ENGINEERS FORUM

ROLE OF ENGINEERS IN THE ACHIEVEMENT OF UGANDA VISION 2040

ENG. KASINGYE. KYAMUGAMBI

ENGINEERS FORUM



PRESENTATION OUTLINE

- ✓ UGANDA VISION 2040
- ✓ ROLE OF ENGINEERS IN DEVELOPMENT
- ✓ RECOMMENDATIONS







Background - Rationale and Context

- Engineers provide the bridge between science and society
- Sustainable economic development relies on technological change to achieve its aim
- Intimate causal between science, technology, engineering and economic development
- STIE biggest and indispensable factor of global competitiveness –apple, Samsung,
- Engineers role in mechanization of production process and development of infrastructure

NATIONAL VISION 2040

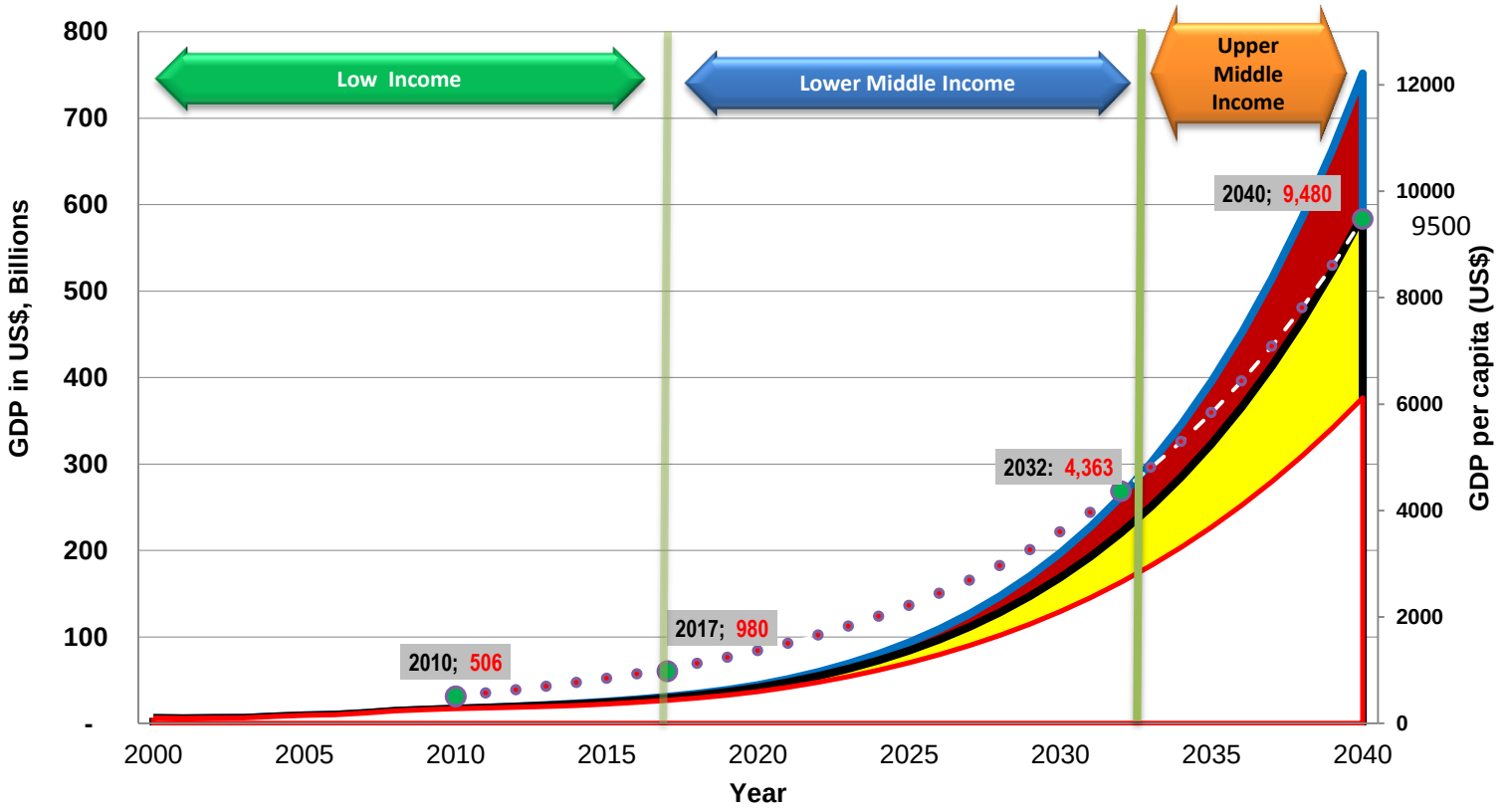
Vision: "A transformed Ugandan society from a peasant to a modern and prosperous country within 30 years"

Vision: " competitive middle income country with per capita of USD 9500

UGANDA'S TARGETS FOR 2040

1.	Development Indicator		Baseline Status	Target 2040
2.	Per capita income		USD 506	USD 9500
3.	% of population below the poverty line		24.5	5
4.	Sectoral composition of GDP (%)	Agriculture	23.8	10
		Industry	24.9	31
		Services	45.3	58
5.	Manufactured exports as a % of total exports		4.2	50
6.	ICT goods & services as a % of total export		0	40
7.	Technology up-take & diffusion(technology achievement index TAI)		0.24	0.5
8.	% of standard paved roads to total road network		4	80
9.	Innovation as measured by patents registered per year		3	6000
10	Electricity consumption per capita(kWh)		75	3668
11	% population with access to electricity		11	80
12	% of cargo freight on rail to total freight		3.5	80
13	% population with access to safe piped water		17	70

The Growth Path to the Upper Middle Income Status by 2040



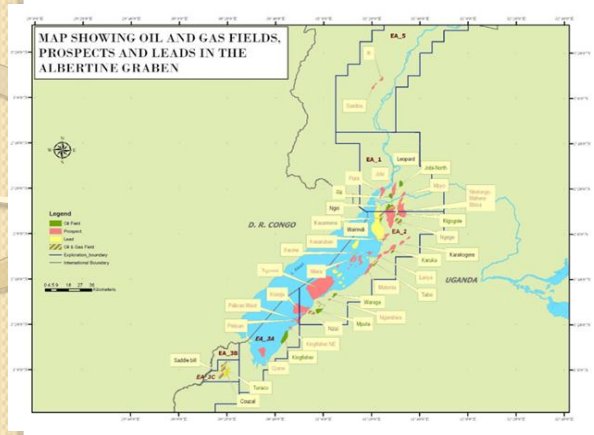
Harnessing opportunities by strengthening the fundamentals (rationalised and optimised way)

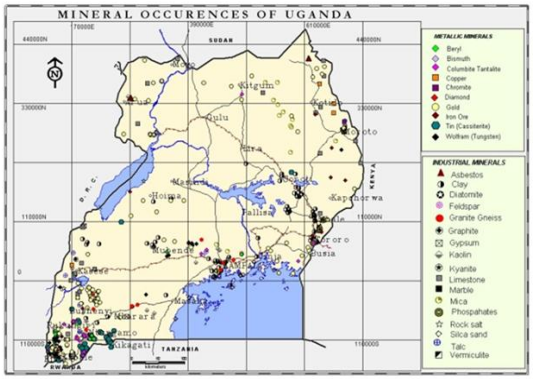
OVERALL STRATEGIES

- Export oriented growth
- Industrialization
- Urbanization
- Competitiveness
- Environmental sustainability
- Good governance

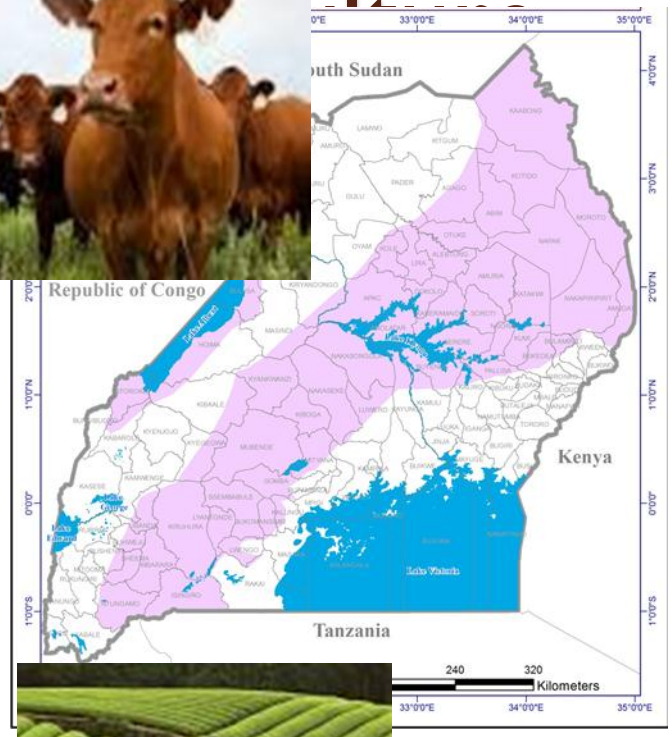
Harnessing opportunities by strengthening the fundamentals

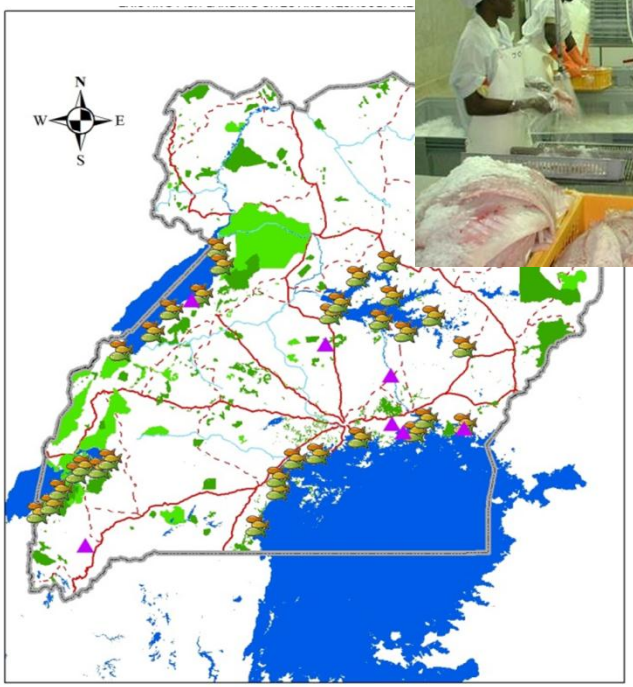
Oil and Gas, tourism, minerals





- **To date –only 40% of Albertan Graben explored, about 3.4 billion barrels of oil equivalent**
- **Gorilla tracking, Cultural diversity, Bird watching, Community tourism, Water sports,**
- ; iron ore, phosphates, rare earth minerals with a potential of creating primary and tertiary indust





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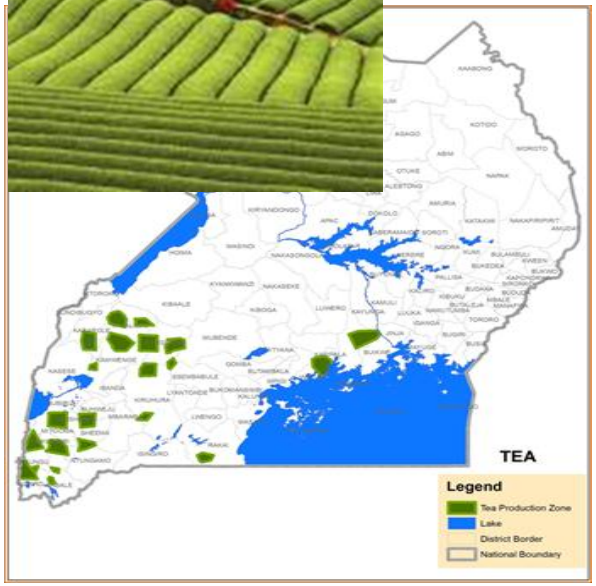
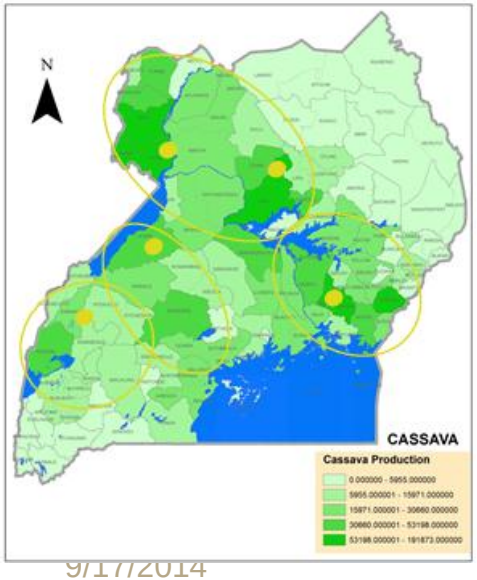




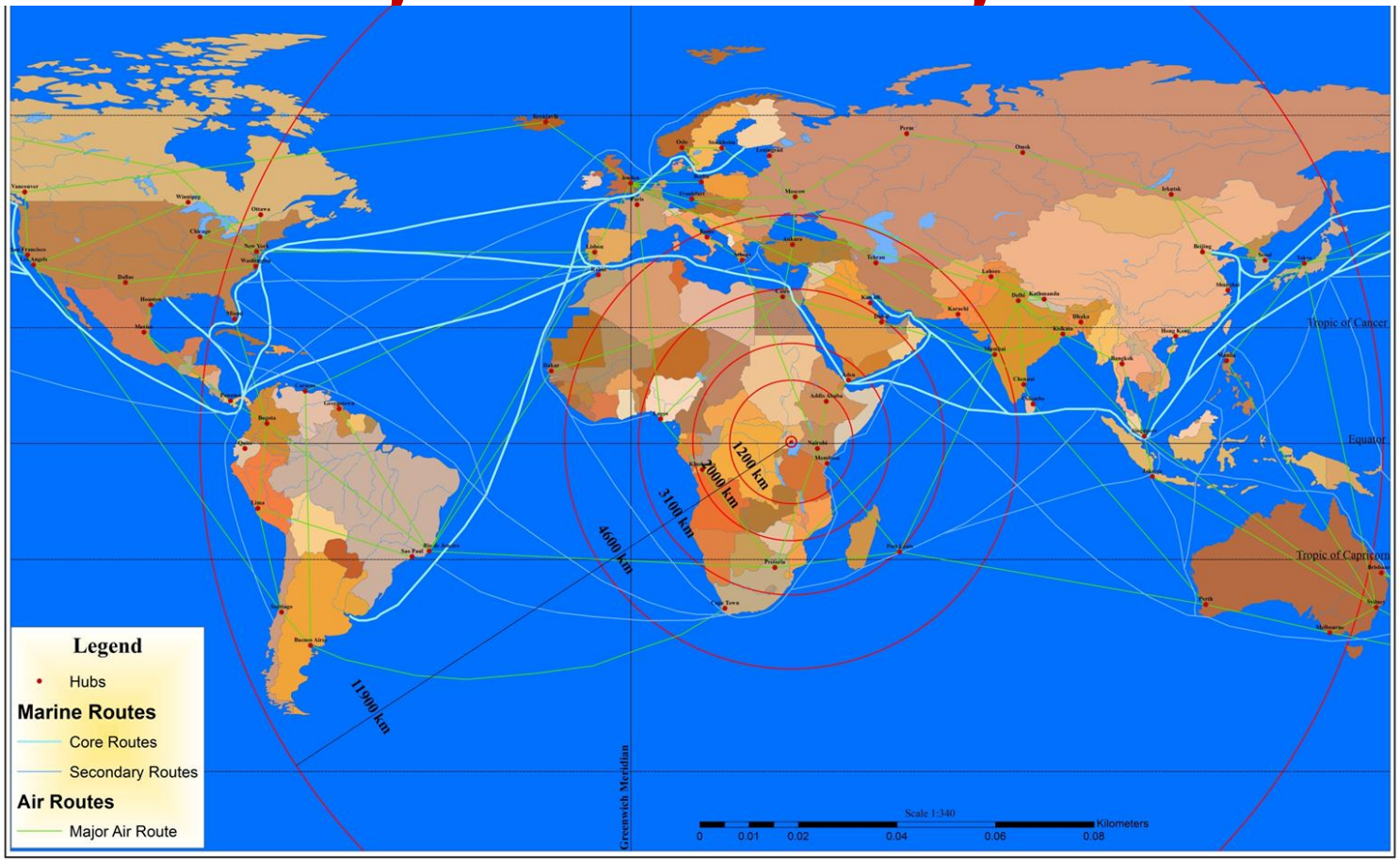
CASSAVA

Storage/ Processing locations:

- Pakwach?
- Lira?
- Hoima
- Fort Portal??
- Iganga?

OTHERS

- **Geographical positioning, Water resources, Labour force;**



Strengthen the Fundamentals

- The key fundamentals required to harness the opportunities for faster growth are;
  - ❑ Infrastructure (energy, transport, oil pipeline, ICT and water)
  - ❑ Human Resource
  - ❑ Science, Technology, Engineering and Innovations
  - ❑ Peace security and defence
- Must be to international standards and globally competitive

Fundamentals- Transport

- **Standard gauge rail – fast train (300 - 500KM/Hr)**
- **Good road network (freeways, express ways and highways)**
- **4 international airports**
- **Improved water transport**

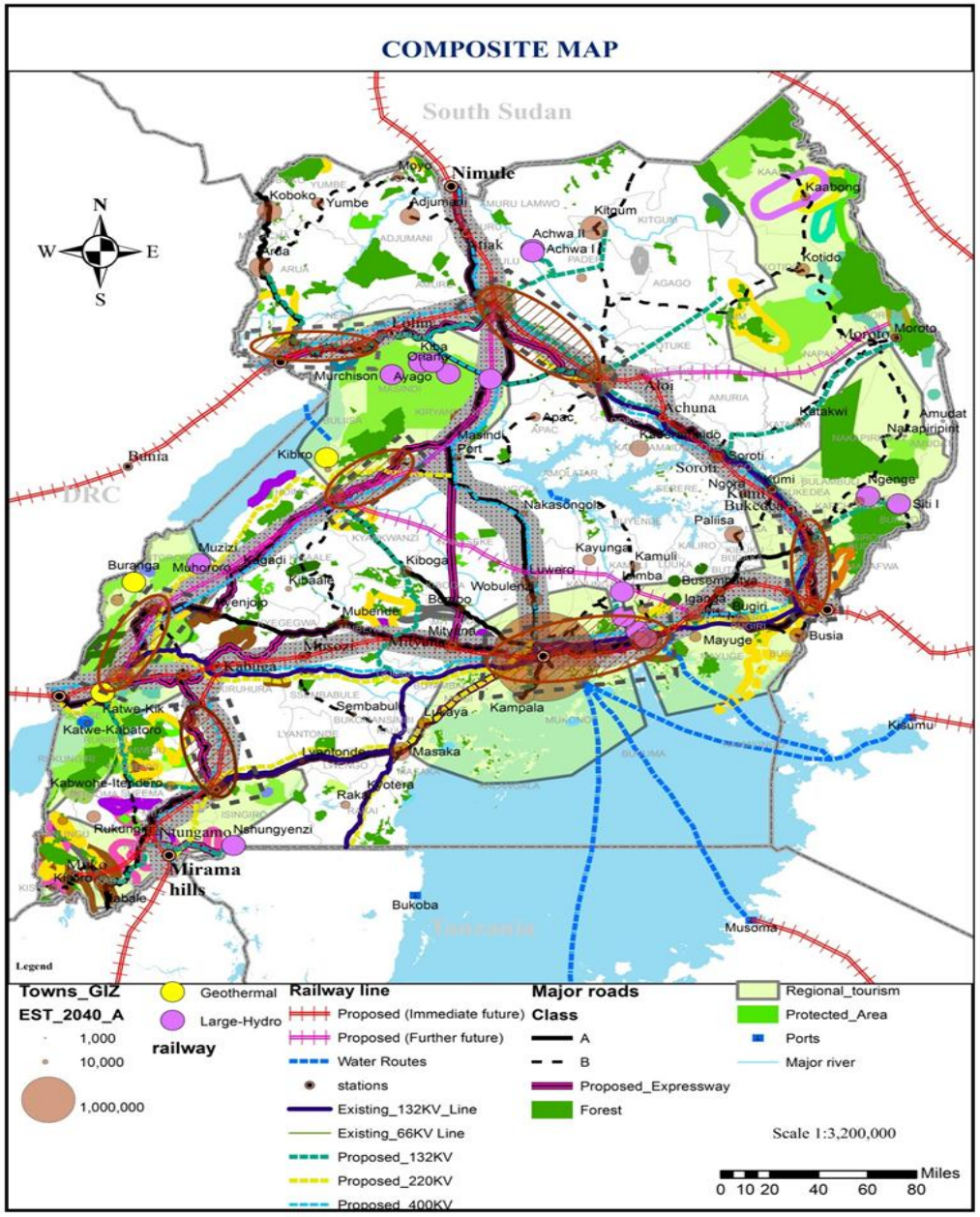
Fundamental- Energy

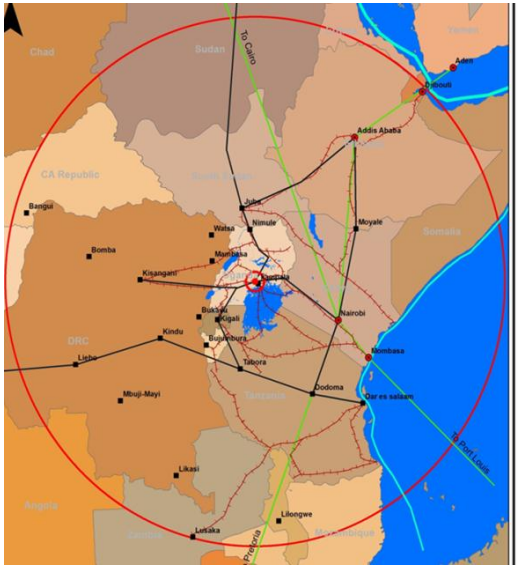
- **Current electricity consumption is at 75 kWh per Capita to change to 3668 kWh per capita, (South Korea at 8502kWh, Malaysia at 3668 kWh , South Africa at 4595kWh). Critical for industrialization**
- **Developing nuclear energy**

Human Resource Development

- Target is to develop a globally competitive human resource
  - Change the curriculum system
  - Emphasis of science, technology, Engineering and innovation
  - Science, technology, engineering and innovations (STEI)
- Technology incubation centres
- Engineering centres –engineering talents
- Research fund and venture capital fund
- Emphasis on bio-science and Nano-technology- future

Spatial framework 2040





Raising level of social development

- Population- sustainable age structure
- Improvement in health sector
  - Household based Health delivery system
  - Preventive system
  - Focus on nutrition and public health
  - Universal health insurance system through PPPs
- Social protection
- Education system

Governance

- Promote National Unity and Cohesion
- Compulsory National Service System
- National value system
- Bicameral Parliamentary System
- Strengthening accountability systems
- Strengthen independence of the Department of Public Prosecution (DPP)
- Decentralisation
- National Foreign Policy – how it will impact Vision implementation
- Strengthen national guidance (establish NG Commission)

Engineers role

- Engineers are creators, designers, fashioners and builders
- role in power and energy, water supply, transportation, environment, housing, railways, roads, highways and bridges, irrigation, telecommunications, airports and harbours, information technology and scores of other specializations and sub-sections therein.

Engineers role

- Planning infrastructure / industries that will transform this country
  - functionality,
  - durability,
  - responsiveness
- Raising the country's level of technology and fostering transformation
  - Latest technology
  - Adoption, adapt, diffuse, application
- Enabling the country's competitiveness
  - Global advancement in design, specifications, standards,

Engineers role

- Professionalism ….Accountability, adherence to standards, ethics… human resource
- Leadership in engineering and technology sectors of industry, however, companies need engineers with leadership skills to run them
- "Chairman of Sony summed it up by comparing business with sport. "Just as you would not have a rugby coach who never played the game, how can someone who does not understand the working

Challenges

- Some establishments important appointments which are engineering-based are held by non-engineering executives.
- Weak regulations
- CPD opportunities

Recommendations

- Adaptation of university engineering education to address and promote industrial, economic and social needs is of paramount importance.
- The industry players need the promotion of partnerships between universities and industries in continuing engineering education for professional engineers
- Engineering being a multi-disciplinary profession, we can no longer remain narrowly confined to a single discipline and hope to be good practising engineers or good professionals. We must therefore venture out and have our co-values revolving around conscience, ethics and accountability in the work undertaken by us for the social, economic, cultural and political development of our country

Recommendations

- Codes of practice education, mentoring programs, and policy changes that will encourage the engineering profession
- Engineering courses being studied in higher institution of learning should also include acquiring business knowledge and skills in engineering practice to the business reality
- Designing a sustainable future requires a paradigm shift towards a systematic perspective which encompasses the complex interdependence and more interdisciplinary – the lines between the traditional engineering disciples must be much more fluid. Engineers will have to join forces with biologist, chemist, meteorologist, economics, planners, political scientists, ethicists, religionists and community leaders in

Recommendation

- Partnership with recognized Engineering institution ..ICE, ASCE to enable global competitiveness and technology upgrading
- To give engineers this innovative and entrepreneur skills ---Junior Inventor of the Year (JIY)
- Compulsory CPDs for practicing Engineers
- Review of ERB

Infrastructure