



SUGARCANE BIOREFINERIES

CASE STUDY FOR THE AFRICAN BIOECONOMY

G20 Initiative on Bioeconomy

Dr Katherine Foxon and Dr Janice Dewar

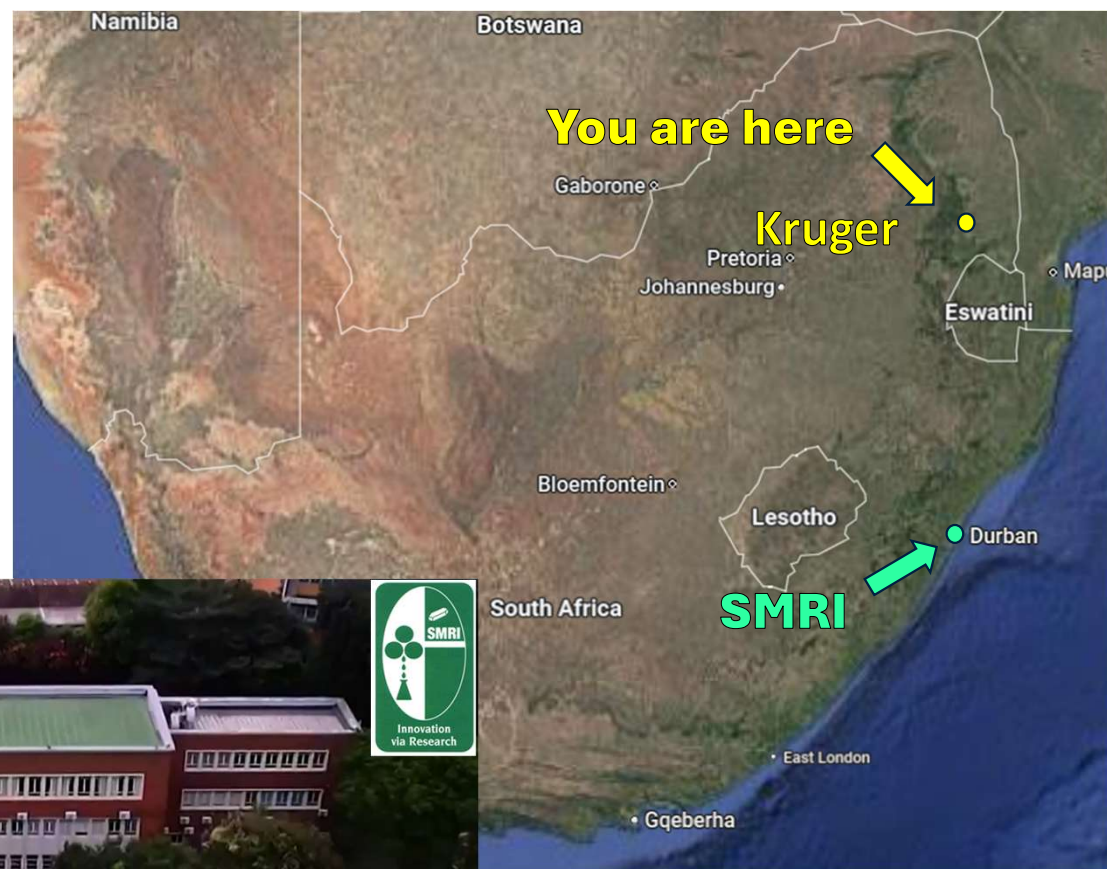
Sugar Milling Research Institute NPC
29 May 2025



The SMRI serves the analytical, consulting and research needs of our members, who are predominantly sugar mills in South Africa and southern Africa.



Sugar Milling Research Institute NPC est. 1949



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2. SMRI Research: designing sugarcane bioeconomy investments
3. Recommendations for enabling sugarcane bioeconomy investments

High Level Principles on Bioeconomy

WHAT

1. Sustainable development, poverty alleviation, food security
2. Individual and community rights
3. Climate change mitigation and adaptation
4. Biodiversity conservation
5. Sustainable consumption and production, ecosystem restoration

HOW

6. Science, technology, innovation and indigenous knowledge
7. Coherent policy
8. Sustainability criteria and assessment methodologies
9. International collaboration and cooperation
10. Country-specific approaches

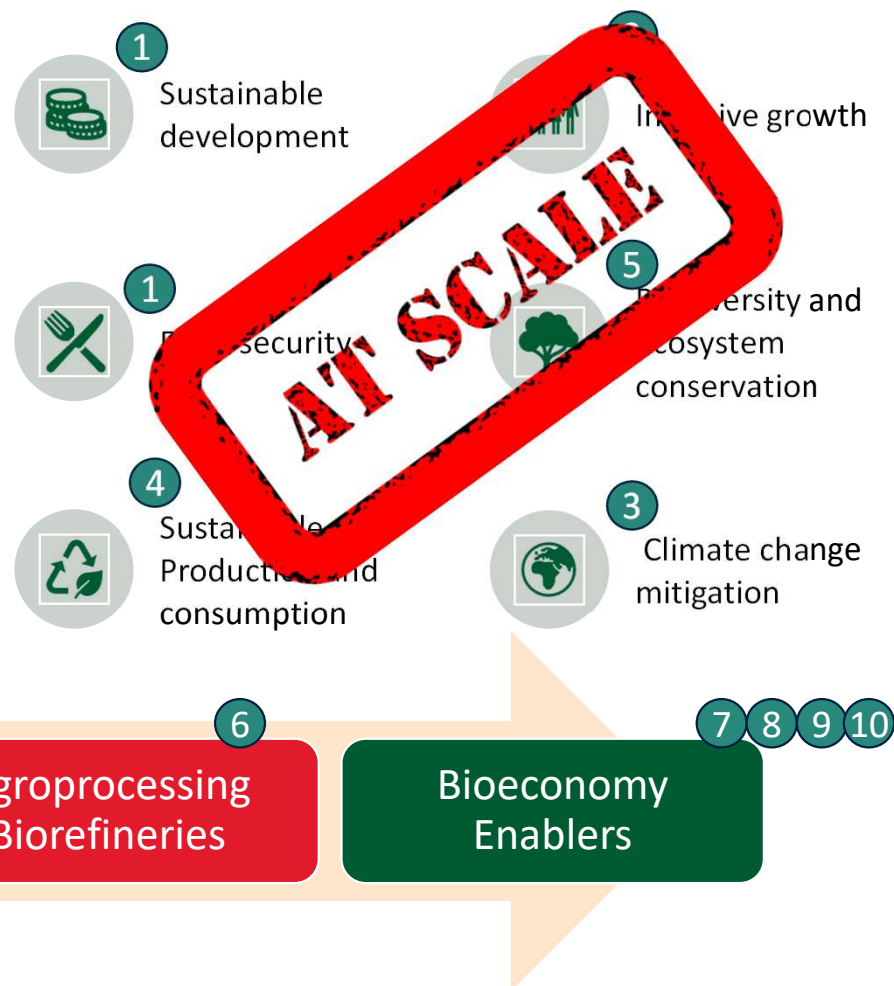


“sugar cane... a source of food, raw materials,
biomaterials and bioenergy,
providing opportunities for
climate mitigation action,
biodiversity protection and
reduction of pollution”

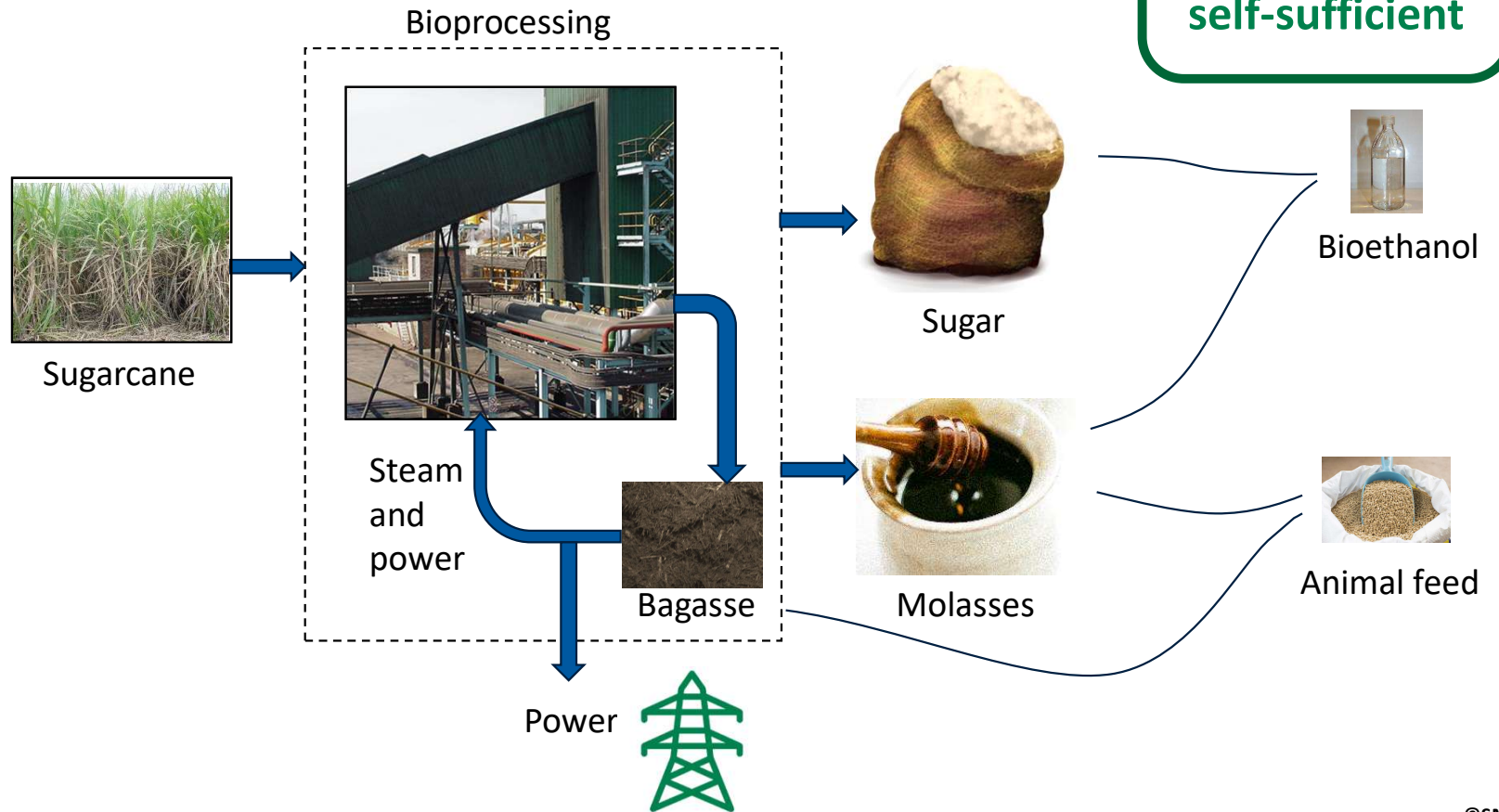
United Nations Environment Programme
Resolution adopted on 1 March 2024
UNEP/EA.6/Res.1

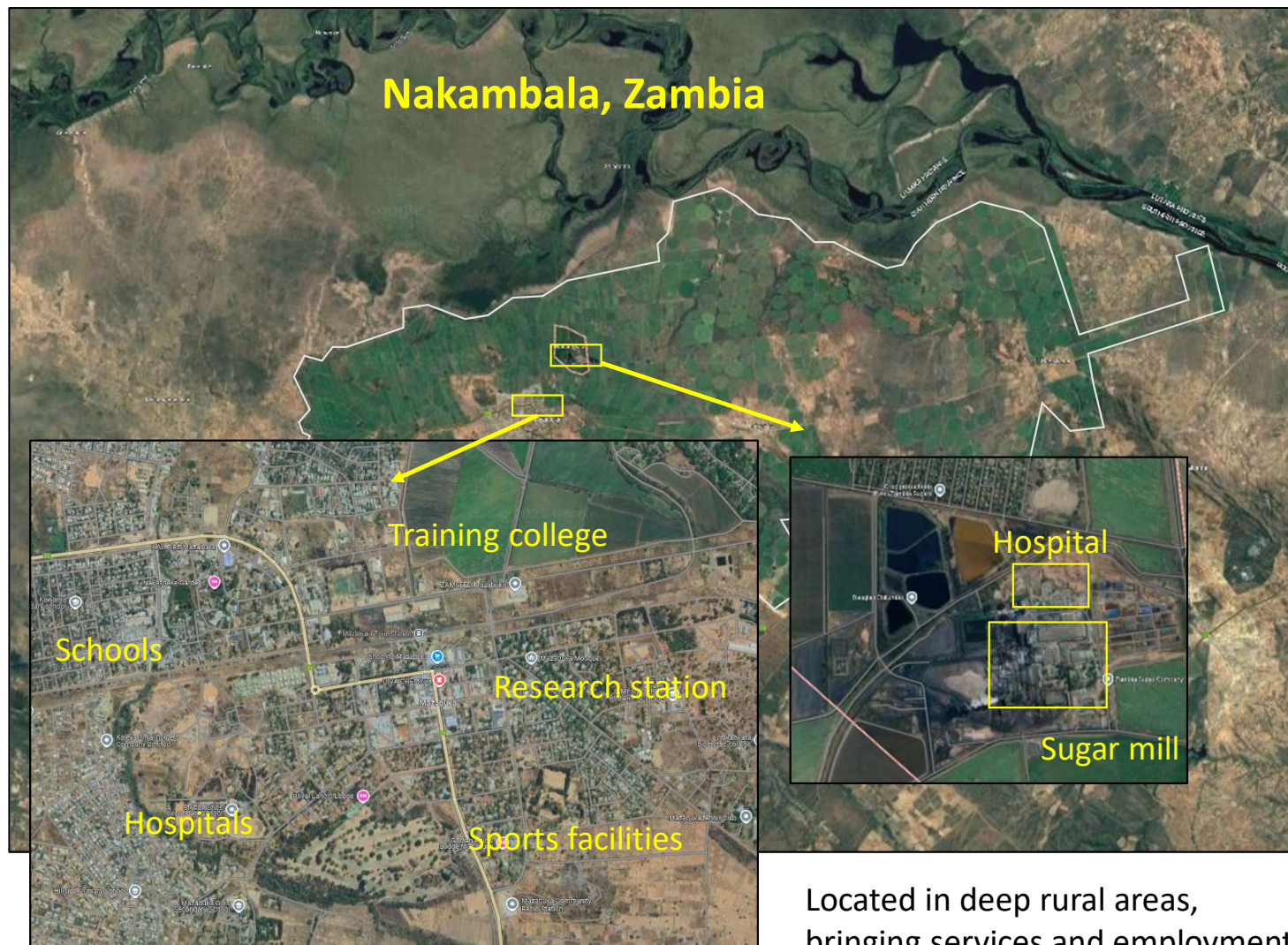
Sugarcane industry bioeconomy potential in Africa

Agroprocessing biorefineries present multiple opportunities for the bioeconomy, mapping to the 10 HLPs



Product diversification





Located in deep rural areas,
bringing services and employment
to communities



Scale of impact



Wealth
creation



Inclusive
growth



Food security

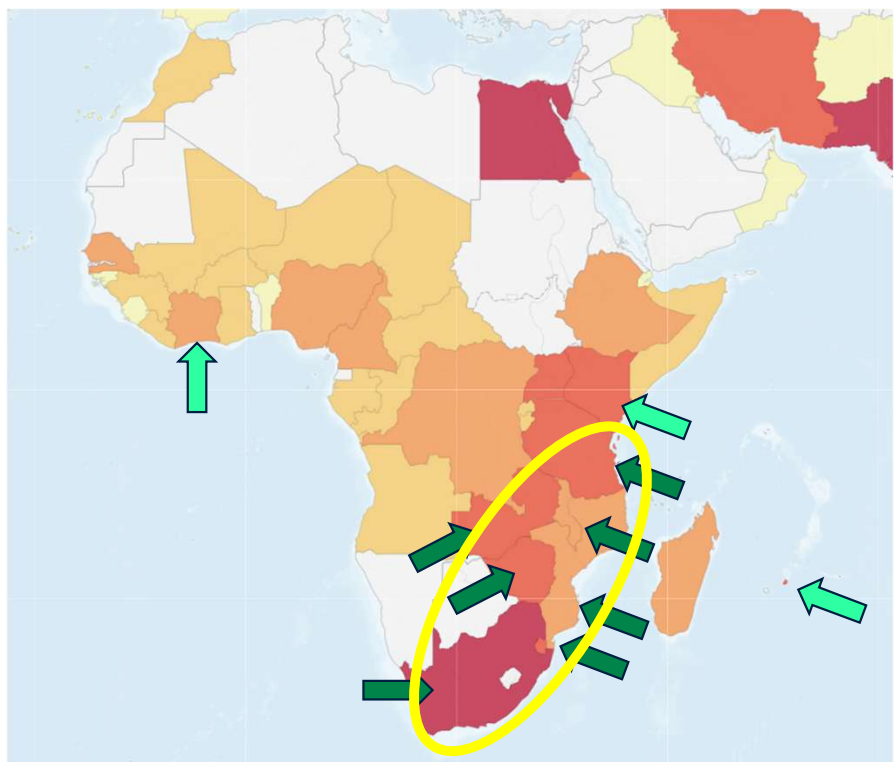


Biodiversity
conservation



Climate change
mitigation

African sugarcane industries



10-year average annual sugarcane production, t/y

<https://www.fao.org/faostat/en/#data>

South Africa: 18% of sugarcane in Africa,
Africa 5% of world sugarcane production

Livelihoods dependent on the sugarcane industry

South Africa: 1 mil.
Africa: 5.4 mil.

➡ African countries with SMRI members

Sugarcane industry bioeconomy potential in Africa

Objectives

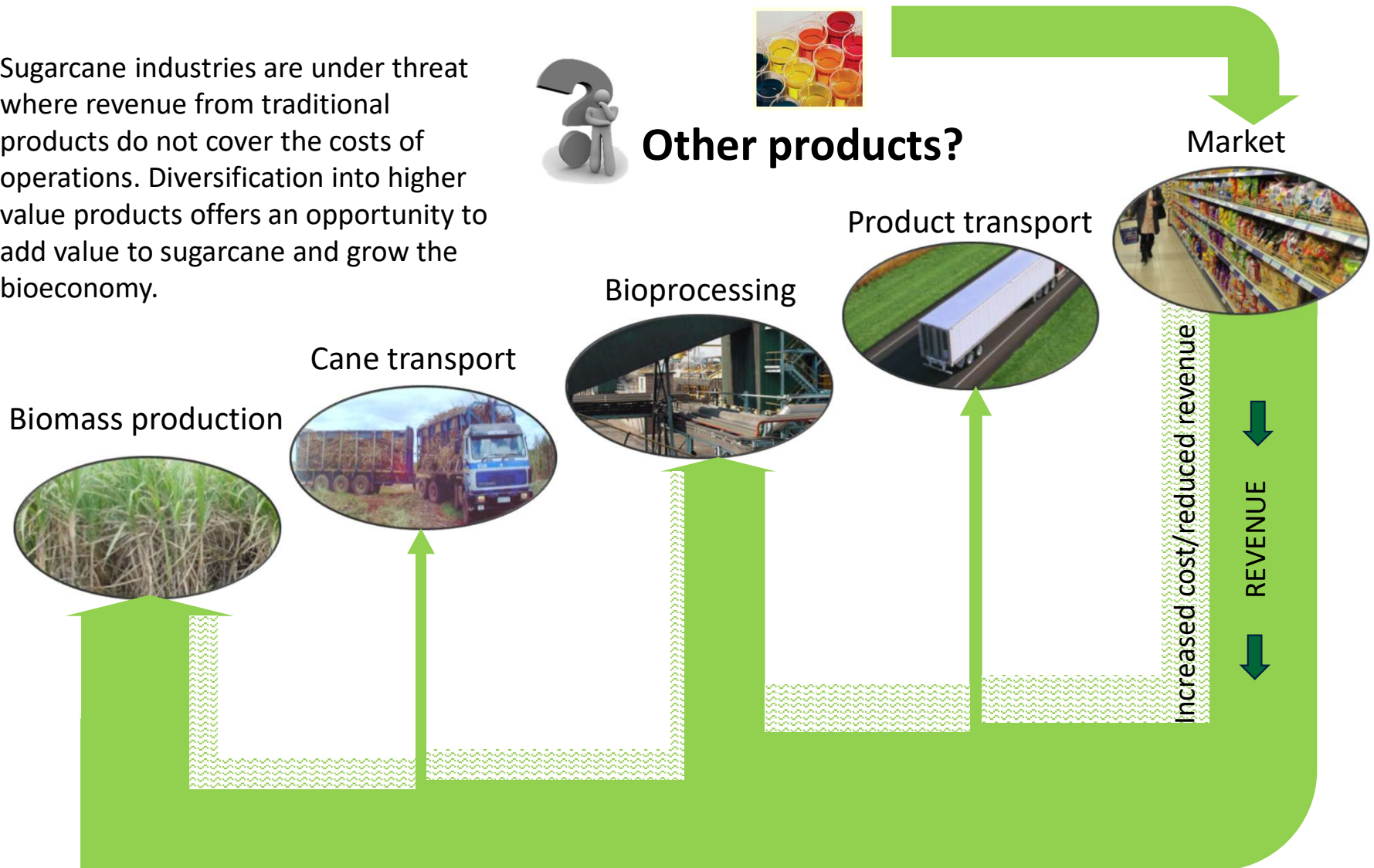
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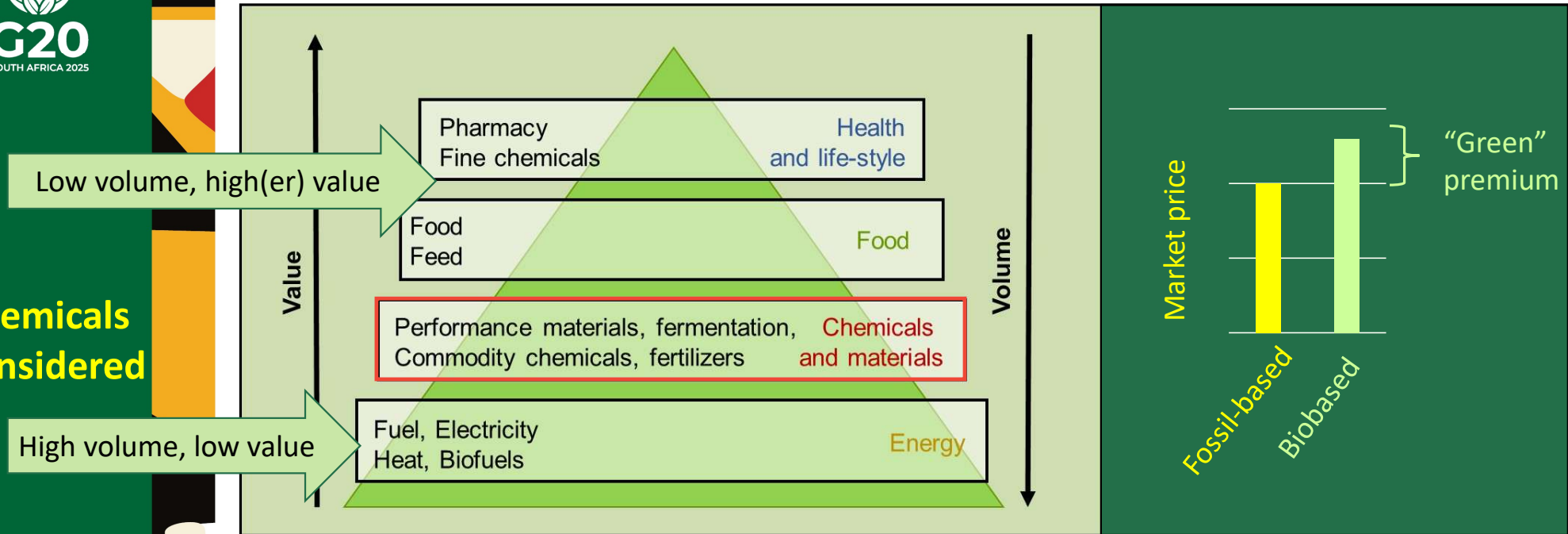
2. SMRI Research: designing sugarcane bioeconomy investments

Sugarcane industries are under threat where revenue from traditional products do not cover the costs of operations. Diversification into higher value products offers an opportunity to add value to sugarcane and grow the bioeconomy.



46 Chemicals considered

Identifying bioeconomy investment projects



SMRI research investigated investment cases for 46 chemical/material products. Where these have fossil-derived equivalents, a green premium is required

Challenge 1:

1

Fossil economy

Certification requirements for agroprocessing

Voluntary
sustainability
standards for
sugarcane



RSB
Roundtable on
Sustainable Biomaterials
www.rsb.org



**Farm
Sustainability
Assessment**
BY SAI PLATFORM



**BON
SUCRO**

**sustainability
certification**

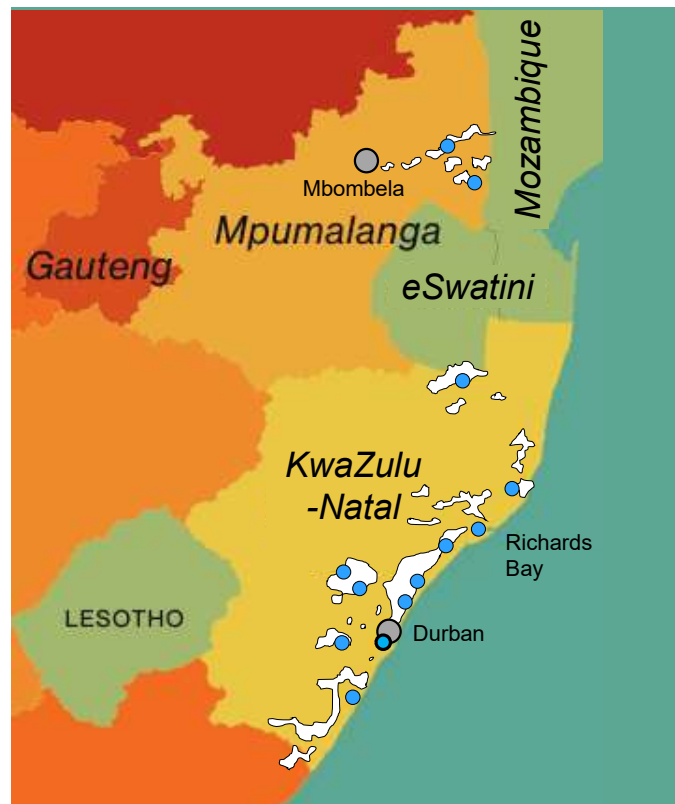


Evidence required to qualify
for preferential pricing or
finance

**Green
premium**




South African sugarcane industry



- KwaZulu-Natal & Mpumalanga
- 12 sugar mills
- 24 000 small scale farmers
- 1 000 commercial farmers

Sugarcane land spread across rural areas, many individual farmers must provide agricultural management data to support sustainability certification

● Sugar mill

 Land under cane

Certification for agroprocessing

- Administrative burden
 - Diffuse data sources (RSA)
 - Input data requirements may differ between standards
- Auditing
 - No local capacity
 - Expensive

Challenge 2:



**Certification
admin**



Financing bioeconomy investments

In 2022

	Corporate finance	Project finance
Base line interest rate	6.8%	7.5%
Sustainable finance kicker	-0.2% to -0.5%	-0.1% to -0.15%
Net interest rate	6.3% to 6.6%	7.35% to 7.40%
No. of green targets	4-10	2-3

- Bespoke, negotiated terms
- Onerous reporting linked to ESG performance
 - Integrated annual report
 - TCFD* report
 - Carbon Disclosure Project Report
 - External disclosures to rating agencies
- Targets for energy/carbon reduction only

MSCI

 CARBON TAX

 GREENHOUSE GAS PROTOCOL

 United Nations Climate Change

 PCAF Partnership for Carbon Accounting Financials

 Gold Standard
Climate Security & Sustainable Development

*TCFD: Task force on Climate Related Financial Disclosures

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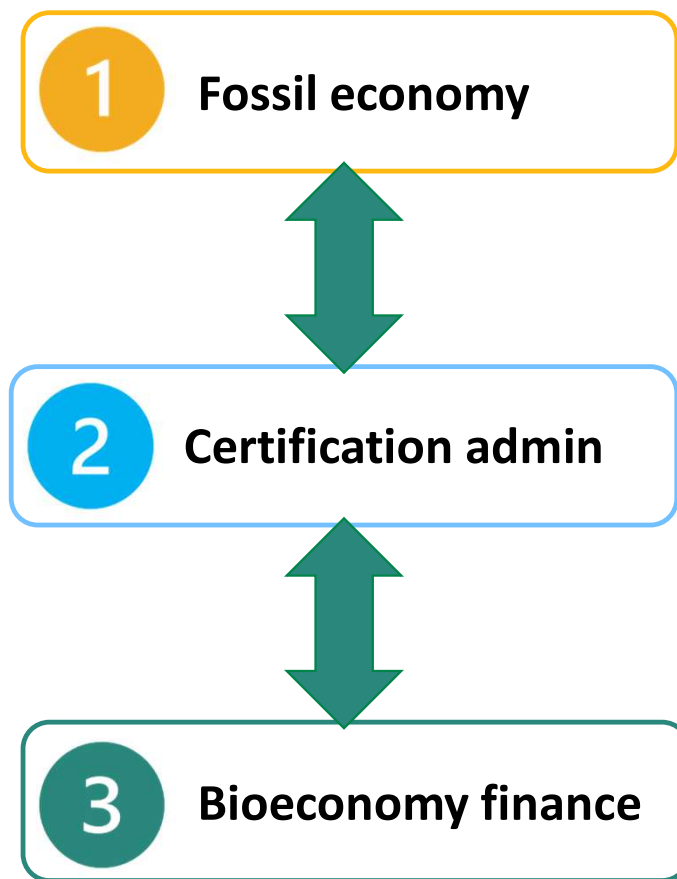
3 Bioeconomy finance

Limited to well-resourced corporates

Limited to carbon mitigation

*TCFD: Task force on Climate Related Financial Disclosures

Challenges



New chemicals from sugarcane



Bioeconomy investments

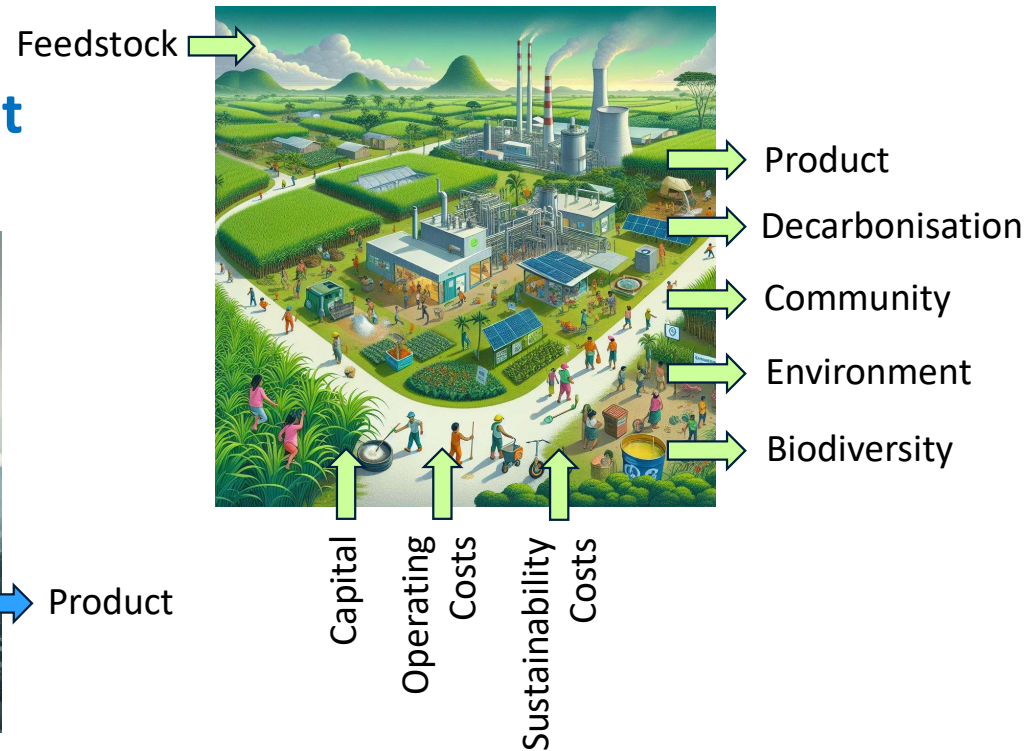
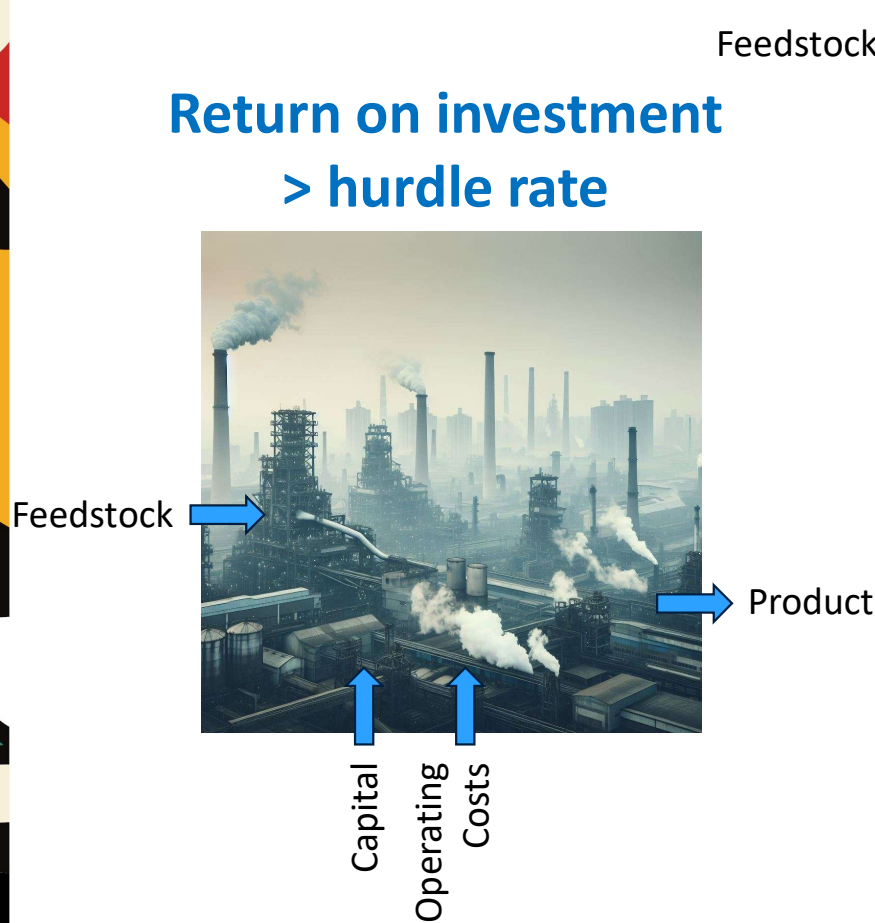
Lessons from sugarcane diversification investigations, relevant to other bioeconomy investments?



3. Recommendations for enabling sugarcane bioeconomy investments

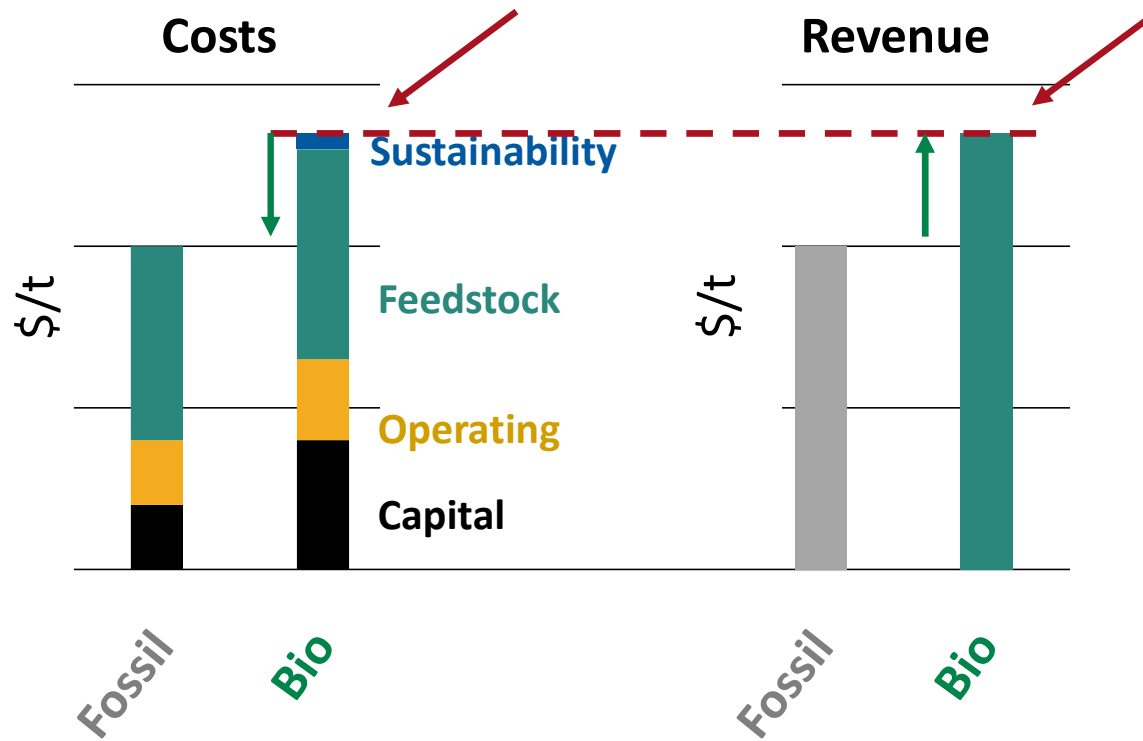
A new investment philosophy is required

Return on investment
> hurdle rate



Return on investment
> hurdle rate
Sustainability targets met

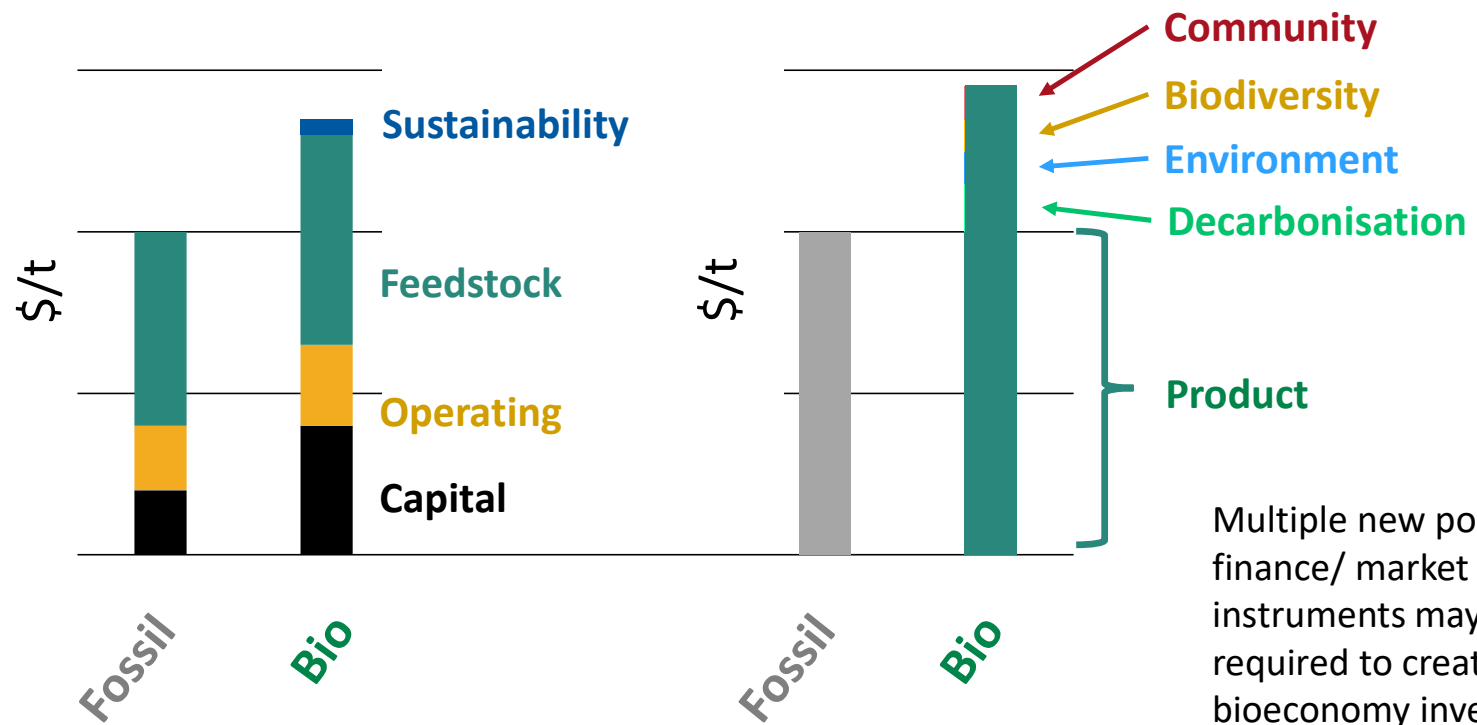
The investment equation



To derisk an investment, average costs over project life time must match average revenue. Either costs must reduce to match current market price expectation, or market price expectation must increase to match costs



1. Monetise bioeconomy benefits



Multiple new policy/finance/ market instruments may be required to create viable bioeconomy investment projects

A combined approach

To...

Drive bioeconomy outcomes

Reduce costs

Enable market access

Encourage market uptake

Level the playing field

Facilitate trade



Case studies

For deep system changes required to reimagine the bioeconomy, multiple case studies can be used to assess policy, sustainable finance and trade strategies

Specific for:

- Value chain
- Region



SMRI Sugarcane Bioeconomy Unit (SBU)

Established 4 March 2025 with seed funding from SMRI members



**To help transition
the SA sugarcane industry
to perform in the bioeconomy space**

...through collaboration, joint projects and co-investment.

Reduce the barriers to entry



Research & Development, skills

Strategic partners

- Technology
- Market

Finance

- Recapitalisation
- New production facilities

Supportive policy frameworks

- Policy certainty
- Enabling conditions for investment and trade
- Market access
- Market demand



Solidarity

Equality

Sustainability

Key takeaway

Agroprocessing biorefineries drive the bioeconomy (Sugarcane)



Multiple economic, social and environmental benefits, at scale



Case studies for identification, derisking, demonstrating biorefinery investments



Thank you