



AFRICA DOWN UNDER PRESENTATION

September 2022



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Competent Person Statement

The Competent Person with responsibility for the total Mineral Resources of this report is Mrs Kathleen Body, Pr. Sci. Nat, who is registered as a Professional Natural Scientist with the South African Council for Natural Scientific Professions ("SACNASP"). She is an Associate Resource Geologist with SRK Consulting (UK) Limited and the Director and a Principal Consultant of Red Bush Analytics. Mrs Body was a fulltime employee of Coffey Mining at the time the original Mineral Resource estimation was completed in 2013. Mrs Body has 26 years' experience in the mining industry and has sufficient experience which is relevant to the style of mineralization and type of deposit under consideration and to the activity which she is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Mineral Reserves. Kathleen Body consents to the inclusion in the report of the matters based on her information in the form and context in which it appears.

Forward Looking Statements

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Gas prices are driving fertilizer and food prices



Chris Lawson · 2nd
Head of Fertilizers - CRU
2d · 🌐

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At least 50% of European **#ammonia** capacity has been curtailed. The reality is likely higher than this... The repercussions could be extraordinary and expand well beyond **#agriculture** and **#fertilizers**.

We have made our European **#nitrogen** tracker publicly available this week. If you have any questions, please do get in touch...



Europe nitrogen capacity closure and cost tracker

www.crugroup.com · 2 min read

🔄💡🗨️ 180

10 comments · 22 shares

👍 Like

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Investment Overview

— Development of food security & clean energy projects in Angola



Cabinda Phosphate Fertilizer Project

- 100% of fertilizers imported in Angola
- High-grade Resource 8.4MT @ 29.6% P₂O₅ (85% ownership)¹
- Technically and Financially robust
- **Plant shipping ex USA underway**
- **DFS and approvals H2 2022**
- **Production in 2023**



Capanda Green Ammonia Project

- Government support to establish a Green Ammonia Project with land allocated
- 200MW of baseload zero-carbon hydropower secured³ at lowest price globally for green energy
- **No Company globally has access to Green Power at the Minbos concessional price**
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Future Opportunities

- NPK Blending and Distribution
- Lime
- Water Soluble Phosphates
- Soil Organic Carbon and carbon credits
- LiFePO₄ batteries
- Angola Agriculture
- 57M ha arable land
- 1,000 -1,500mm annual rainfall



1. ASX Announcement - Resource Update for High-Grade Cabinda Phosphate Project (23 Nov 2021).
2. Project Economics to be updated with DFS due Q1 2021, with likely increase to CAPEX
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MINBOS
PHOSPHATE FERTILIZER

**PHOSPHATE
FERTILIZER
PLANT,
READY TO
SHIP, READY
TO GROW**

Phosphate fertilizer plant dryer drum, ready
to be shipped from FEECO headquarters
USA

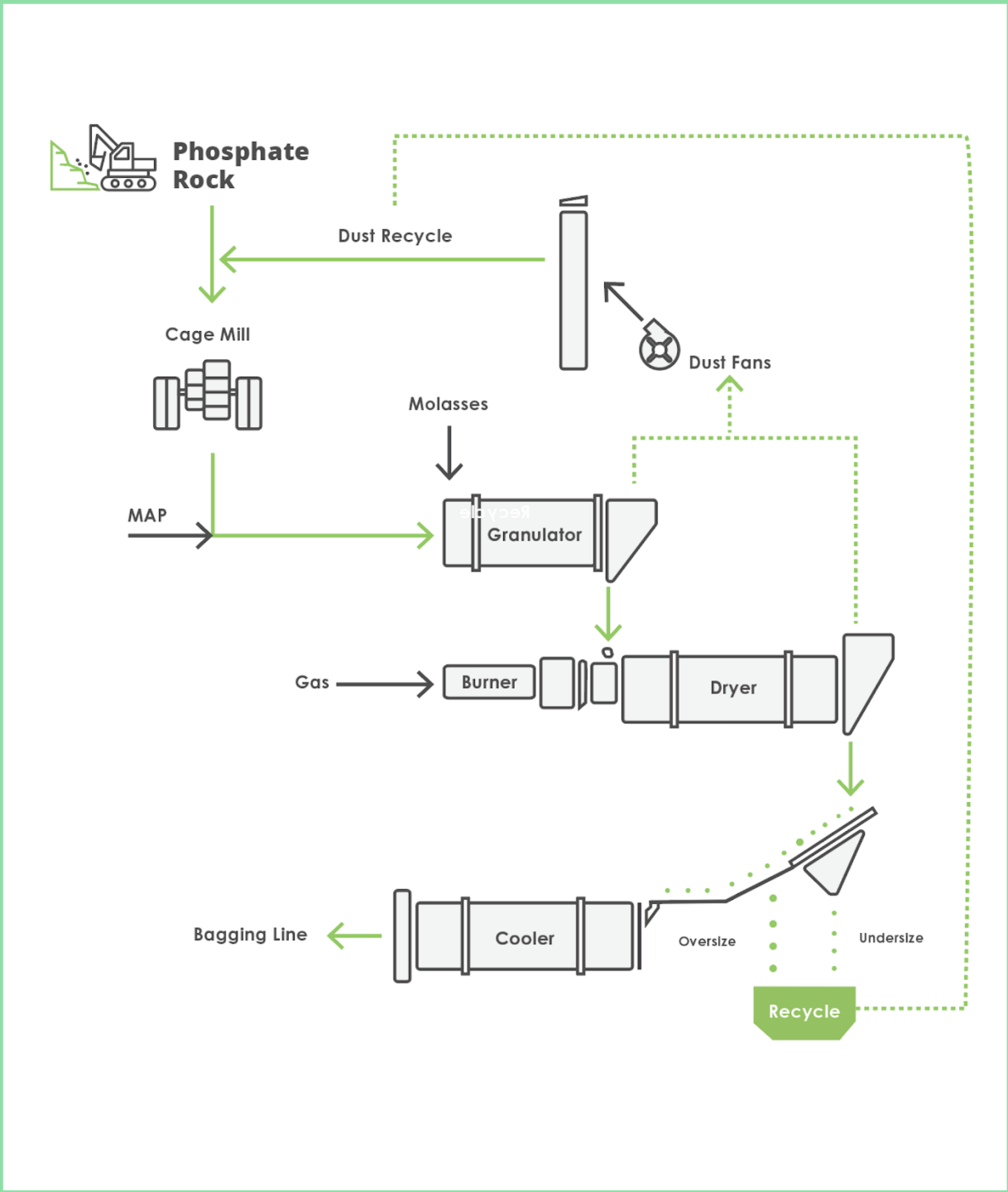


FLWSHEET FLEXIBILITY

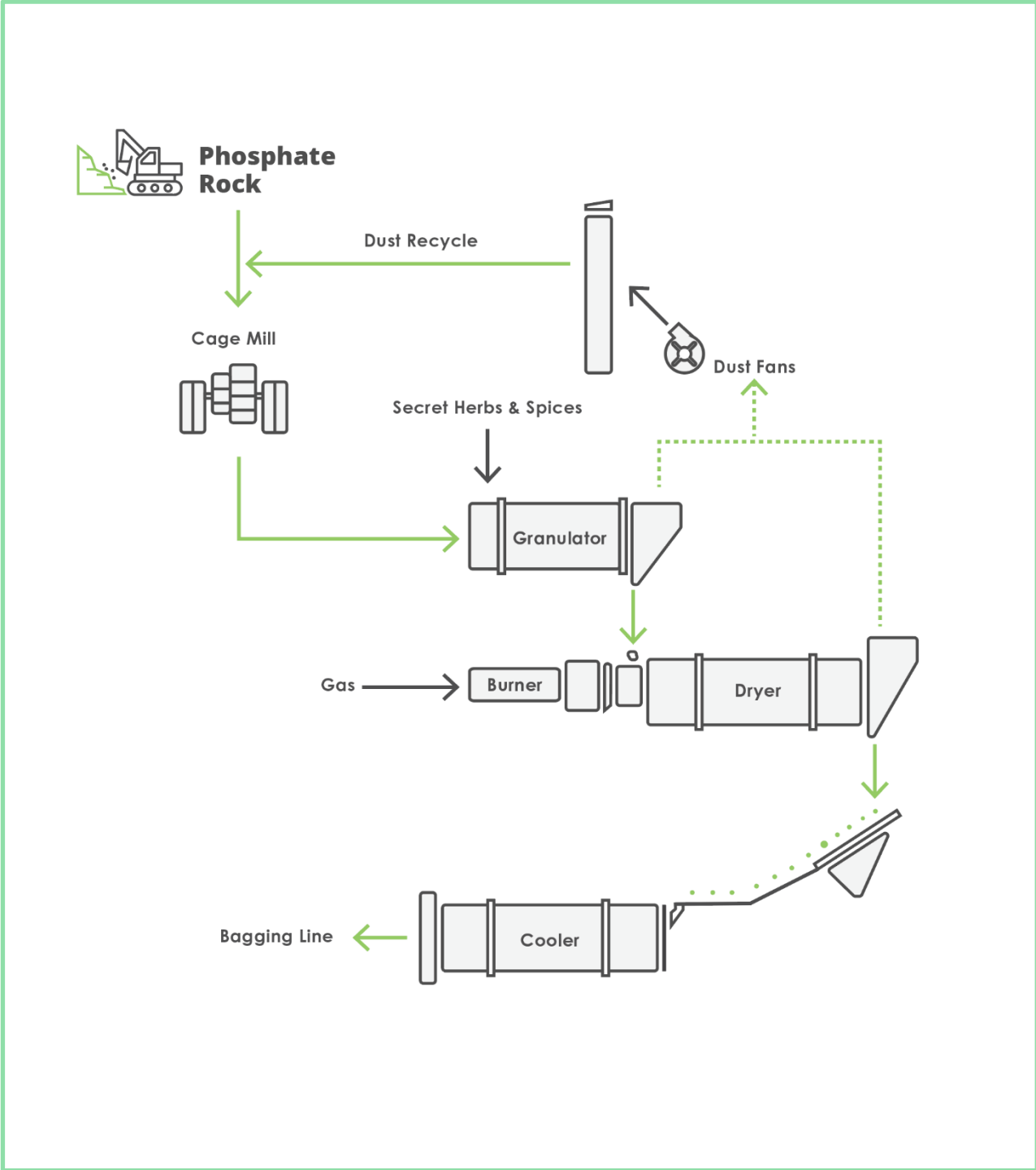
— PLANT DESIGN DELIVERS MULTIPLE PRODUCT OPTIONS



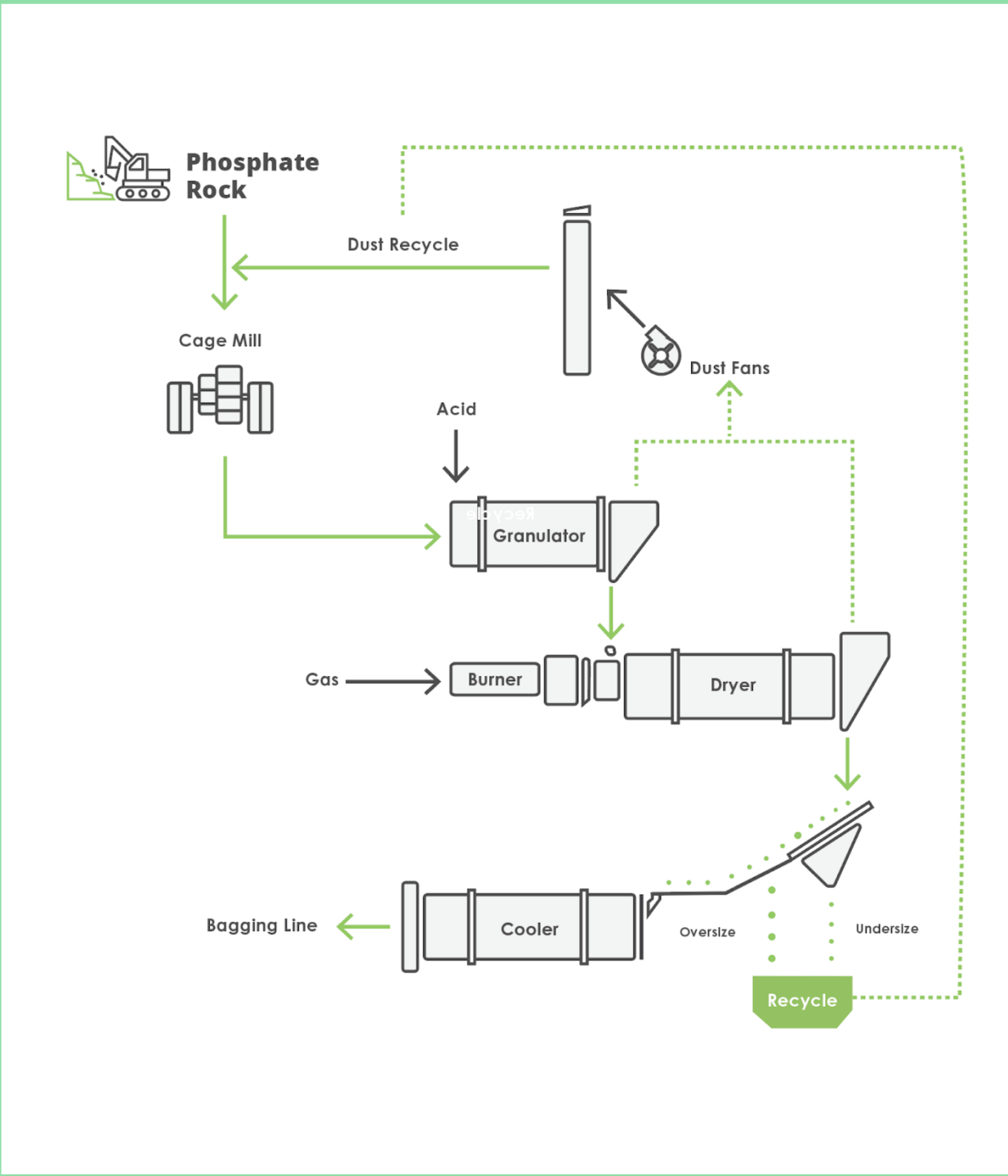
Enhanced Phosphate Fertilizer



Beneficiated Phosphate Fertilizer



Super Phosphate Fertilizer



ANGOLA FERTILIZER & FARM PRODUCTIVITY PROGRAM (AFFPP)

— LINKING FARMERS TO OUR LOCALLY PRODUCED FERTILIZER

The ‘**Grow to Eat**’ market comprises 3 million smallholders on 5 million hectares – AFFPP aims to double the yields of this sector.



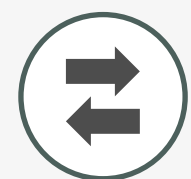
Produce fertilizers from local resources



Strong Government policies to support fertilizer sector



Build farmer knowledge on fertilizer use & soil fertility management



Develop input & output markets

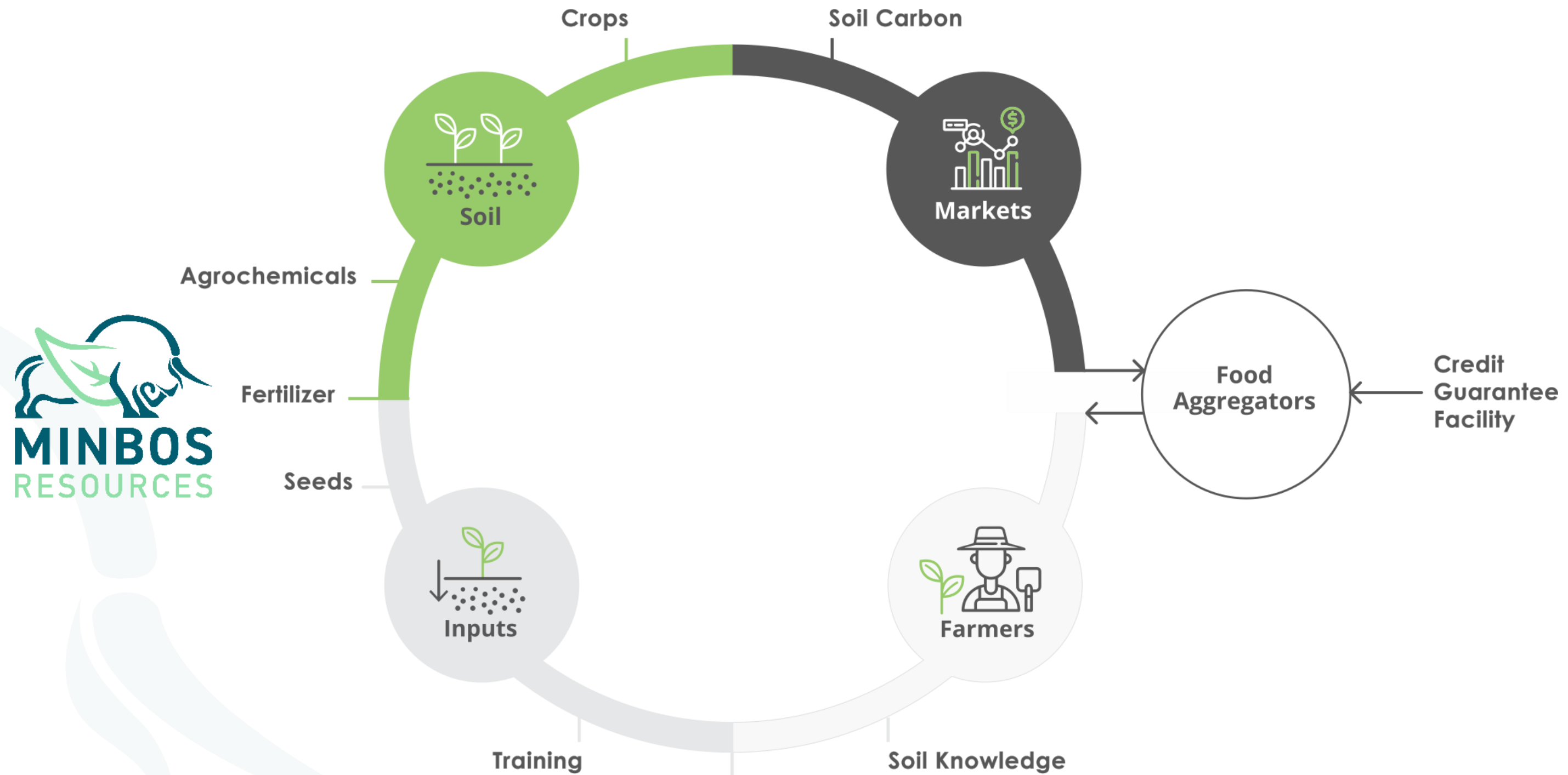
MOU for AFFPP lodged with the Angolan Government

YEAR	TOTAL CABINDA (t)	
	Low	High
23/24	36,372	140,938
24/25	40,014	160,055
25/26	43,655	179,172
26/27	52,076	217,406
27/28	63,227	- 255,641
28/29	77,110	- 299,337
29/30	90,993	- 343,033
30/31	104,876	- 386,730
31/32	118,758	- 430,426
32/33	132,641	- 446,812

Local Fertilizer – 450,000 tonnes per year

IFDC and Minbos - the missing links

— Farmers, Markets, Aggregators and Infrastructure already in place





**THE MOST COMPELLING
GREEN AMMONIA
PROJECT GLOBALLY**



Background

— Why Minbos & Green Ammonia?



93 countries with net-zero targets by 2050 (~70% global GDP & ~90% of global emissions)¹

55 countries with CO2 pricing initiatives & 39 with announced hydrogen strategies²

More than 60 Green Ammonia plants were announced 2020-2021³

Green hydrogen-ammonia expected to be critical contributors to the world achieving net-zero carbon emissions by 2050

Global ammonia demand 183 Mt (2020) to grow to 688 Mt by 2050



Natural gas represents 80-90% of the variable costs in fertilizer production

72% of ammonia is produced from natural gas (22% from coal)

Surging prices for natural gas caused by war in Ukraine and the clean energy transition

Global fossil-fuel ammonia output cut due to a surge in natural gas prices

Green Ammonia currently represents 0.01% of Global Ammonia Production⁵



Green Projects rely on green energy sources

Angola has the cheapest, greenest power globally with no large CAPEX costs attached for new Green Projects, including:

World-leading installed Hydro Power Generation powering most baseload power and 1,000MW of spare capacity

Cheapest power prices globally, Angola 1.7c/kWh vs. Australia 15.7c/kWh (industrial)⁴



Minbos has secured 200MW of Zero-Carbon hydroelectrical baseload power:

An electricity price of US 1.5c/kWhr is equivalent to a gas price of \$4/GJ for fossil-based ammonia production

Minbos' concession delivers a weighted average cost of power of US 1.1c/kWh

~90% cheaper than Australian power grid pricing

~55% cheaper than natural gas prices

No Company globally has access to Green Power at the Minbos concessional rates



1972 - commissioning of the electrolysis plant at Kariba Dam, Zimbabwe.

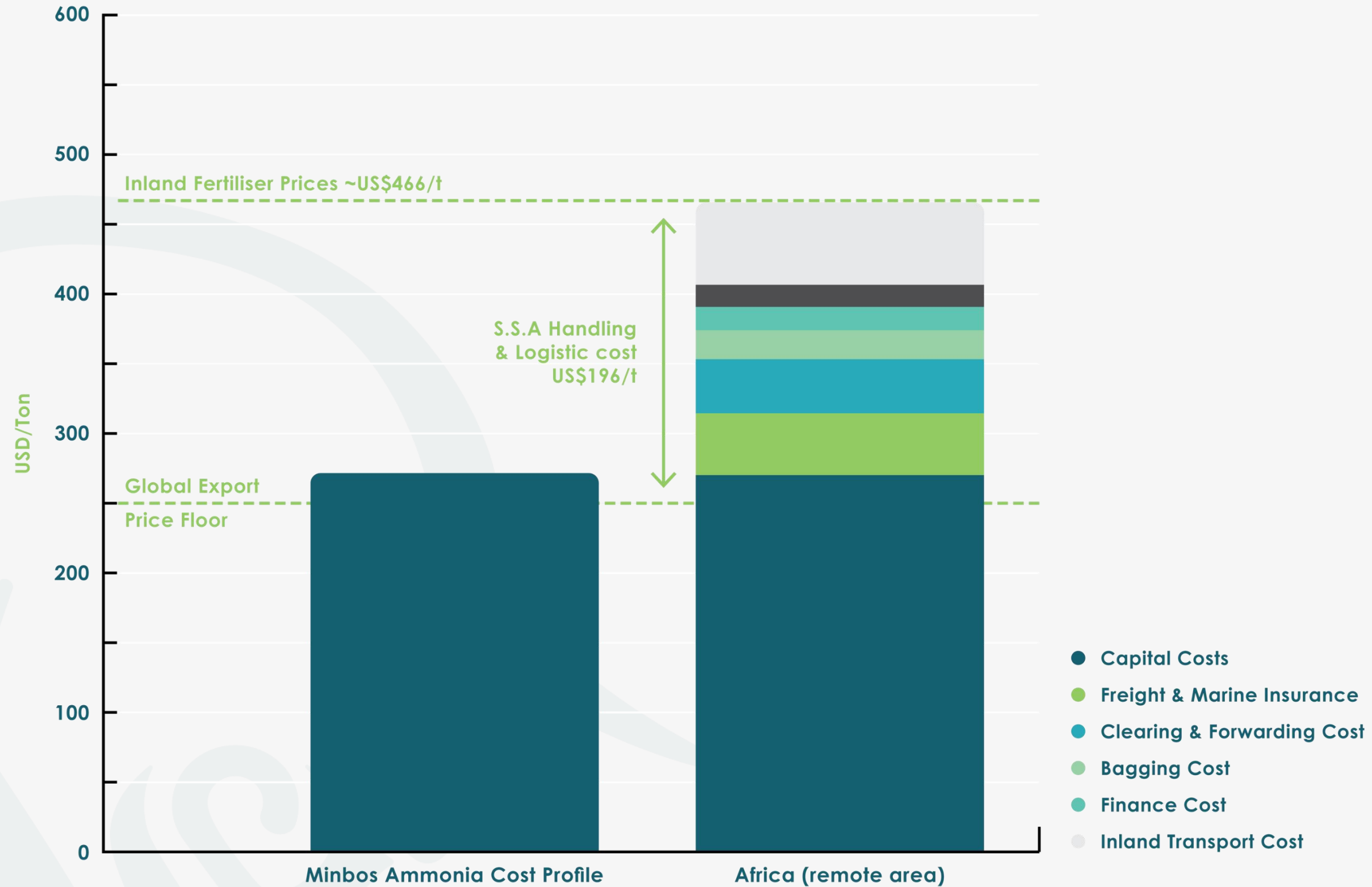
Taking advantage of the low cost and abundant source of energy from Kariba Dam, Sabre Chemicals established an electrolysis plant to produce hydrogen for ammonia production on site, catering for up to 70% of Sable's ammonia requirements at its peak.

The plant in itself was unique and ground breaking in many respects and was for many years the largest electrolysis plant in the world.

1. <https://hydrogencouncil.com/en/hydrogen-insightsupdates-july2021/>
2. <https://eciu.net/analysis/reports/2021/taking-stockassessment-net-zero-targets>
3. IRENA Innovation Outlook Ammonia 2022
4. IEA Global Energy Report 2021
5. IRENA Innovation Outlook Ammonia 2022

Why making Green Ammonia locally matters

— Our US\$200/t local for local advantage



Source: Stamicarbon CAN analysis derived from AFAP/IFDC





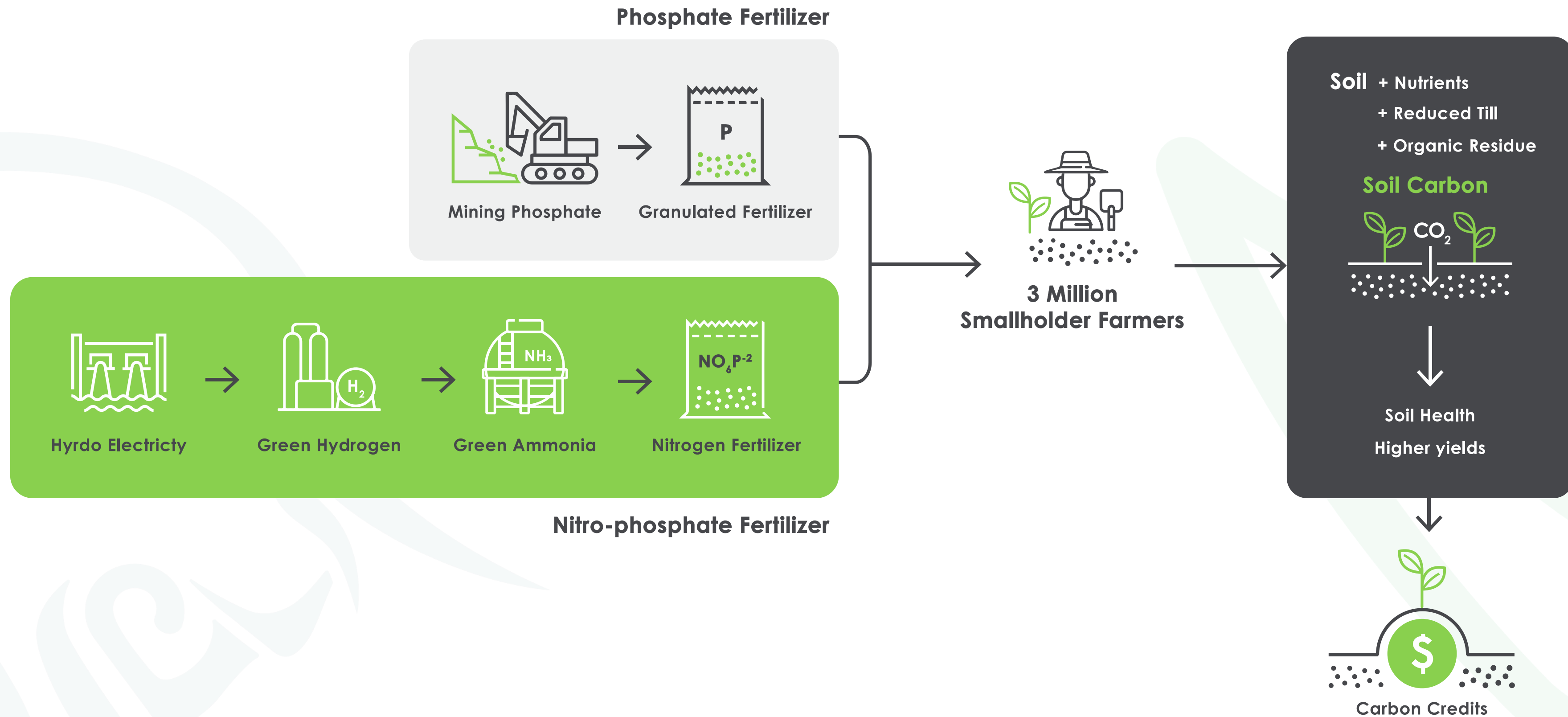
MINBOS
SOIL ORGANIC CARBON

**Soil Health is
Soil Carbon**



Build the soils, sequester the carbon

— Good for soil, good for the farmer, good for the environment, good for business



Soil Carbon Potential

— Grow to Eat area has unique Soil Carbon Opportunity

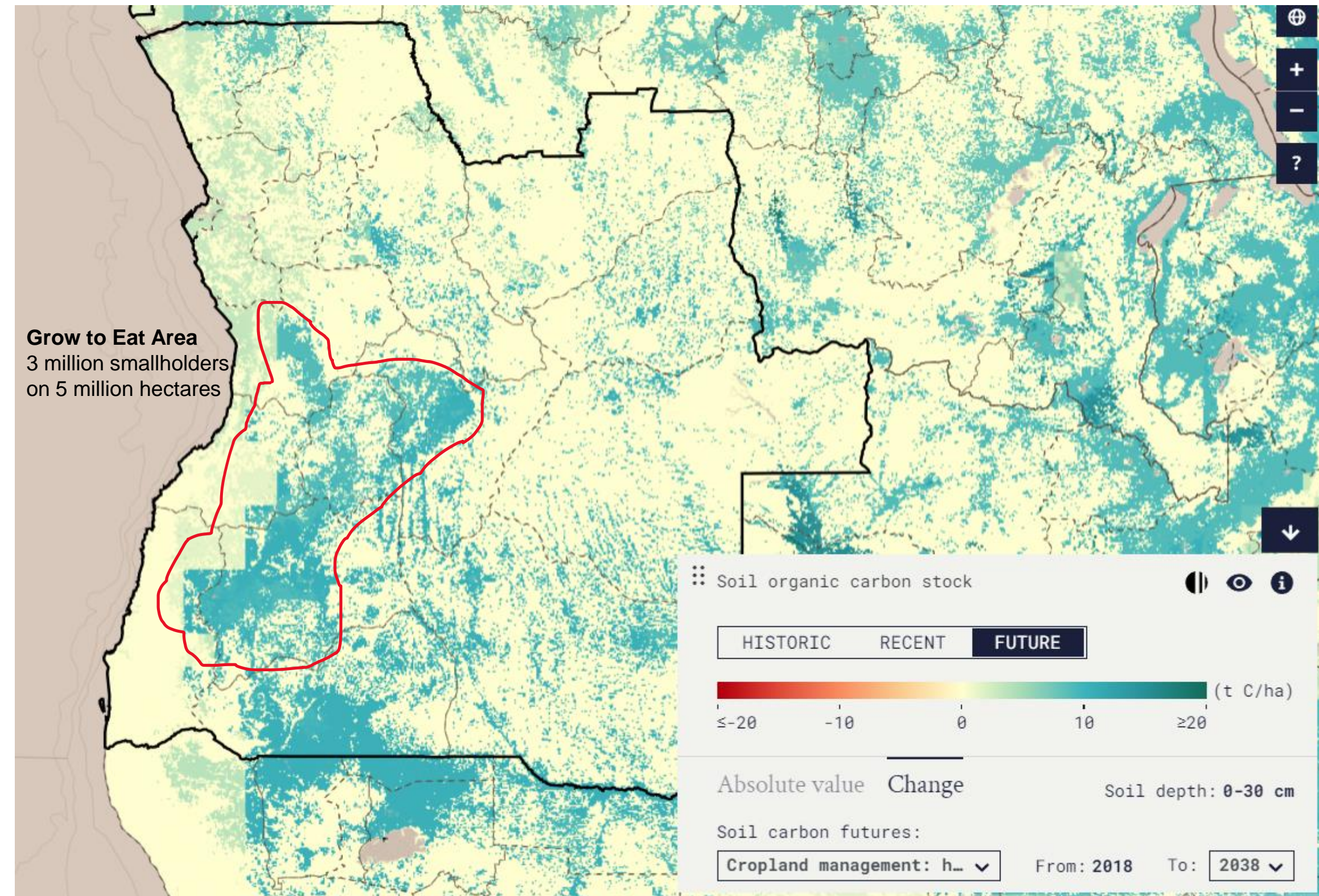


Pre-requisites for Soil Carbon Sequestration

- **High rainfall** Grow to Eat area annual rainfall around 1000mm
- **Soil clay content >10%** Grow to Eat around 20% clay content
- **Nutrient depletion** in the Grow to Eat area due to no nutrient replacement by fertilizer, burning organic residues and high tillage

Soil Carbon levels can be increased by replacing nutrients removed by crops, retaining organic residues and employing low tillage methods

Improving Soil Carbon helps creates nutrient and soil buffers in the soil providing resilience for climate variation



Source: <https://soilsrevealed.org/>

Next 12 months

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