be very significant, they need to be considered at the national level during strategy formulation/planning and policy making (Barnor, 1993).

The truth is that the world as a system is finite, entropy keeps

