Bioeconomy in Africa

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Bioeconomy evolution in Africa, and implication for future growth and sustainable development in the continent.
Evolution of bioeconomy in Africa - Introduction

• Initially, “knowledge-based bioeconomy (KBBE)” – a European perspective in early 2000s

“The KBBE is a desirable path to tread. It will enhance Europe’s competitiveness, citizens of rural development, sustainability and the environment,”


• Heavy focus on industry
“Bio-economy” refers to activities that make use of bio-innovations, based on biological sources, materials and processes to generate sustainable economic, social and environmental development, DST, 2013.

“Broader than biotechnology, and more inclusive” Phil Mjwara, DG, DST.

Key sectors
- Agriculture, Health, Industry & Environment
Evolution of bioeconomy in Africa – The Global Perspective

“The production, utilization, conservation, and regeneration of biological resources, including related knowledge, science, technology, and innovation, to provide sustainable solutions (information, products, processes and services) within and across all economic sectors and enable a transformation to a sustainable economy”

Global Bioeconomy Summit 2018, 2020

Bioeconomy is the production, use, conservation and regeneration of biological resources to provide sustainable solutions (including information, products, processes and services) in and across all economic sectors.

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Evolution of bioeconomy in Africa – The East African Perspective

- The sustainable production and exploitation of biological resources and knowledge to support: (i) food and industrial feedstock production, (ii) a diversified industrial sector producing a range of bio-based products including high quality foods, chemicals, pharmaceuticals, textiles, construction products, etc., and (iii) robust biodiversity services that support cultural production. An economy which puts innovation in biobased products, processes and business models at the centre and a biobased circular economy as the organising framework.

- Food security and sustainable agriculture
- Health and wellbeing
- Biobased industrial development
- Sustainable energy
Bioeconomy concept still evolving – it is mostly understood in the context of its application.
Evolution of bioeconomy in Africa – The discourse in East Africa

- Biodiversity/access to genetic resources & benefit sharing
- Biotechnology/genetic engineering/living modified organisms/biosafety
- Bioscience innovation & innovation systems/sustainable bioeconomy
- Bioeconomy sustainable/circular

Time:
- 1990
- 2000
- 2010
- 2020
- 2030
- SDGs
- 2063
- AU Agenda

Increasing knowledge intensity & added value
Common features of the bioeconomy

- Biologically based – relies on biological material.
- Cross sectoral – bridges economic sectors.
- Systemic – involves diverse actors.
- Science based (but also indigenous knowledge)
- Innovation driven – collaboration/co-creativity
- Sustainability/circular
Narratives driving the bioeconomy

Resource-based
- Rich biodiversity
- Value added, economic diversification & jobs

Fossil fuel transition
- Climate crisis – mitigation & adaptation
- Economic competitiveness

Consumer attitudes
- Healthier & safer lifestyles
- Respect for nature/biodiversity conservation
- Resilience
Evolution of bioeconomy in Africa – Continuing the discourse
The future (1)

South African Bioeconomy 2013 -

East African Bioeconomy 2022 -

African Bioeconomy (?)

Attain interconnectedness through the African Continental Free Trade Agreement (2018); & connect also with the global bioeconomy
Scientists to play a key role in fostering a bioeconomy – be more entrepreneurial

BioInnovate Africa providing the enabling framework

- BioInnovate Africa at icipe, with support from Sida, is enabling scientists at eastern African universities, public research institutes, & firms to translate biological based ideas, inventions & technologies into practical uses in society through appropriate business models – fostering a sustainable bioeconomy.

Courtesy: icipe photo library
The future (2)

Improving nutrition
- Insect based proteins
- Vit A enriched sweet potatoes
- Aroma Honey Toffees

Controlling plant pests, diseases & weeds
- Striga weed tolerant maize and millet
- Fungal biopesticides
- Virus-free sweet potatoes

Organic waste conversion
- Vermicomposting
- Black soldier flies larvae composing
- Community biorefineries using sorghum
Thank you

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