



CRYSTALLOGRAPHY: CURRENT SITUATION IN KENYA

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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

Newest addition

- 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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