AMSEN-RISE AT THE UNIVERSITY OF NAIROBI

- INTRODUCTION:

➢ The African Materials Science and Engineering Network (AMSEN) is one of 5 RISE networks.

➢ Aims to prepare PhD, MSc graduates in materials, in Africa to teach in Africa.

➢ Optimize the use Africa's vast material resources.

➢ Currently has Nodes in SA, Kenya, Botswana, Namibia & Nigeria.

➢ Presentation gives an overview of experiences with AMSEN at the UoN node.

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- BACKGROUND

➢ Up to the Seventies, Government of Kenya funded University education fully.

➢ As numbers increased, Universities had to fund a substantial part of running costs

➢ Done by levying fees on students

➢ Concentration on undergraduate – larger numbers.

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- Less emphasis on capital intensive programs e.g. post graduate in engineering
- Stipends, when provided were ridiculously low (about $ 70 a month)
- No equipment for testing
- No funds for simple supplies
- For the persistent takes 6 yrs to complete MSc, over 10 yrs to complete PhD.

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- Worse in engineering, higher degree does not translate to better pay
- Most simply abandoned their studies
- Yet the large number of undergraduates require qualified lecturers
- Partly solved by sending students overseas (Europe, USA, etc.)
- However:

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- This disrupted family life: could not bring the family along
- Most did not return
- Those who returned frustrated since they could not continue their line of research
- Heavy teaching load left little time for research

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- ACHIEVEMENTS OF AMSEN

➢ AMSEN was formed in 2008 to address some of the challenges above

➢ Network of five Universities with different strengths (each termed a node)

➢ Share both human and physical capital at no extra cost

➢ Students co-supervised from different nodes => diversity of views + mentoring.

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- Funding ensures reasonable stipend (about $ 485 for a PhD candidate)
- Purchase simple test equipment, supplies and consumables
- Allows students to travel within the network
- Allows students to maintain family life
- On completion, continue their line of research
- For UoN node, set a target of 3 PhD/MSc

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- Registered 5 candidates: 3 PhD, 2 MSc
- Two MSc's have completed: one graduated, one has submitted thesis
- Both completed their studies in just over two years
- One PhD candidate (who registered in April 2009) has given notice of intention to submit in March 2012, 3 yrs after starting.
- Trend replicated in other nodes of AMSEN.

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- Part of funds used to purchase equipment
- Used by both AMSEN and non-AMSEN students
- For UoN, include a work station (for modeling), macro/micro hardness testing machine, load cell
- Also repaired/rehabilitated several test equipment

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- WAY FORWARD

➢ Challenge: sustainability of network beyond 2013

➢ Each node to develop into centre of excellence in a particular area of ms/e

➢ Expensive equipment necessary for materials research is shared

➢ There is optimal use of equipment

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- Namibia and Botswana nodes: Government has started investing in physical facilities
- Wits already fairly well endowed
- UoN: Centre for modeling and characterization of mechanical behavior
- Human resource base is in place
- Leverage to obtain physical infrastructure

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- Expansion of network. Other universities to join. Universities in Ethiopia and Zambia have shown interest
- Bringing in non-African universities:
  - Allow access to facilities for AMSEN alumni
  - Joint research projects
  - Joint funding proposals (PEER)
  - Staff exchange (offering sabbatical homes)

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- Running short specialized courses including non-materials based e.g. funding proposal writing

➢ Involving the African Diaspora:

- Material/financial support/technical support
- Spending sabbaticals in AMSEN nodes