

Oil findings in Ghana: issues for sustainable management.

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Introduction

- The importance of the human societies, natural resources and the impact of choices on future developments.
- Academic and research institutions must become important agents and offer directions for human survival.
- This has become more relevant with the discovery of oil in Ghana and therefore the importance of this conference- “*Oil findings in Ghana-issues for sustainable development*”


Welcome

- Dr. Heike Edelman-Okinda of DAAD, Accra
- Prof. Jan Bongaerts, Technical University of Freiberg.
- DAAD Alumni
- Distinguished ladies and gentlemen

Sustainable Development.

Definitions

- Balancing the fulfilment of human needs so that these needs can be met not only with the protection of the natural environment in the present, but in the indefinite future.
- Development that "meets the needs of the present without compromising the ability of future generations to meet their own needs."
(Brundtland Commission)
- Environmental, economic and social well-being for today and tomorrow (IISD)

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- Harnessing science, technology and human values to implement economic and social activities to ensure the well-being of current and future generations

Concepts in Sustainable Development

- Social
- Economic
- Environmental
- Institutional

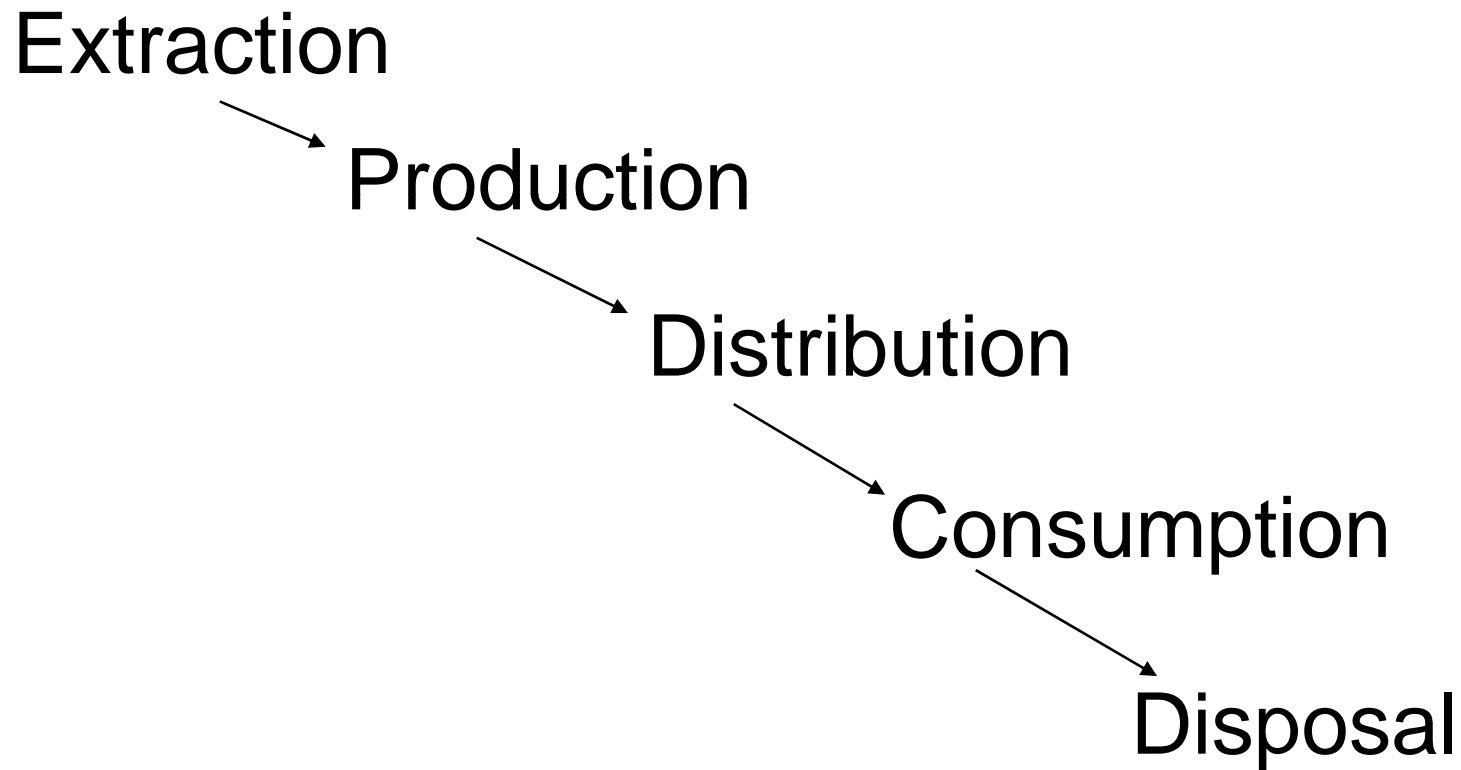
Interactions of Concepts

- Soc/Econ → Equity
- Econ/Env → Viability
- Env/Soc → Bearable
- Env/Soc/Econ → Sustainable

Materials Economy

- Runs the world
- Touches on the life of all populations
- A system in crisis
- Controlled by corporations and governments
- Communities and individuals have roles to play

The Materials Economy



Ghana and the Materials Economy

- Mining-Minerals
- Recent discovery of oil in Ghana has added another important material resource which needs to be harnessed for sustainable development.

Knowledge Economy

Lubricates the materials economy

Knowledge-based economy

- Recognizes the place of knowledge and technology in modern economies.
- Role of Science and Technology
 - **Knowledge Production**: develop and provide new knowledge
 - **Knowledge Transmission**: educate and develop human resources
 - **Knowledge Transfer**: disseminate knowledge and provide direction for problem solving
- Universities, Research Institutions, Private Sector and Civil Society Groups are key.

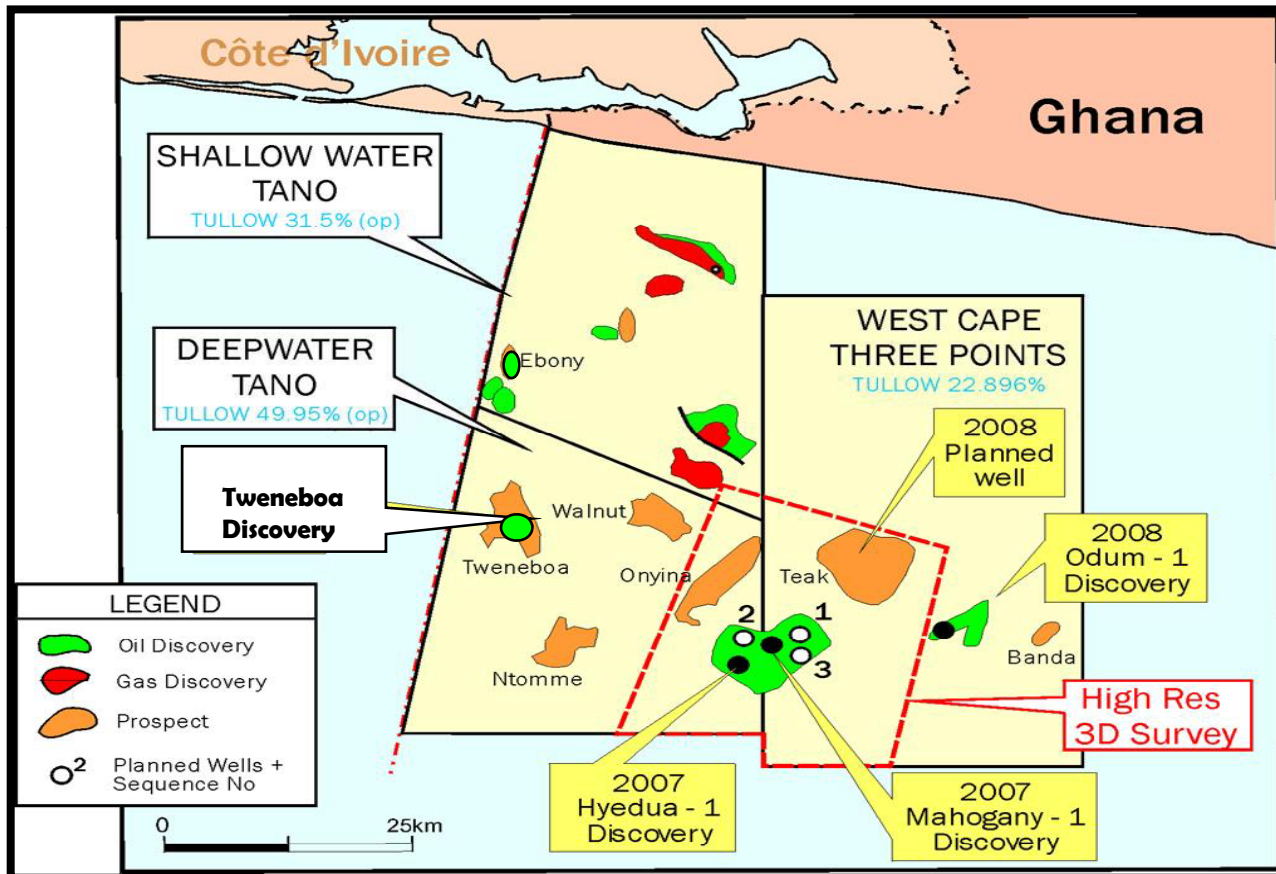
Petroleum Activities in Ghana (Ackah, 2009)

- **Initial Phase 1896 – 1967**
 - (exploration for oil and gas in Ghana started in 1896 in Onshore Tano basin)
- **Second Phase 1968 – 1980**
 - (Intense exploration activity in the offshore area by many companies. 31 wells drilled resulting in 3 discoveries; Cape Three Points; Saltpond, North and South Tano)

Petroleum Activities Cont'd

- Third Phase 1981 – 1995
 - (Data retrieval and gathering began; Blocking system reviewed; GNPC Established; Enactment of new Petroleum Laws; Model Petroleum Agreement formulated)
- Current Phase 1996 – To Date

Recent Discoveries



Source: Ackah (2009) GNPC

Jubilee Field Discovery

- Jubilee Field was discovered in the Deepwater West Cape Three Points (WCTP) Block in June 2007 by a consortium of companies.
- Unit interests
 - Tullow Oil Ghana Ltd – 37.7047%
 - Kosmos Energy Ghana (HC) – 23.4913%
 - Anadarko WCTP Company – 23.4913%
 - Sabre Oil & Gas Holdings Ltd. – 2.8127%
 - EO Group – 1.7500%
 - GNPC – 13.7500%

Identified Challenges

- Lack of Skilled Human Resources at the Upstream Operations.
 - Geophysicists, Drilling Engineers, Production Engineers, Reservoir Engineers, Petroleum Economists, and Facility Engineers etc
- Lack of experienced middle level Manpower to support the industry.
- Lack of Infrastructure in the country

Some Skills Needed

- The exploration, development, production, processing/refining and disposal of our petroleum resources
- Negotiations for Petroleum Agreements
- The monitoring of the environment against negative petroleum activity, etc.
- Tax and related issues
- Research and innovations

What should be done?

- Harness science, technology and human values to implement economic and social activities in the petroleum sector to ensure the well-being of current and future generations
- The role of Universities, Research and other institutions

MISSION of UNIVERSITY OF GHANA

“to develop world-class human resources and capabilities to meet national development needs and global challenges, through quality teaching, learning, research and knowledge dissemination”

Activities in the Petroleum Sector

- **Faculty of Engineering Sciences**
- **Faculty of Law**
- **Department of Earth Sciences**
- **Business School**

ENGINEERING AT LEGON

- **The first batch admitted 2004/2005 academic year. The first University of Ghana trained Engineers graduated in 2008:**
 - **Computer Engineering**
 - **Biomedical Engineering**
 - **Food Process Engineering**
 - **Agricultural Engineering**

CURRENT PROGRAMMES

- **Agricultural Engineering**
- **Biomedical Engineering**
- **Computer engineering**
- **Food Process Engineering**
- **Material Science and Engineering (Ceramics option)**

PROPOSED PROGRAMMES

- **Aeronautics and Space Engineering**
- **Materials Science and Engineering (Polymers, Metallurgy)**
- **Petroleum Engineering**

STRATEGY

- **The critical inputs and interrelationships of disciplines for success.**
- **Public and private sector institutions are strategic partners in the development of need-based courses and the provision of a platform for the delivery of relevant research.**
- **Networking with other Universities**

The First Step

Legon Petroleum Summit

- **Brought together constituents of the University community and representatives from key public and private sector institutions to discuss the human resources needs of the petroleum industry and map out strategies for a university-industry partnership.**

Objectives of Summit

- **Create a platform for the interaction of with industry on human resource development for the petroleum sector.**
- **Identify new opportunities for the Faculty to expand its programmes.**
- **Seek a public-private partnership in resource mobilization, programme development and establishment of petroleum related disciplines at the University of Ghana.**

Recommendations

- **The Faculty should use a marketing strategy to determine the needs of the emerging sector through consultation.**
- **Learn best practices from other Universities through networking to ensure the development of cost-effective programmes.**

Recommendations Cont'd.

- **The 'institutional-partner initiative' should be extended to this new programme**
- **A two-tier approach in the development and mounting of programmes.**
 - **professional development and executive courses in the sector.**
 - **Training ending up with a terminal degree**

OPTIONS FOR ENGINEERING TRAINING IN THE OIL AND GAS SECTOR

- **Short term professional development programme (Certificate)**
- **A one year professional/postgraduate programme (M.Sc.)**
- **A four year undergraduate programme in Petroleum Engineering (B.Sc.)**
- **Research-based postgraduate training (MPhil and Ph.D.)**

Short term professional development training programme

- Requires strong collaboration with
 - Local public and private sectors
 - External Universities and Institutions
- Modular structure to allow full participation of external facilitators and prospective students.
- Areas and topics to be determined through consultations with stakeholders in the industry.

Professional/postgraduate programme

- **One year duration**
- **Masters degree**
- **Course work, fieldwork and project report**
- **Multidisciplinary options and specializations.**
- **Sandwich programme**
- **Fee-paying using the Executive MBA model.**

Research-based postgraduate training

- **MPhil and Ph.D.**
- **Engineering**
 - **With Specializations**
- **Science**
 - **Environmental Science**
 - **Chemistry, Physics, Geology**
- **Business and Economics**

Earth Science and the emerging oil sector

- **Department has accepted its responsibility to educate train exploration geologists to be part of the upstream exploration and development of the oil resources in Ghana's sedimentary basins.**
- **Offering M.Sc in Petroleum Geosciences.**

LLM in Oil and Gas Law

- **Designed to respond to the demand for legal professionals in the emerging oil and gas industry.**
- **Contribute to the augmentation of the local knowledge and skills base of the industry**
- **Suitable for legal professionals seeking to upgrade skills while at the same time gaining formal academic recognition.**

Overarching Institutional Direction

- **The Vice Chancellor has set up a Working Group on the Oil and Gas Industry (WGOG)**
- **Develop a concerted institutional response to the emerging Oil and Gas industry.**
- **Proactive support to human resource development and skills for the industry.**

Terms of Reference for WGOG

- **Organize consultations with the public and private sector institutions linked to the petroleum and energy sectors and**
- **Review current programmes that have relevance to the sector and identify major gaps for remedial action**

Terms of Reference for WGOG

- **Develop a concept paper on the strategies to be used by Legon to effectively contribute to enhancing Ghana's drive to develop a vibrant oil industry**
- **Map out strategies for implementation including resources, facilities and other infrastructure required with cost implications**

- The University of Ghana is poised to bring its full institutional strength to contribute positively to the development of the emerging oil and gas sector.
- Contribution to meeting the policy on local content quota for foreign companies operating in the industry
- Internal networking backed by strong external partnerships will be vital to success.



Thank You