CRYSTALLOGRAPHY: CURRENT SITUATION IN KENYA

Patricia W. Gitari
University of Nairobi
pgitari@yahoo.co.uk, pgitari@qil.co.ke
Tel: +254 716 753 930

Crystallography for the next generation, the legacy of IYCr Rabat, Morocco 22–24 April 2015.
Geographical location

- In East Africa- bordered by 5 countries
- Member of East Africa Community (EAC), COMESA, IGAD, AU.
- Population= 40 million

Official languages: Swahili and English
Local languages: 42
Introduction

- Kenya has 22 public universities and colleges
- 10 private universities
- Most of the courses offered are in Humanities, Business and Social Sciences

- Science based research is mainly in applied sciences
  - Agriculture (Food security)
  - Water and Sanitation
  - Natural products for medicinal applications
  - Energy
  - ICT
Introduction

- The Government of Kenya has committed to an increase in funding of science, technology, innovation with the enactment of STI (Act No. 28 of 2013). 2% of GDP but in reality 0.98% (GDP USD 44.10 M).

- This is with the intention of industrialising the country in line with Kenya Vision 2030.

- The **Kenya Vision 2030** is the country’s current strategy in development which covers the period 2008 to 2030.
WHERE ARE WE NOW?
WHERE ARE WE GOING?
Crystallography in Kenya

- X-ray Diffractometers are few
  - in Government laboratories, e.g. Geology and Mines, materials testing centres.
  - Private industries - cement, flourspar
  - Research centres e.g. World Agroforestry Centre (ICRAF), KEMRI, ILRI

- Crystallography is mainly used in routine analysis e.g. soil testing, clays, etc

- Academic institutions currently rely on private research centres or collaboration with overseas research groups.
Curriculum and career options

- Crystallography in both undergraduate and graduate programmes is limited.
- Young scientists receive limited information.
- Crystallography competes with other fields for resources.
- Even applied science is not viewed from a molecular/atomic level.
- Awareness to the general public is not carried out.
- Individual researchers have been trained in various institutions around the world.
Limitations

- Calls for funding focus on thematic areas e.g. Agriculture, health, water and sanitation.
  - This limits the options
- Funding without necessary infrastructure leads to low output.
- Public procurement and disposal procedures are tedious.

*Equipment exchange programmes available from but tax exception procedures hinder the process*
The Department of the Government Chemist bought an XRD this year. To be used in forensics e.g.

- Illicit drugs
- Explosives

It is not available for teaching purposes.

Plans are underway to buy one in the physics department.
Present and future

- There is no society for crystallography in Kenya (and EAC).

- To address the challenges encountered in scientific research, East Africa needs to develop
  - the basic infrastructure,
  - training and
  - knowledge bases
  that can act as a spring board to propel interest in crystallography.
Strategy

- Understand the reasons why the discipline has not taken root.
- Learn from previous experiences

- Identify key contact people in East Africa that can reliably work with IUCR.

- Begin with activities/programmes that do not require much resources but give good output.

- Embark on programmes that can be sustainable.
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