



# Angola Rising: Our Fertilizer, Their Future

Board Update  
December 2023

ASX:MNB



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Some of the statements appearing in this announcement may be in the nature of forward-looking statements. You should be aware that such statements are only predictions and are subject to inherent risks and uncertainties. Those risks and uncertainties include factors and risks specific to the industries in which Minbos operates and proposes to operate as well as general economic conditions, prevailing exchange rates and interest rates and conditions in the financial markets, among other things. Actual events or results may differ materially from the events or results expressed or implied in any forward-looking statement. No forward-looking statement is a guarantee or representation as to future performance or any other future matters, which will be influenced by a number of factors and subject to various uncertainties and contingencies, many of which will be outside Minbos' control.

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## Compliance Statement

The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and, in the case of material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.

## 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 27 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 formand context in which it appears.

Information in this announcement relating to Mineral Resources is extracted from the ASX release dated 21 November 2021. Minbos Resources Limited confirms that it is not aware of any new information or data that materially affects the information included in this announcement and that all material assumptions and technical parameters underpinning the Mineral Resource continue to apply and have not materially changed. Minbos Resources Limited confirms that the formand context in which the Competent Persons' findings are presented in this announcement have not been materially modified from the original market announcement.

The scientific and technical information in this announcement that relates to Ore Reserves estimates for the Project is based on information compiled by Mr Ross Cheyne, a Principal Consultant of Orelogy Consulting Pty Ltd. Mr Cheyne is a Fellow of the Australasian Institute of Mining and Metallurgy (AusIMM). Mr Cheyne has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Cheyne consents to the inclusion in the announcement of the matters related to the Ore Reserve estimate in the formand context in which it appears.

Information in this announcement relating to Ore Reserves is extracted from the ASX release dated 17 October 2022. Minbos Resources Limited confirms that it is not aware of any new information or data that materially affects the information included in this announcement and that all material assumptions and technical parameters underpinning the Mineral Resource continue to apply and have not materially changed. Minbos Resources Limited confirms that the formand context in which the Competent Persons' findings are presented in this announcement have not been materially modified from the original market announcement.

## Forward Looking Statements

Statements contained in this release, particularly those regarding possible or assumed future performance, revenue, costs, dividends, production levels or rates, prices, or potential growth of Minbos Resources Limited, are, or may be, forward looking statements. Such statements relate to future events and expectations and, as such, involve known and unknown risks and uncertainties. Actual results and developments may differ materially from those expressed or implied by these forward-looking statements depending on a variety of factors.



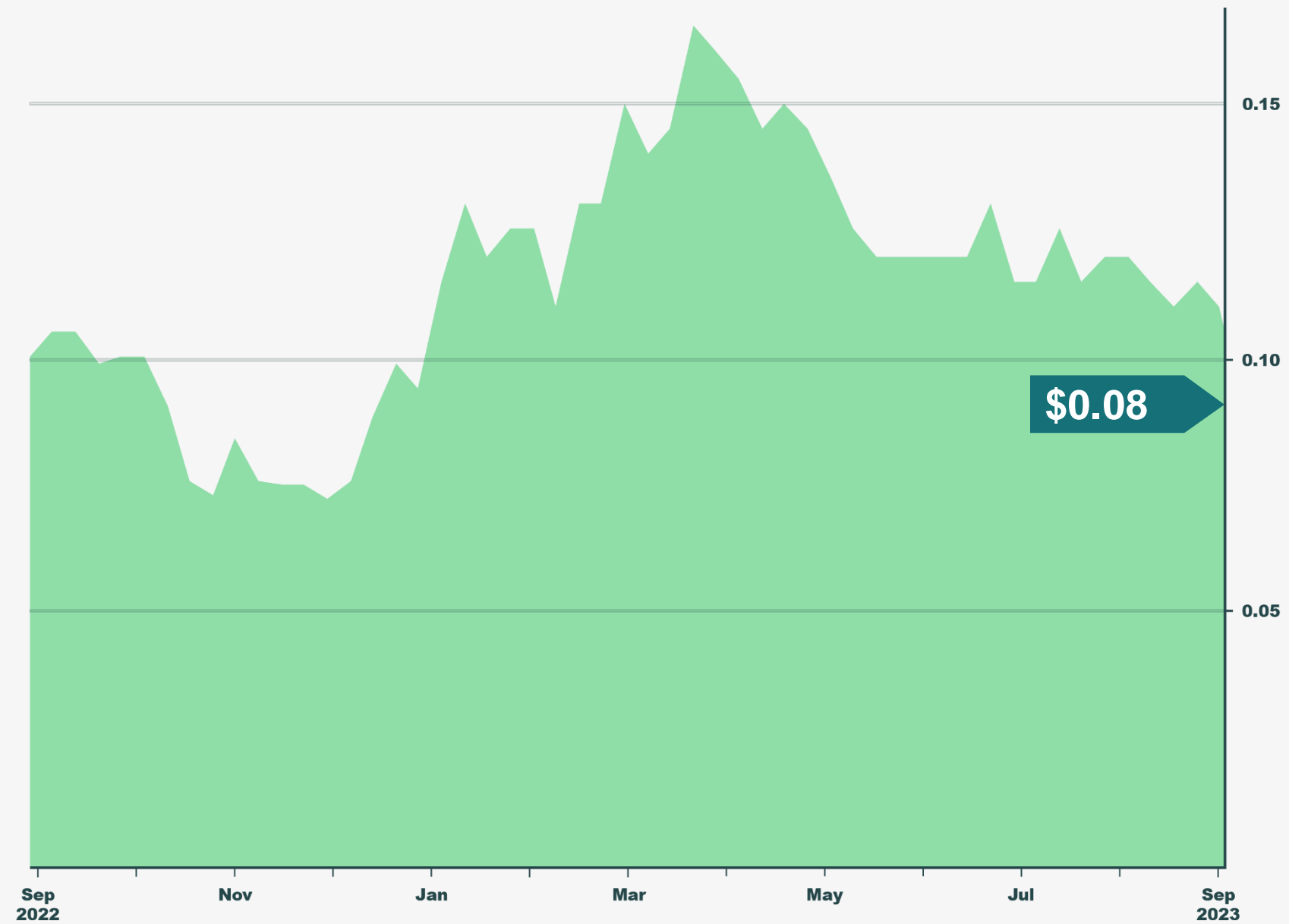


# Company Overview



## Capital Structure

**791M** Shares on Issue      **\$A79M** Dil. MCap\*      **\$A9M** Cash\*      **\$A70M** Enterprise Value



\*26 Sep 2023

## Board & Management

- Lindsay Reed** – Managing Director  
A Mining Engineer with 40 years' experience in exploration, development, operations and finance in Australia and Africa.
- Paul McKenzie** – Chairman  
Agribusiness consultant with 30 years' experience advising large scale agriculture including his own 23,000-hectare holdings in WA, Director of ASX listed companies since 2006
- Valentine Chitalu** – Non-Executive Director  
Co-founder and Chairman of Phatisa Group, an African-focused private equity fund with ~US600 million funds under management.
- Graeme Robertson** – Non-Executive Director  
Over 40 years' experience in the resources, energy, and infrastructure sectors. Founder and Chairman Intrasia Group, major shareholder of Afrasia Bank Limited in Mauritius
- Frank Si** – Non-Executive Director  
Experienced Director and Executive covering every part of the manufacturing process including plant design and project management, especially in agricultural processing

## Top Shareholders

- 12% Hong Kong Jayson** Cathode company founded by Mr Liang Feng, chairman of Shanghai Putailai one of the largest anode material companies & Mr Zeng Yuqun, chairman of CATL, global leader in lithium batteries.
- 7% Board & Ex-Board** All current directors and directors all the way back to the IPO are represented on the register.
- 5% Richardson Low Family** The largest of our many private investors loyal to the opportunity and project impact.
- 4% Green Innovation** Social Impact Fund with a long history of social impact projects in Angola.



# Why Invest? What to Watch?

## — Exposure to three global megatrends leveraging Angola's unique global position

### 1. Food Security through Soil Health - Cabinda Phosphate Project

- DFS: NPV \$US203M, IRR 39%, \$US26M to complete construction, first sales in 2024.
- Watch for additional licenses and exploration upside.
- Watch for low capex option to double capacity.

### 2. Decarbonising Fertilizer and Explosives – Capanda Green Ammonia Project

- Cheapest renewable power feedstock in the world 1.1c/kWhr.
- Existing markets with a large Africa Inland Premium.
- Watch for partnership, commencement of PFS

### 3. Look for Partnerships – To build Scale and Strategic Depth

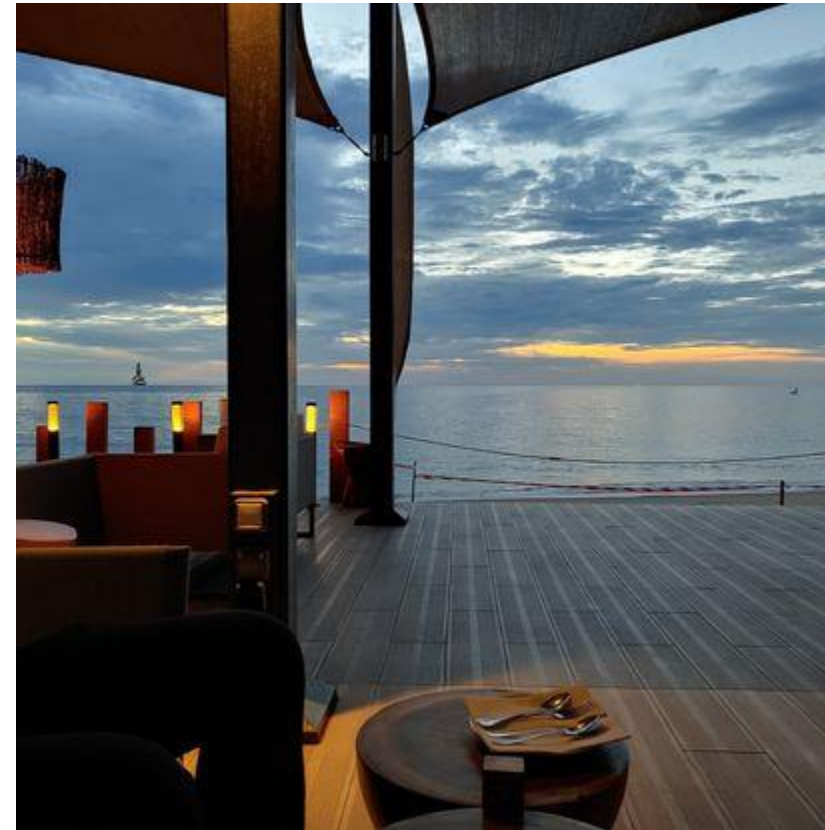
- Yellow Phosphorus - major shareholder dominant in the LiFeP battery sector.
- Lobito Corridor opens-up the western copper belt mines for green ammonia explosives.
- Caio Deepwater Port opens access to Phosphate Rock export market from 2025.

**Watch for strategic partnerships and investors.**

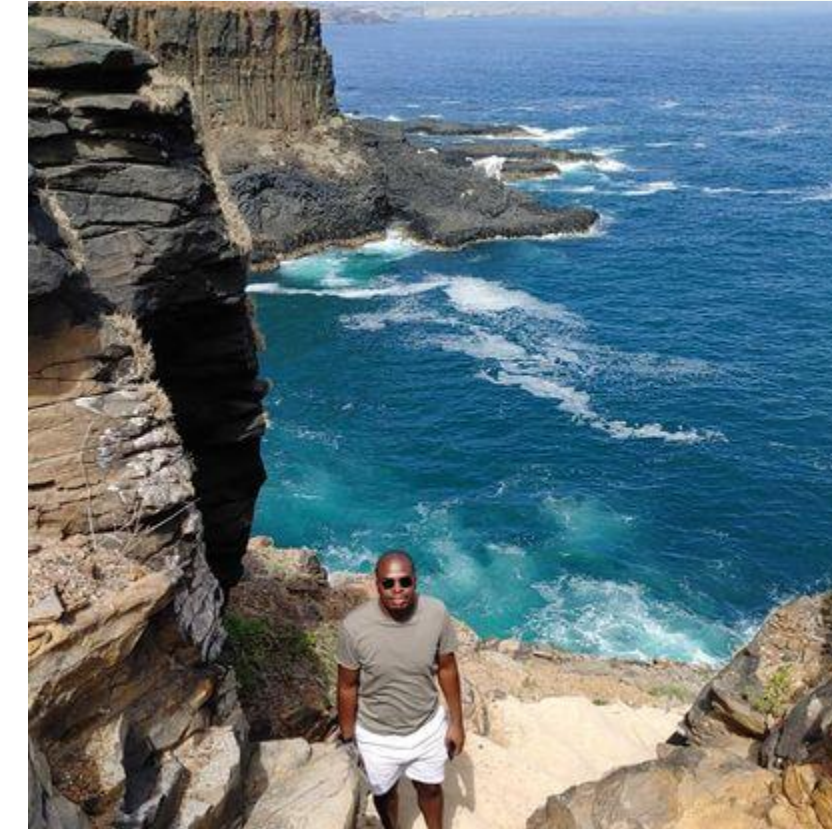


# Angola – Lots to Love

— Spectacular – Vast – Gentle



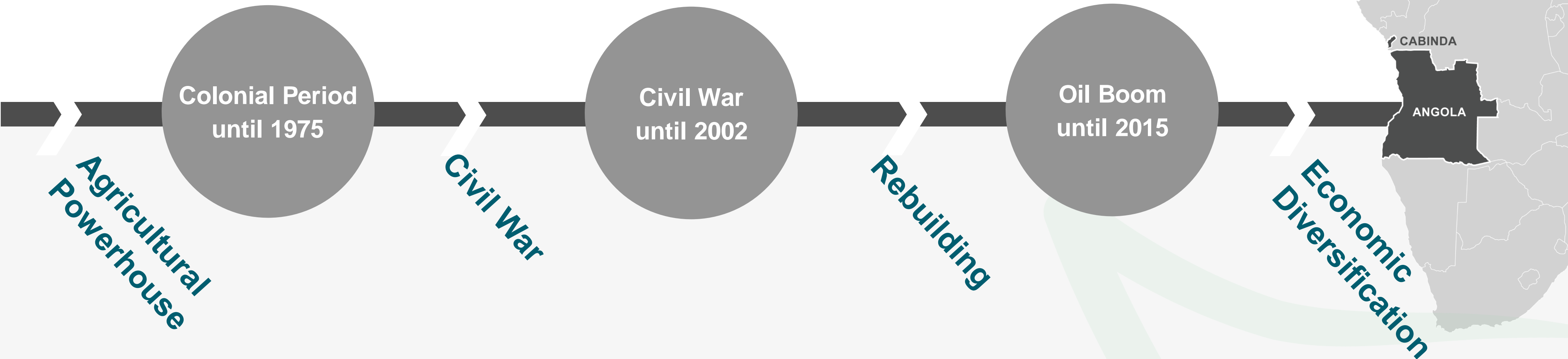
CABINDA  
ANGOLA





# Angola – Agriculture Miracle Awakening

— Farming re-emerging as a dominant sector



- Top farming nation
- Agricultural exporter
- Self-sufficient in grains

- Farms deserted
- Infrastructure damaged
- Knowledge lost

- Lasting peace
- Roads, rail, ports rebuilt
- 50% of food imported

- Presidential policy support
- Competitive currency
- Food security focus



# Angola – Opportunity

— Open for capital, expertise and ideas

## Linguistically

Portuguese language barrier is diminishing. English is increasingly spoken in government meetings and the younger generation are often educated in the west.

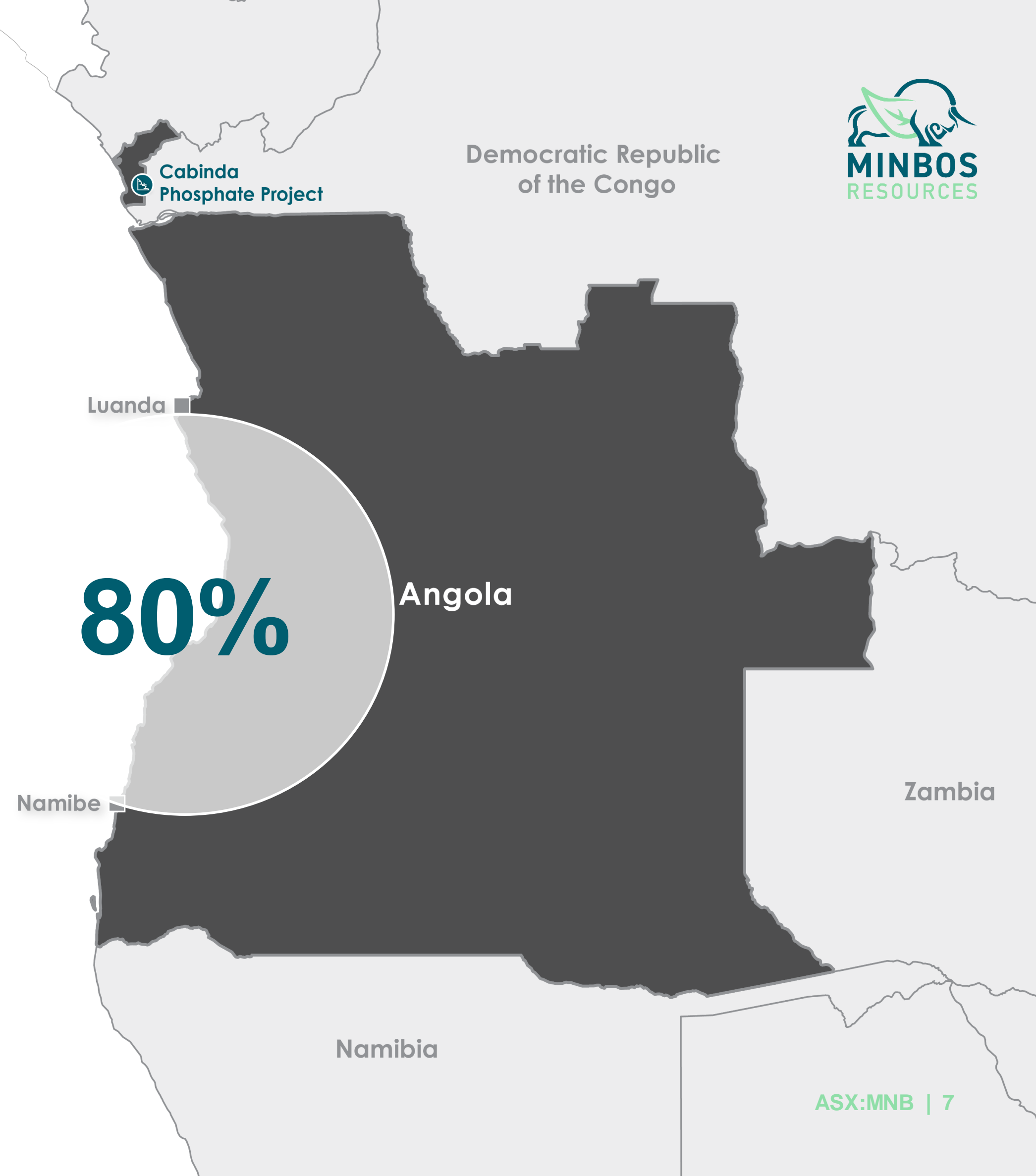
## Politically

Investment from the west is increasing rapidly. The World Bank, IFC, USA, EU nations and companies like Rio, Anglo, Ivanhoe and De Beers are now investing in Angola. Previously China and Russia dominated investment.

## Geographically

Eighty percent of the population is remote from neighbouring countries and Angola has no connection to regional energy and transport networks. However, In the last two years \$billions have been committed to rail, port, gas and energy infrastructure to promote cross border trade.

**The opportunity is now**





# Angolan – A Strong Economy

— Prosperous but some people have been left behind

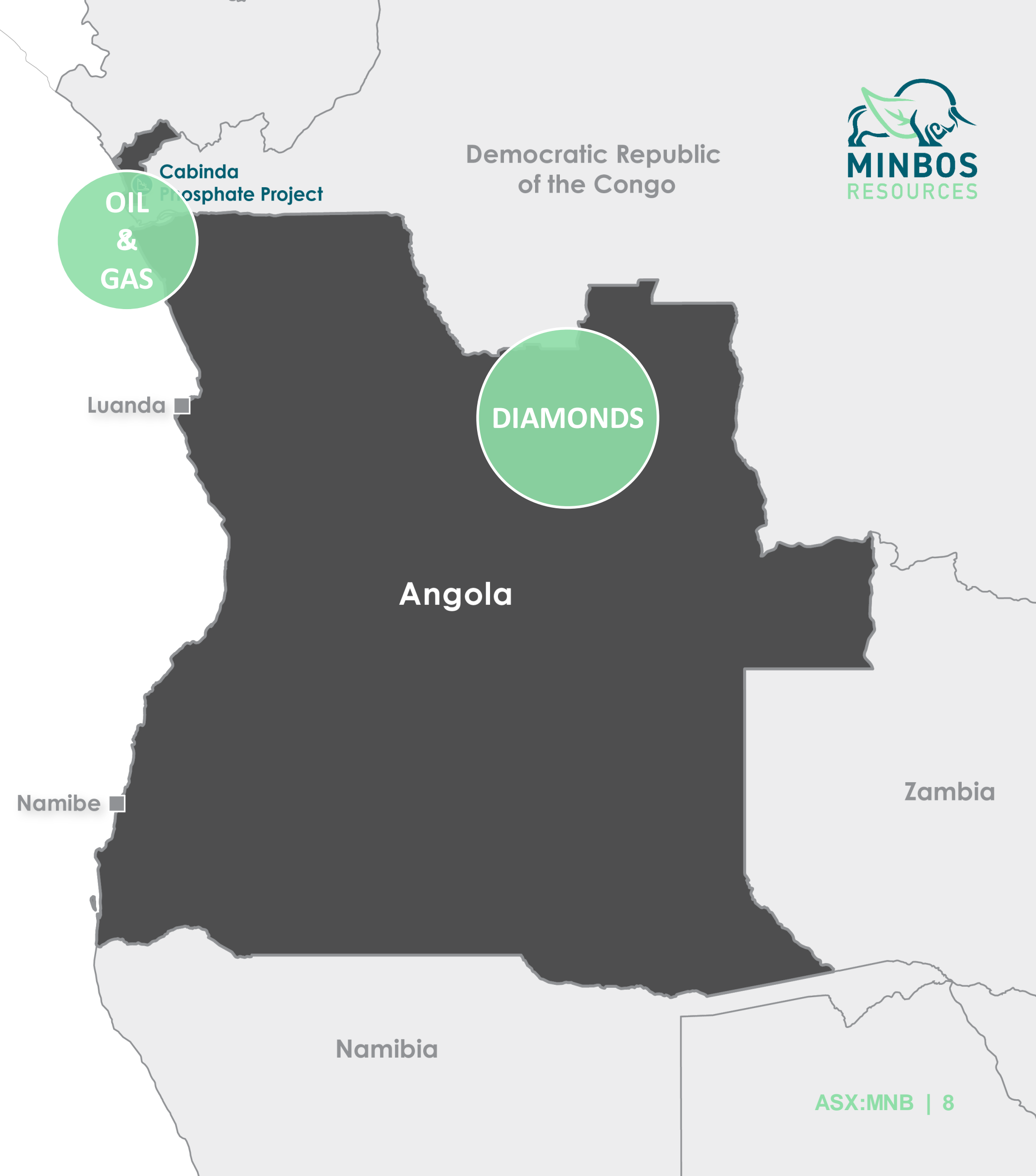
**Oil – Second largest in Africa**

**Diamonds – Third largest in Africa**

**LNG – Fourth largest in Africa**

**Economy - Third largest in Sub Saharan Africa**

But a third of the population was left below the poverty line and President Lourenço aims to diversify the economy through agriculture and alleviate poverty for smallholder families.

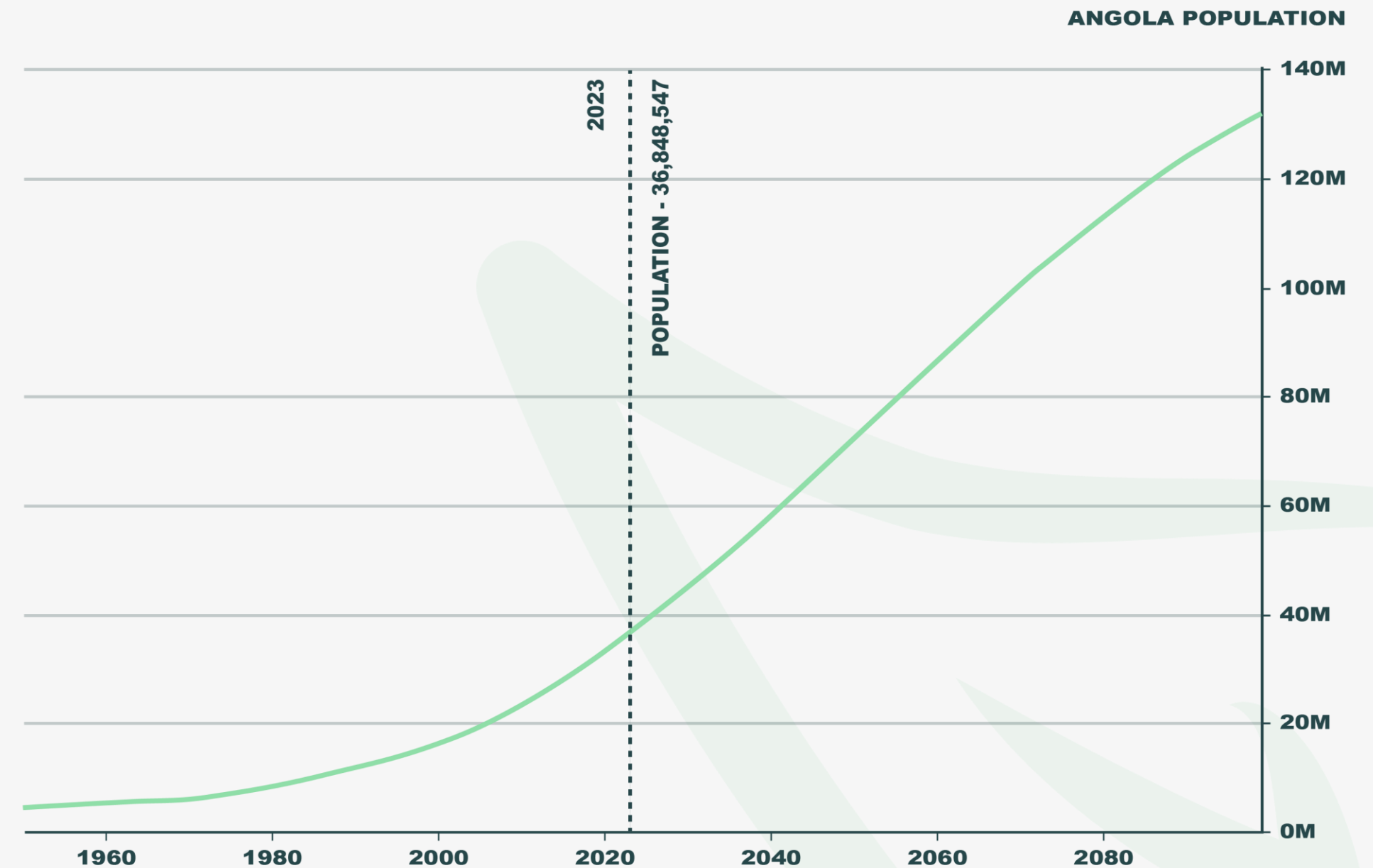
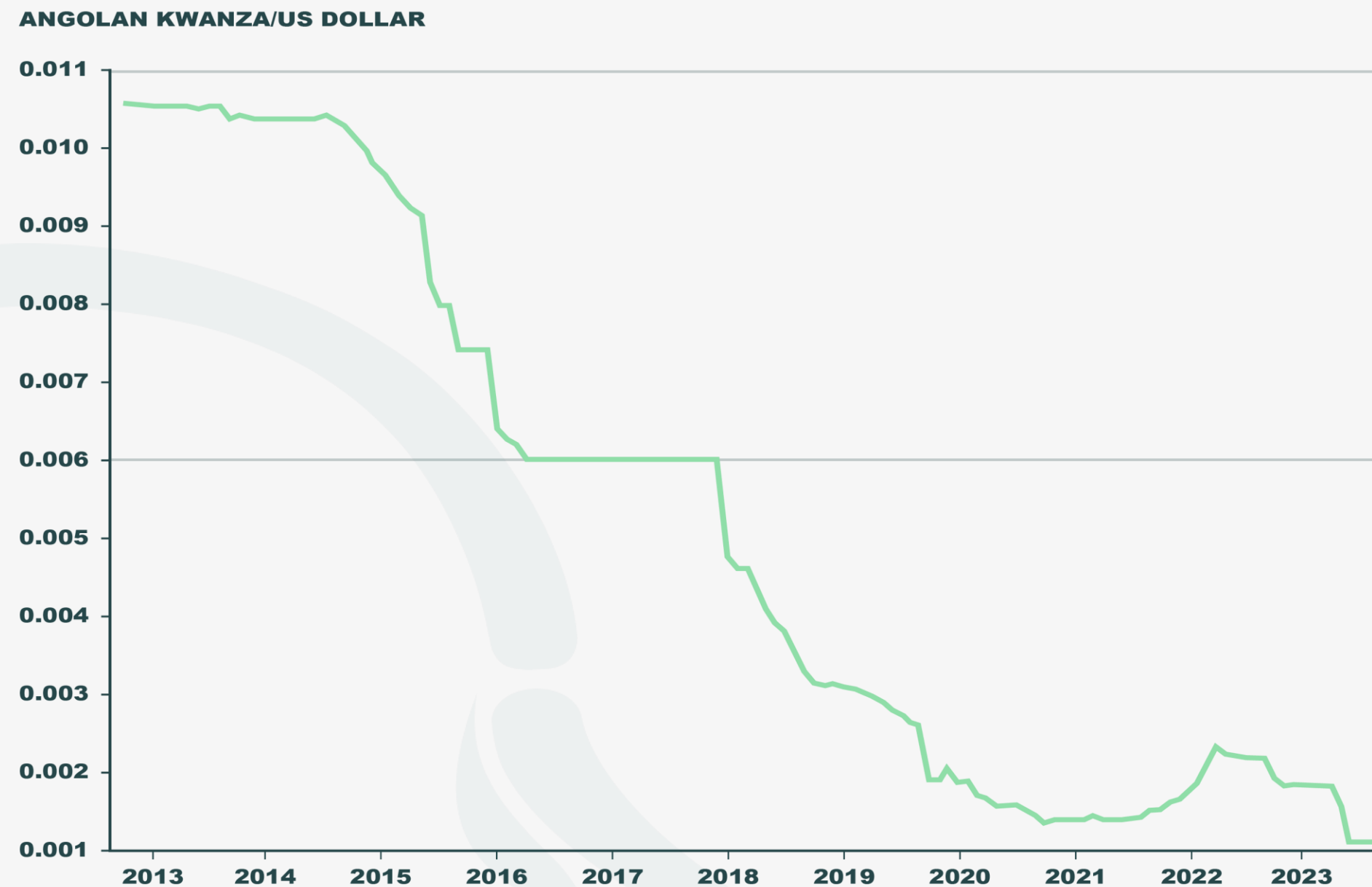




# Angola – Competitive Currency and Exploding Population Growth



— Economic conditions and policy favours local production for local markets



**Local production can compete with imports**

**Population drives food and fertilizer demand**



# Angola's Agricultural Potential

— Vast tracts of unoccupied arable land and no local manufacturing of fertilizer...until now

**36M**

Population

**57M ha**

Arable Land

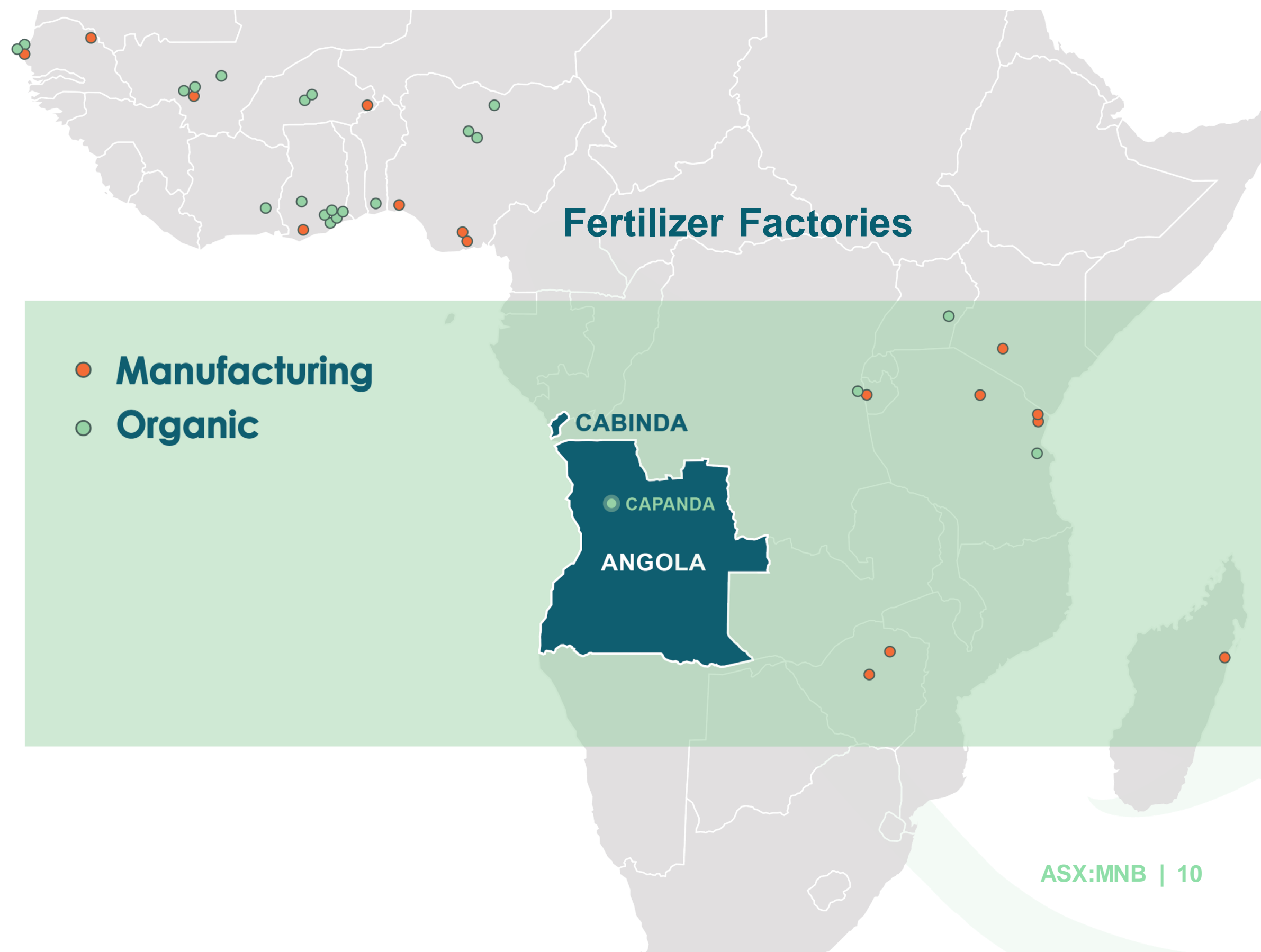
**5M ha**

Cultivated Land

- 1000-1500mm of rain per year
- Smallholder farmers are 90% of the land
- 50% of food imported
- 100% of fertilizers is imported

## IN 1970 ANGOLA WAS A LEADING FARMING NATION:

- World's fourth largest coffee producer
- Exporter of sisal, sugarcane, banana, cotton
- Self-sufficient in all food crops except wheat







# Cabinda Phosphate Project

P





**PROSPER** 





# Cabinda Phosphate

— Soft Rock Simplicity

## High

Phosphate grade 30.1%  $P_2O_5$ <sup>1</sup>

## High

Reactivity 8.7 to 9.5%  $P_2O_5$ <sup>2</sup>

## Longlife

Project 20-year mine life<sup>3</sup>

## Easy

Mining free digging

## Easy

Beneficiation organic product



<sup>1</sup>Proven and Probable Ore Reserve grade – refer to Minbos ASX release dated 17 October 2022 for further information  
<sup>2</sup>Cabinda phosphate rock contains ~31% total  $P_2O_5$  and 8.7 to 9.5%  $P_2O_5$  soluble in 2% citric acid – refer to Minbos ASX release dated 1st December 2022 for further information  
<sup>3</sup>Based on 2022 DFS results – refer Minbos ASX release dated 17 October 2022 for further information



# Rapid Progress since MIC signed in March 2021



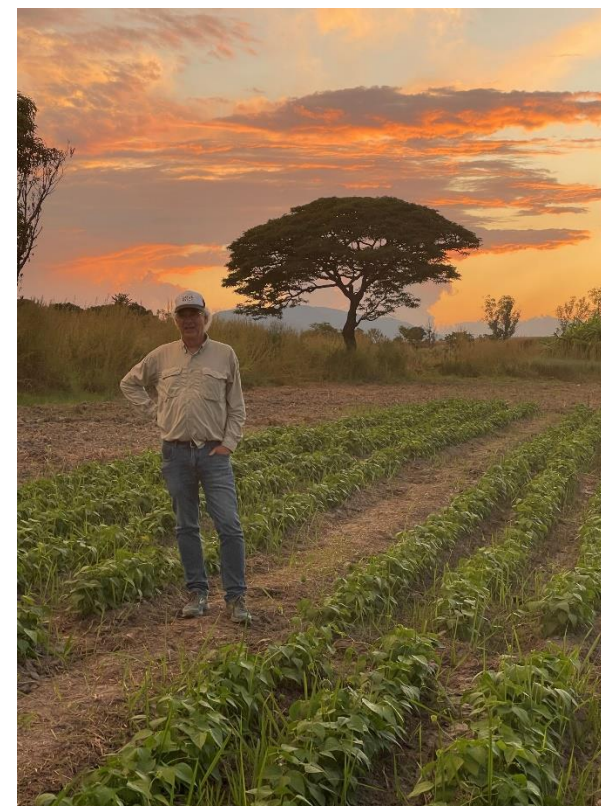
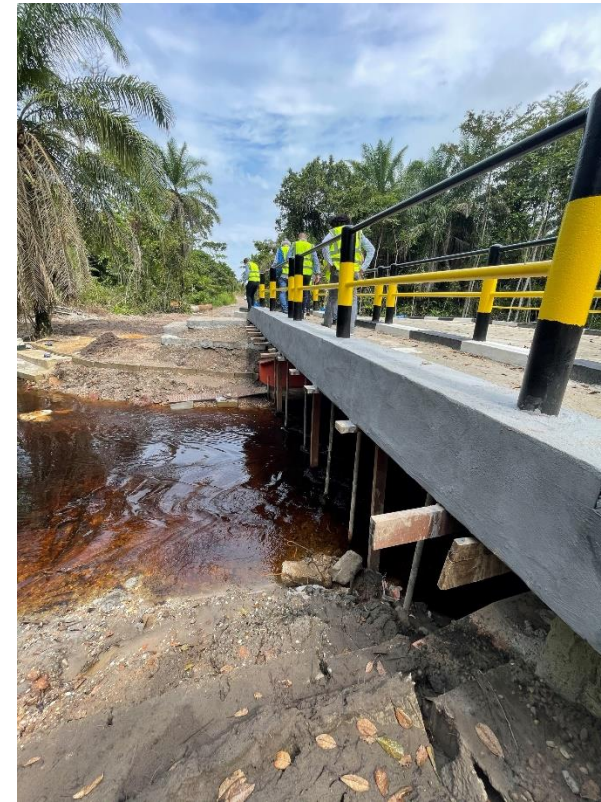
## — Production next year

- **Plant** - Ordered in July 2021
- **Mine** - Finalized the resource in Nov. 2021
- **Mine** - Bulk sample December 2021
- **Plant** - EPC Contractor March 2022
- **Mine** - DFS and Ore Reserves October 2022
- **Farm** - Season 4 field trials Dec 2022
- **Permit** - AIPEX Investment Contract Jan 2023
- **Plant** - Equipment delivered in March 2023
- **Permit** - Environmental Licences April 2023
- **Mine** - Mine access bridge April 2023
- **Port** - Port of Cabinda June 2023
- **Market** - Offtake signed July 2023

**Mine** - Mining starts early 2024

**Plant** - Foundations in December 2023

**Farm** - First application in 2024





# Cabinda Phosphate and Angola

— Designed for each other

## CABINDA PHOSPHATE NEEDS ANGOLA

- Acid Soils
- High Rainfall

## ANGOLA NEEDS CABINDA PHOSPHATE

- Low P
- High P-Fixing
- Smallholder Farmers





# Cabinda Phosphate and Angola

— Angola designed for Cabinda Phosphate

## CABINDA PHOSPHATE NEEDS ANGOLA

✓ Acid Soils <6 pH

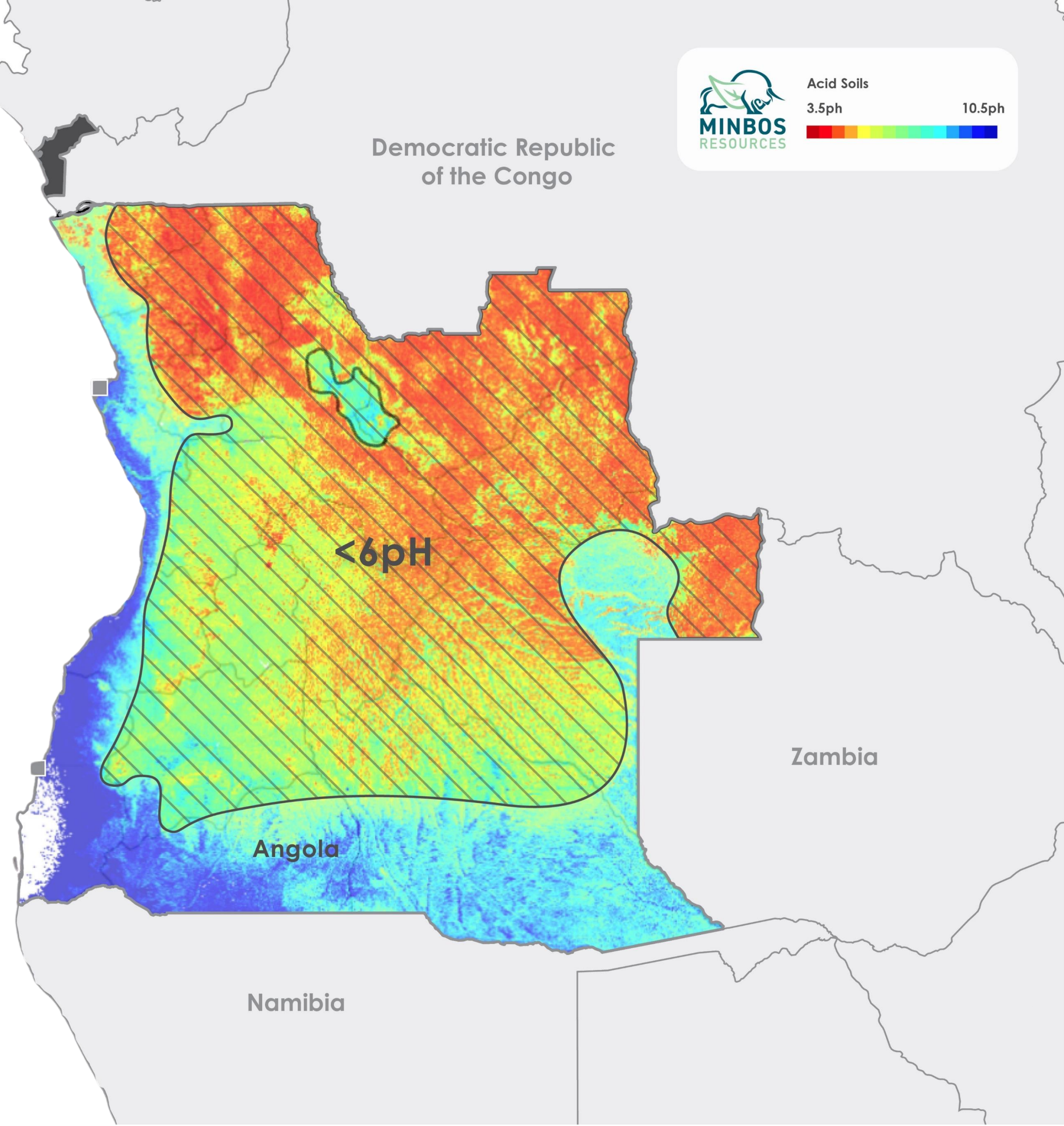
○ High Rainfall

## ANGOLA NEEDS CABINDA PHOSPHATE

○ Low P

○ High P-Fixing

○ Smallholder Farmers





# Cabinda Phosphate Needs Angola

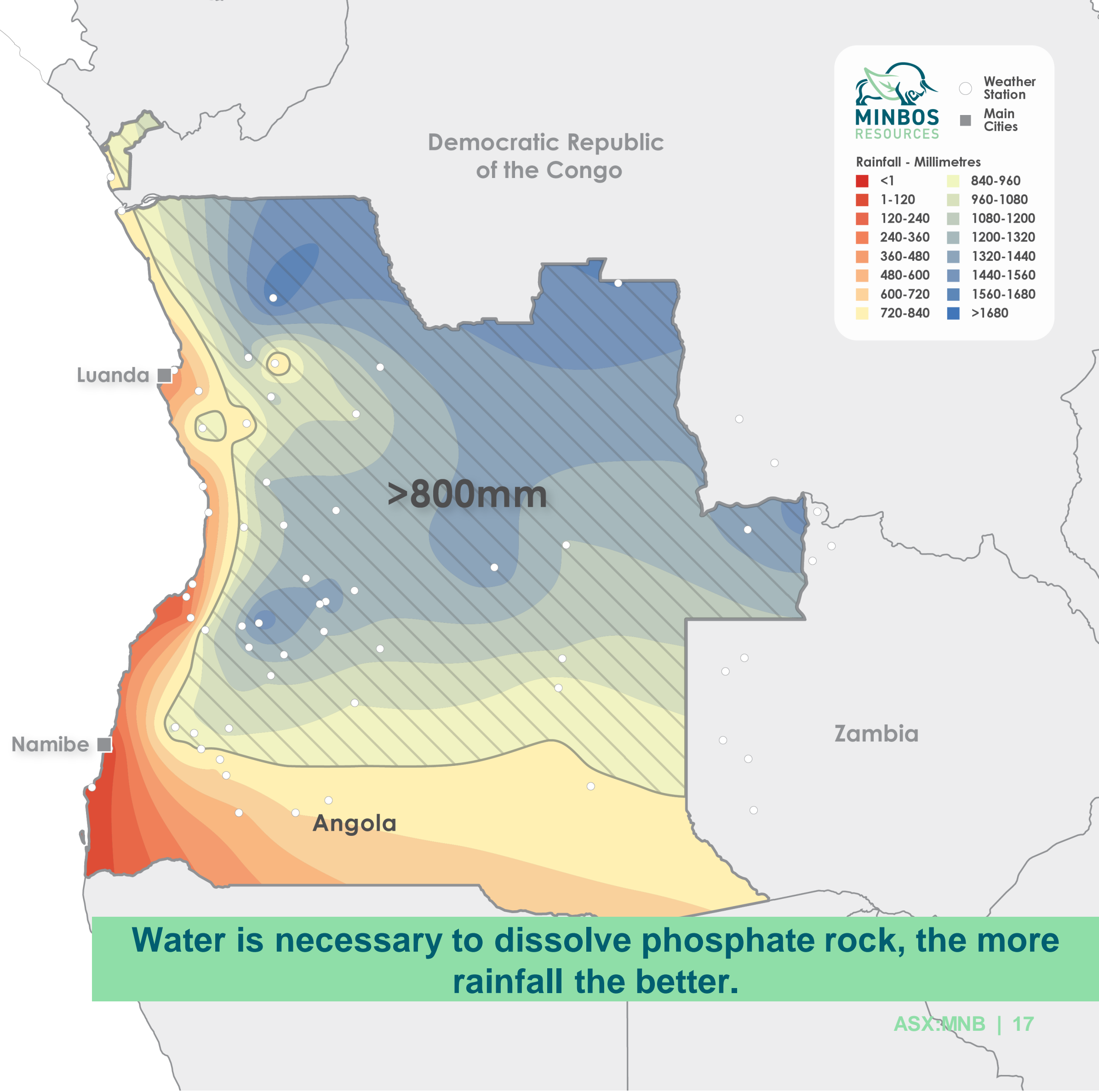
— Angola designed for Cabinda Phosphate

## CABINDA PHOSPHATE NEEDS ANGOLA

- ✓ Acid Soils
- ✓ High Rainfall > 800mm

## ANGOLA NEEDS CABINDA PHOSPHATE

- Low P
- High P-Fixing
- Smallholder Farmers





# Cabinda Phosphate and Angola

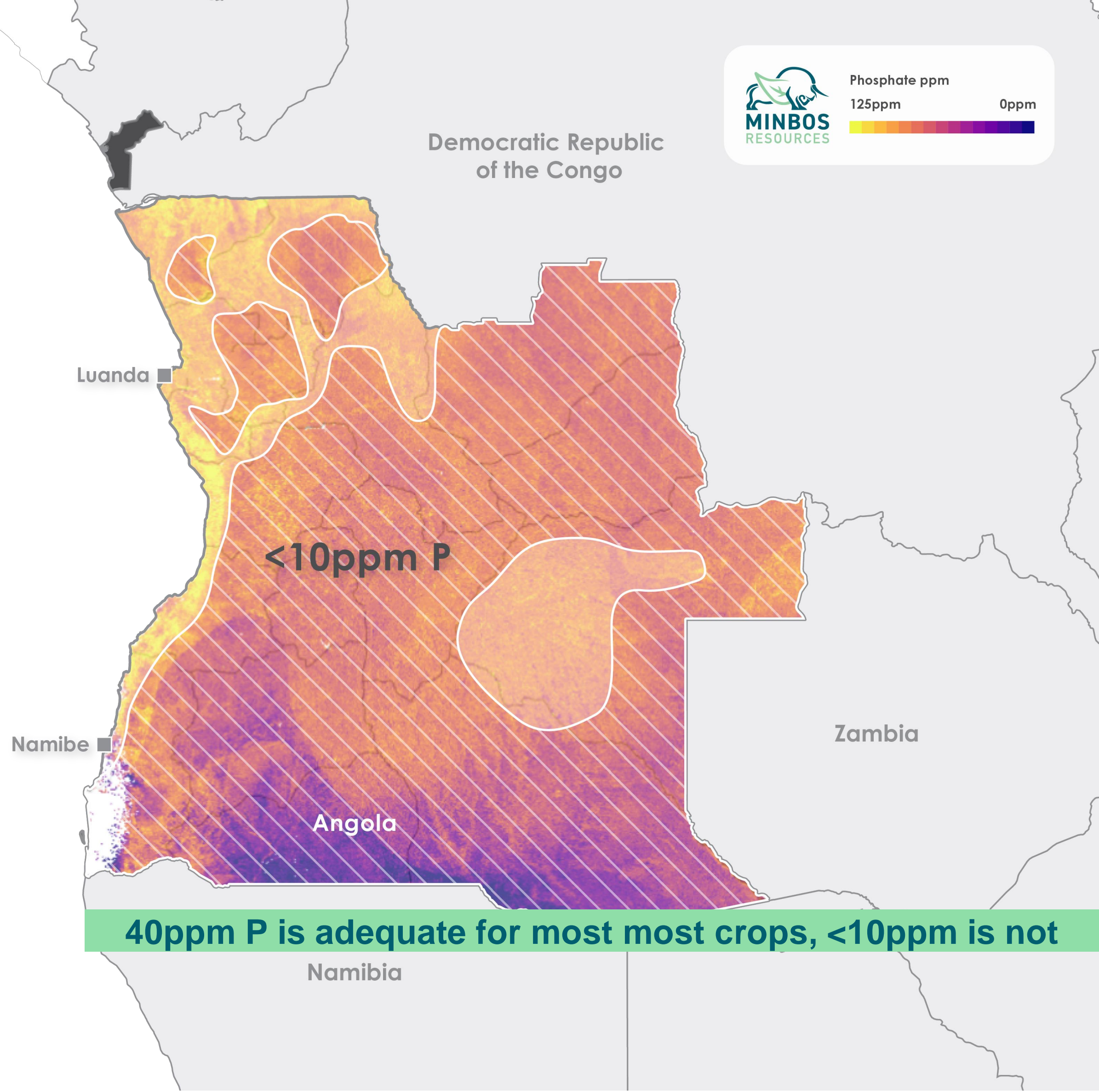
— Cabinda Phosphate designed for Angola

## CABINDA PHOSPHATE NEEDS ANGOLA

- ✓ Acid Soils
- ✓ High Rainfall

## ANGOLA NEEDS CABINDA PHOSPHATE

- ✓ Low P <10ppm
- High P-Fixing
- Smallholder Farmers





# Cabinda Phosphate and Angola

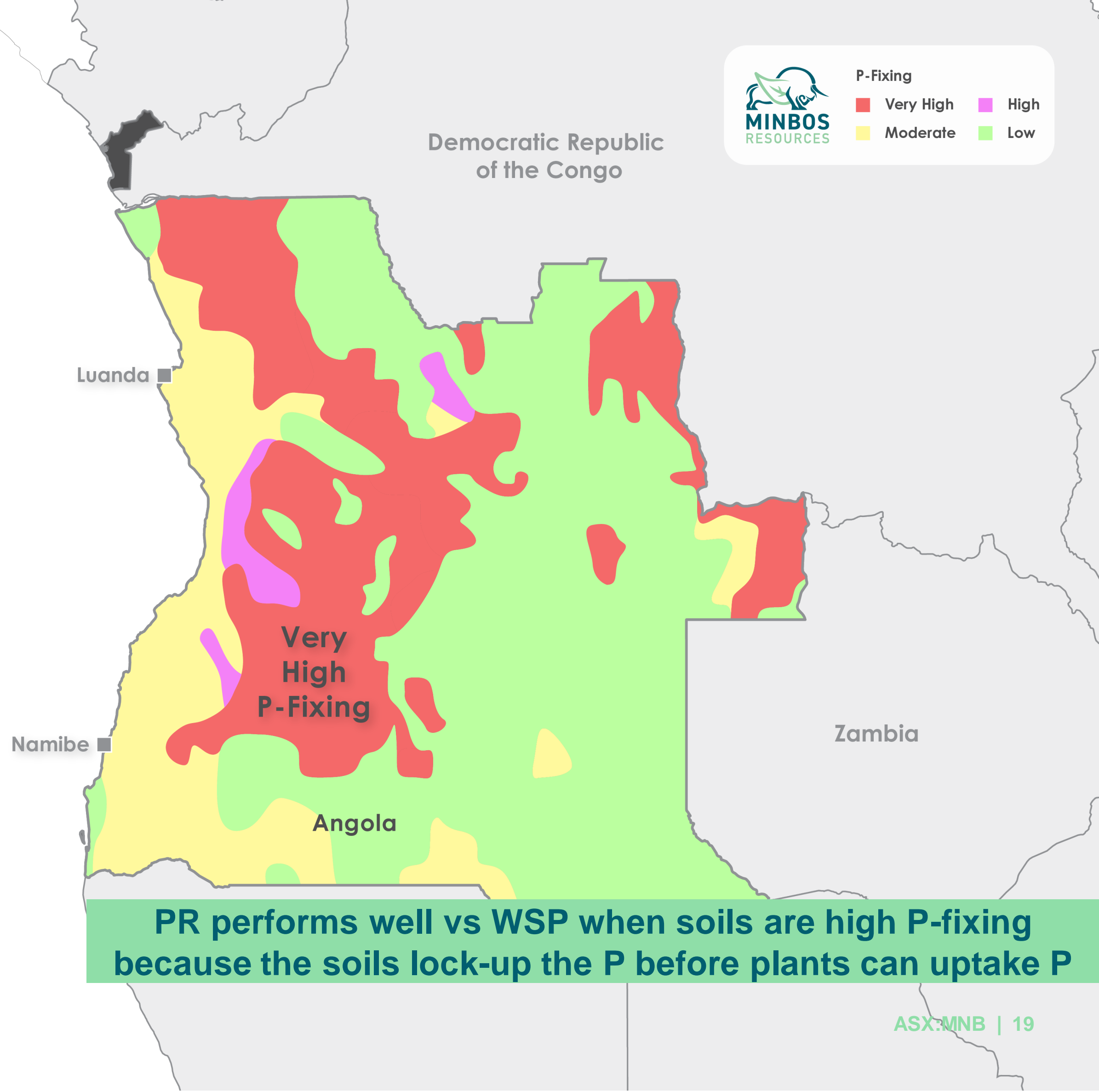
— Cabinda Phosphate designed for Angola

## CABINDA PHOSPHATE NEEDS ANGOLA

- ✓ Acid Soils
- ✓ High Rainfall

## ANGOLA NEEDS CABINDA PHOSPHATE

- ✓ Low P
- ✓ High P-Fixing
- Smallholder Farmers





# Cabinda Phosphate and Angola

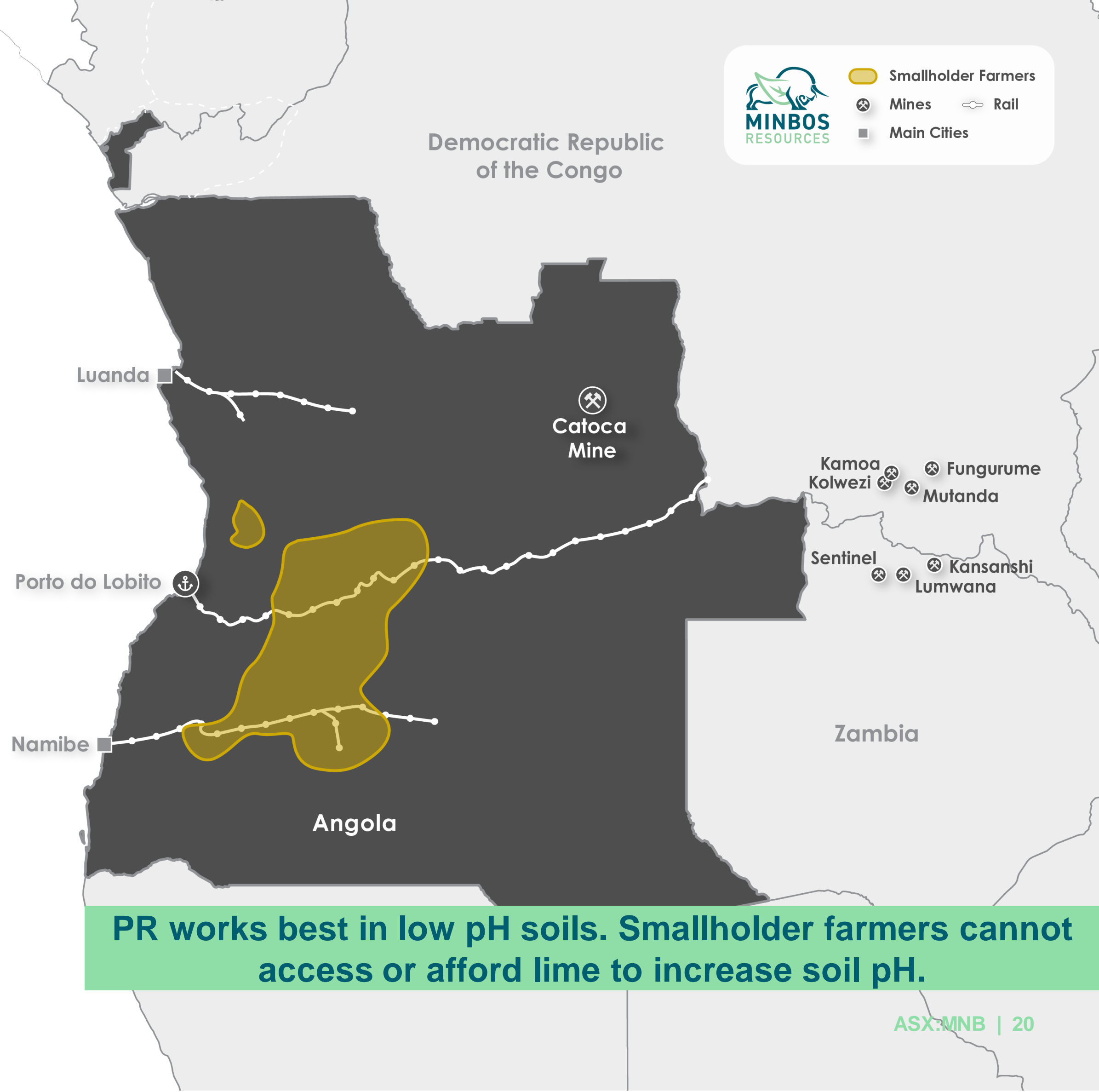
— Cabinda Phosphate designed for Angola

## CABINDA PHOSPHATE NEEDS ANGOLA

- ✓ Acid Soils
- ✓ High Rainfall

## ANGOLA NEEDS CABINDA PHOSPHATE

- ✓ Low P
- ✓ High P-Fixing
- ✓ Smallholder Farmers



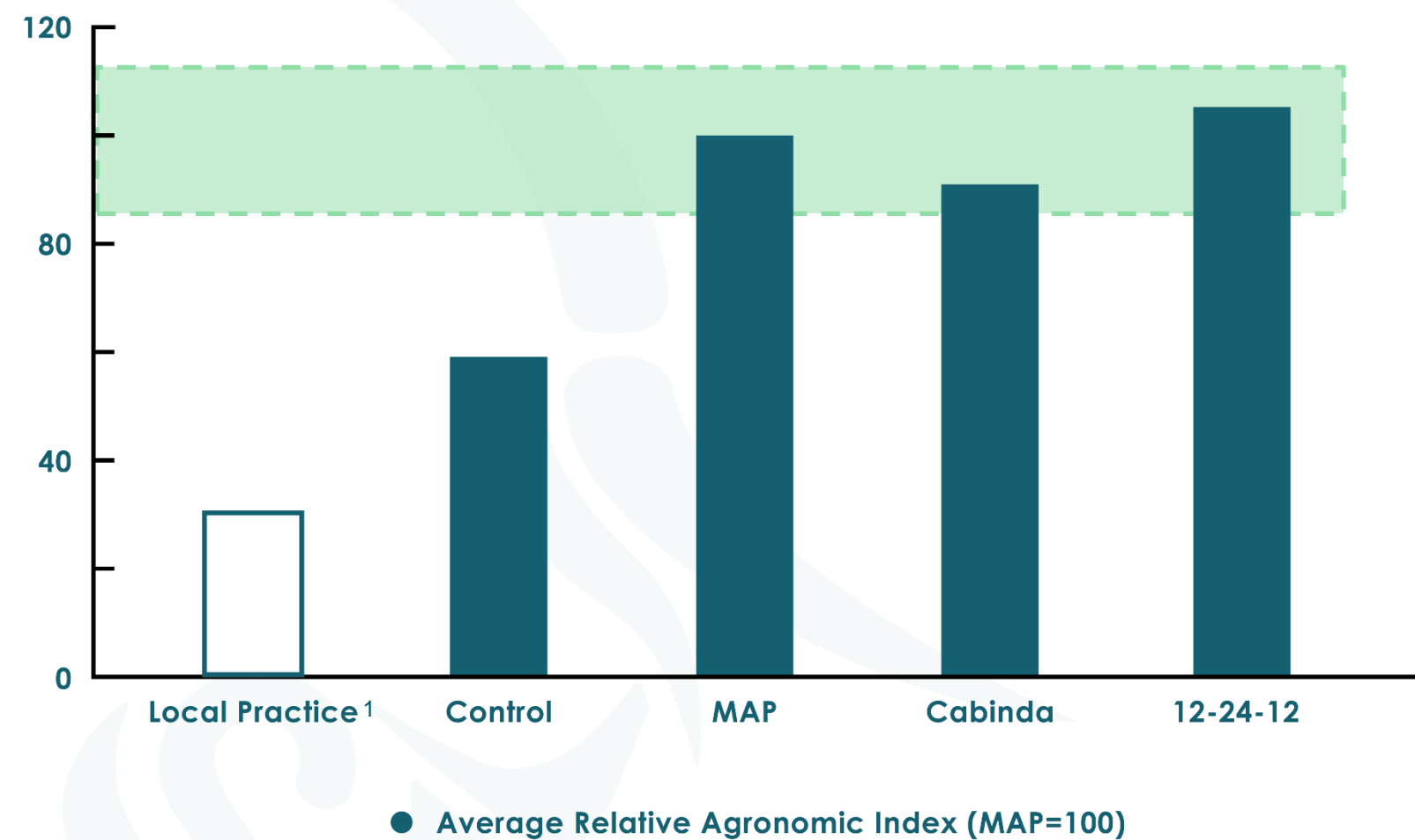


# Cabinda Phosphate Agronomic Trials

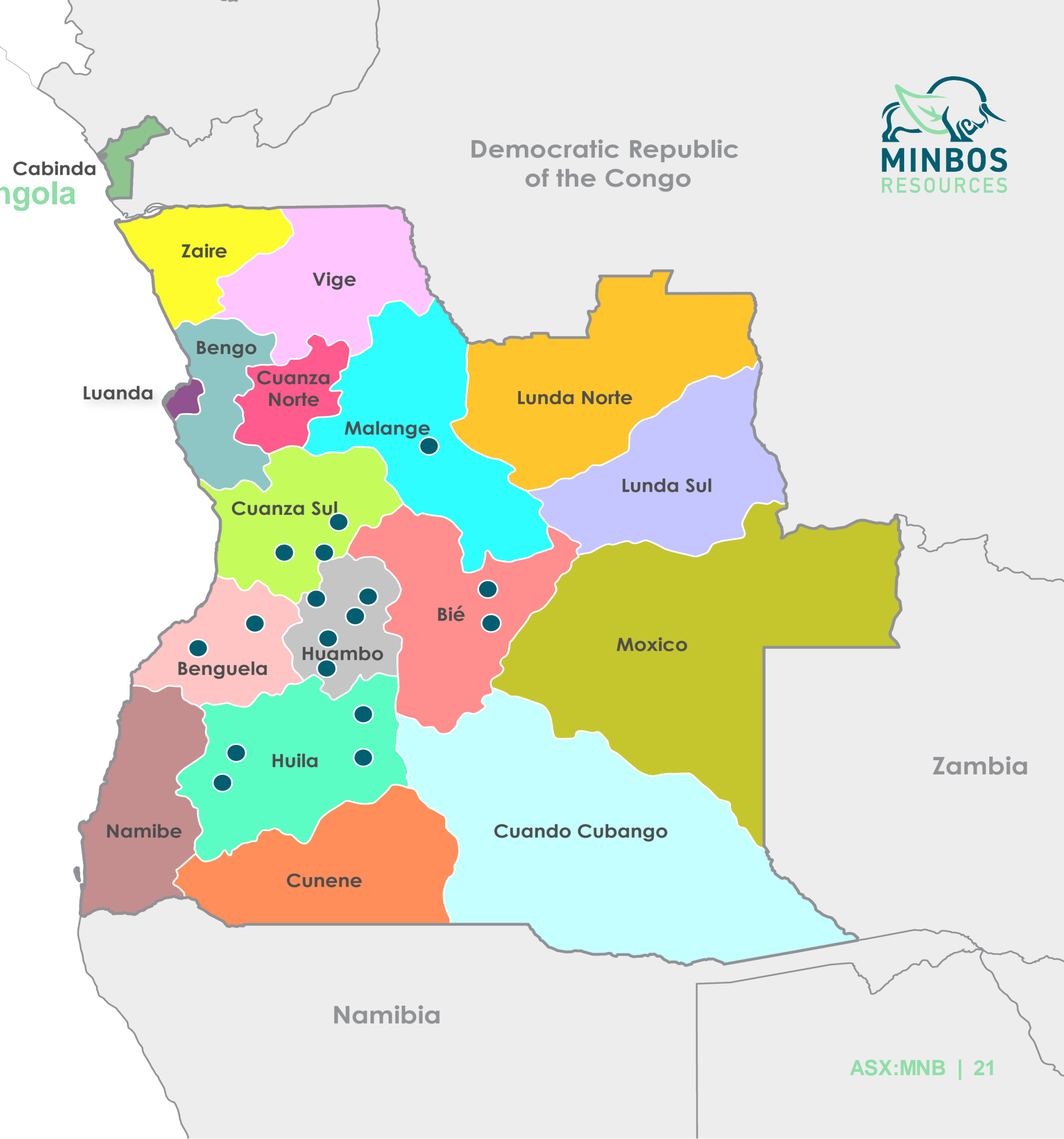
— More trials than any other organisation in history of Angola

Angolan Institute of Agronomic Investigation (IIA) has conducted field trials in six provinces since 2019.

**CABINDA PHOSPHATE ROCK performs almost as well as NPK across all trials in the first year. Better in some trials.**



<sup>1</sup>All treatments including the control easily outperformed reported local practice yields.



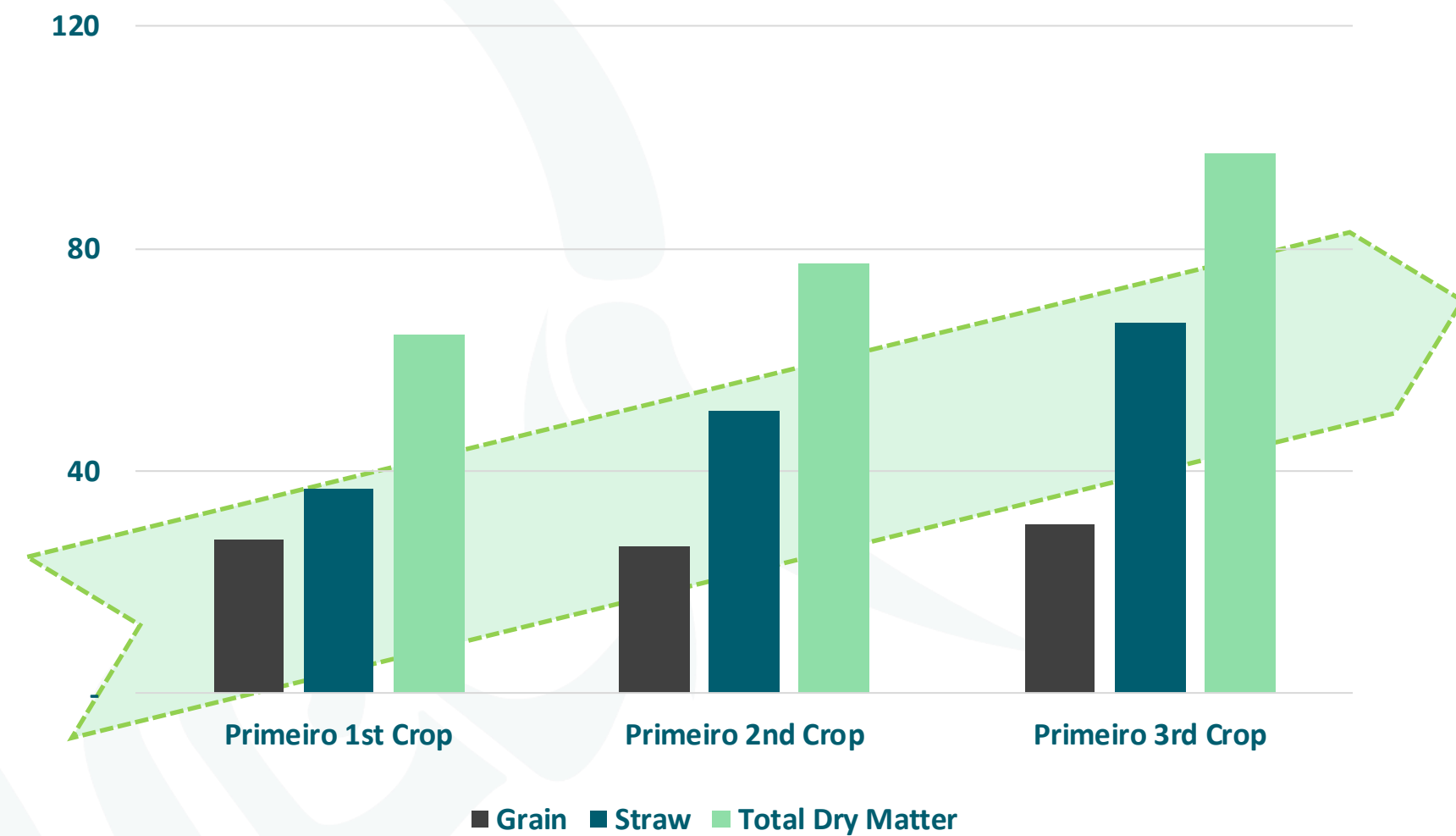


# Cabinda Phosphate Agronomic Trials

— Greenhouse trials with world renown IFDC

Greenhouse trials since 2017 at the International Fertilizer Development Centre (IFDC) in the USA.

**CABINDA PHOSPHATE ROCK a single application in Year 1 performs well, and even better in Years 2 and 3.**







# Biocom Sugar Plantation

Angola's  
largest farm

**PROFILE** 

**PREDICTED**

**RAE = 93%**



Minbos Field Trial



# Carrinho Offtake<sup>1</sup> is Critical

Carrinho closes the market buying surplus crop for cash

Surplus Buyer

**CARRINHO**

Credit Provider



Carrinho opens the market supplying credit for inputs including fertilizer



Fertilizer

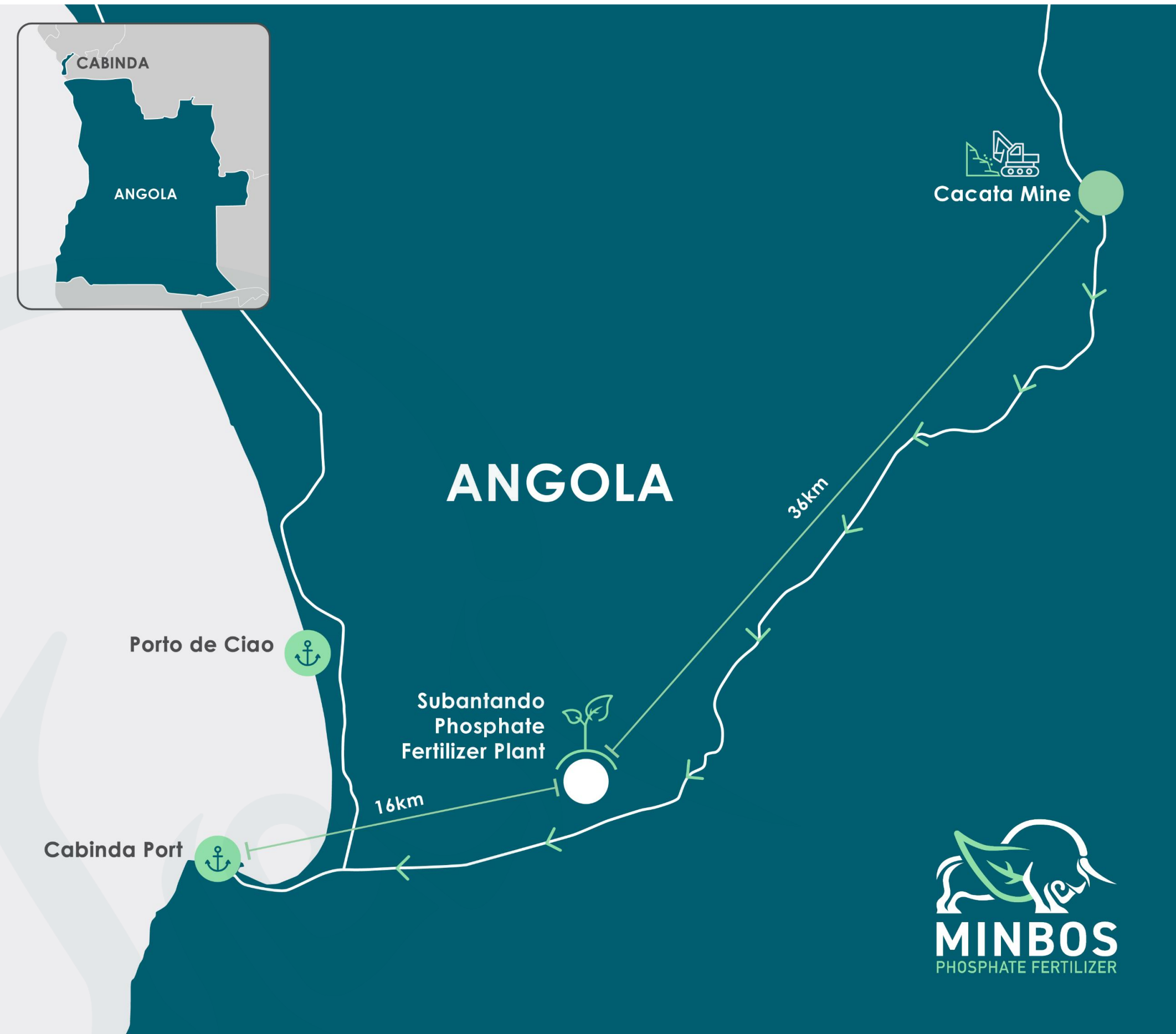
Seeds

<sup>1</sup>ASX Announcement - Offtake Agreement with Angola's largest food aggregator (19<sup>th</sup> July 2023)



# Physicals - Cabinda Phosphate Project

— High-grade Phosphate rock fertilizer mined and processed in Cabinda



- Cácata Ore Reserves<sup>1</sup> (JORC 2012):
  - Proven: 1.17 Mt at 30.5% P<sub>2</sub>O<sub>5</sub>
  - Probable: 3.54 Mt at 30.0% P<sub>2</sub>O<sub>5</sub>
- JORC Compliant Mineral Resource<sup>2</sup> (JORC 2012):
  - Measured: 2.2Mt at 29.9% P<sub>2</sub>O<sub>5</sub>
  - Indicated 4.76Mt at 29.7% P<sub>2</sub>O<sub>5</sub>
- Measured and Indicated Resource: 6.96Mt at 29.7% P<sub>2</sub>O<sub>5</sub>
- Mine life: 20 years
- Subantando Plant Capacity: 187,500 tpa (Stage 1)
- Cabinda Port redevelopment completed 2023
- Porto do Caio deep water port operational 2025

<sup>1</sup>ASX Announcement – DFS delivers compelling economics for Cabinda Phosphate Project (17 Oct 2022)





<sup>2</sup>ASX Announcement - Resource Update for High-Grade Cabinda Phosphate Project (23 Nov 2021)



# Financials - Cabinda Phosphate Project

— Compelling DFS<sup>1</sup> with only US\$26 million to spend to get into Production

## Definitive Feasibility Study

Scenario	Base Price Case (85%)		
Discount Rate	NPV \$USM	IRR	PAYBACK
 (REAL) <b>10%</b>	 (POST TAX) <b>203.2</b>	 (POST TAX) <b>39%</b>	 <b>4.8yrs</b>

PHYSICALS	UNIT	RESULT
Mine Life (Base-case)	Years	20
Plant Capacity (One Plant Capacity)	ktpa	150
Average head grade	P205	30.1%
Base-case fertilizer production	ktpa	236
Base-case average annual EBITDA	US\$M	55

<sup>1</sup>ASX Announcement - DFS delivers compelling economics for Cabinda Phosphate Project (17 Oct 2022)

<sup>2</sup>ASX Announcement - Simplified flowsheet delivers significant capex reduction for phosphate fertilizer plant (23 February 2023)



# Financials - Cabinda Phosphate Project

— Compelling DFS with only US\$26 million to spend to get into Production

## Key updates since DFS<sup>1</sup>

### 1) Stage 1 CAPEX savings<sup>2</sup>

- Simplified flowsheet has identified capital savings of ~ \$US10 million over the DFS<sup>2</sup>
- Fertilizer Plant has been fabricated and is currently onsite in Angola
- US\$26 million left to spend to get into production.

### 2) Stage 2 CAPEX savings

- CAPEX for Stage 2 expansion to double capacity on revised flow sheet has been estimated \$US1.7-3.3M (previously \$US28M in the DFS)<sup>3</sup>

### 3) New Plant site (Subantando) offers significant transport savings

- The distance from the mine to plant is reduced from 76km to 36km.
- The distance from the plant to the port is reduced from 28km to 16km.
- Reduced costs to hold and maintain site<sup>4</sup>

### 4) Stage 1 production capacity of 187,500tpa<sup>5</sup> mostly committed under Carrinho MOU<sup>6</sup> or current negotiation

YEAR	1	2	3	4	5	6	7
DFS Sales	10kt	92kt	102kt	110kt	130kt	157kt	181kt
Post Carrinho Sales	153kt	163kt	158kt	162kt	173kt	179kt	179kt

<sup>1</sup>ASX Announcement - DFS delivers compelling economics for Cabinda Phosphate Project (17 Oct 2022)

<sup>2</sup>ASX Announcement - Simplified flowsheet delivers significant capex reduction for phosphate fertilizer plant (23 February 2023)

<sup>3</sup>ASX Announcement - Minbos to Pursue Yellow Phosphorus Potential in Stage 2 (13 April 2023 and Amendment 17 April 2023)

<sup>4</sup>ASX Announcement - Minbos secures site for Cabinda Phosphate Plant (10<sup>th</sup> November (2022)

<sup>5</sup>ASX Announcement - Project and Funding Update (17<sup>th</sup> October 2023 and amendment 18<sup>th</sup> October 2023)

<sup>6</sup>ASX Announcement - Offtake Agreement with Angola's largest food aggregator (19<sup>th</sup> July 2023)



# DEBT FUNDING UPDATE

— Indicative Term Sheet for US\$14 million loan facility from the Industrial Development Corporation (IDC)



## Material terms of the debt proposal

- Interest rate is the Secured Overnight Financing Rate + 6.77% payable quarterly in arrears
- The term is the period commencing on the first drawing date and ending five years from such date
- Loan facility will be available for drawing until the terminal drawing date, 12 months from the date of approval
- Any undrawn portion may be cancelled immediately after the expiry of the Availability Period
- The Term Sheet is subject to due diligence which has commenced.

## IDC is a South African development finance institution established in 1940 to promote economic growth and industrial development

- Engagement with IDC provides other commercial opportunities for offtake for Stage 2 production (>200,000tpa) of beneficiated phosphate rock with South African customers
- Facility covers \$US14M of the US\$26 million to get into production







# Capanda Green Ammonia Project

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# The Ammonia Basics

## — The Existing Ammonia Economy

Haber-Bosch process combines hydrogen and nitrogen from fossil fuels or renewables to form ammonia

Global ammonia plants: 72% use natural gas and 22% use coal

## Ammonia second largest commodity chemical by volume

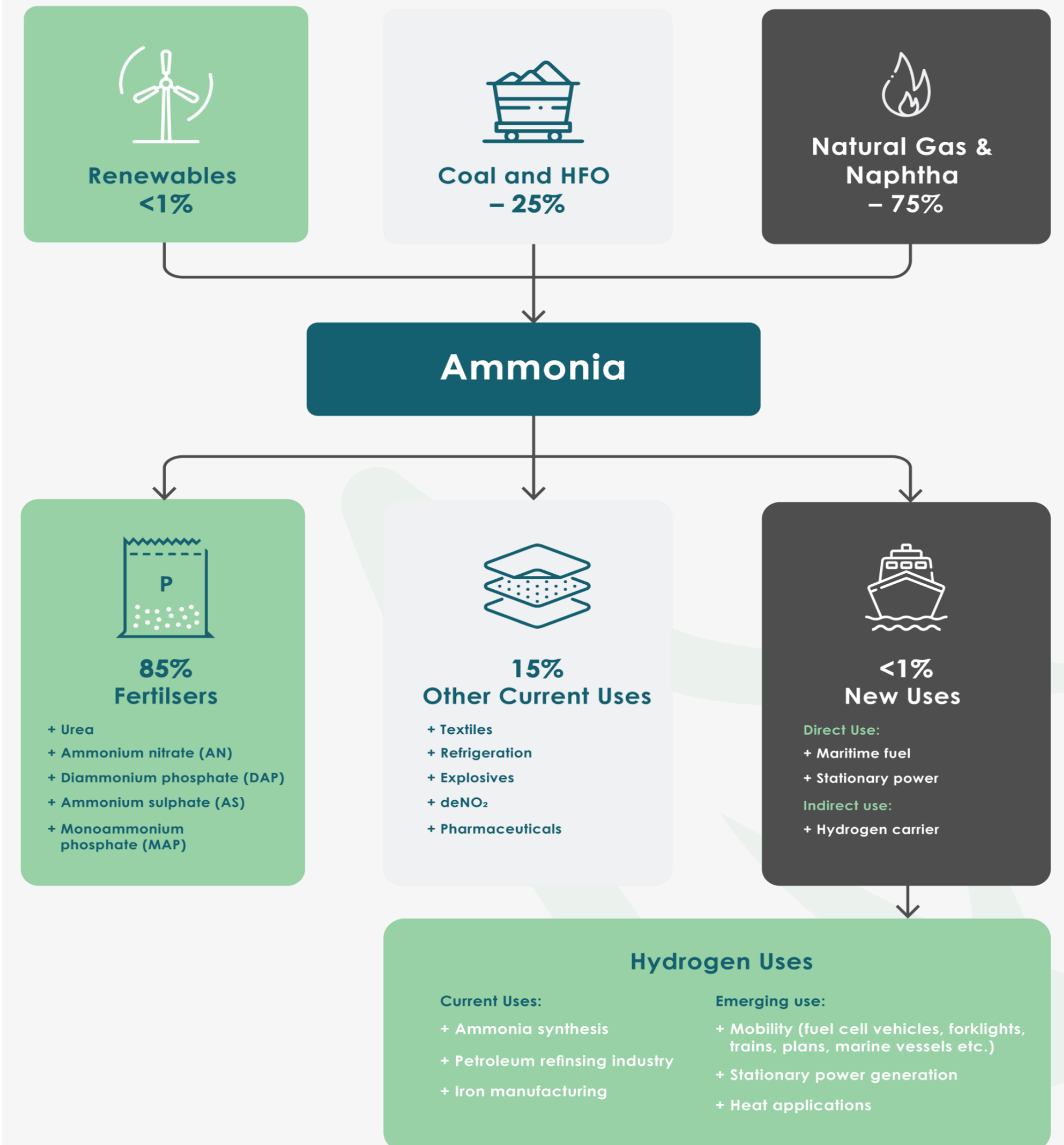
180 million metric tons (t) of ammonia is produced annually with 120 ports equipped with ammonia terminals

Key uses:

- Fertilisers: Nitrogen and phosphorus fertilisers
- Explosives: Ammonium nitrate-based explosives
- Industrial Chemicals: Nitrogen related industrial chemicals

## Carbon Intensity

- Ammonia production emits 0.5 gigatonnes (Gt) of carbon dioxide (CO<sub>2</sub>) annually (around 15-20% of total chemical sector emissions and 1% of global greenhouse gas emissions)





# The Green Ammonia Basics

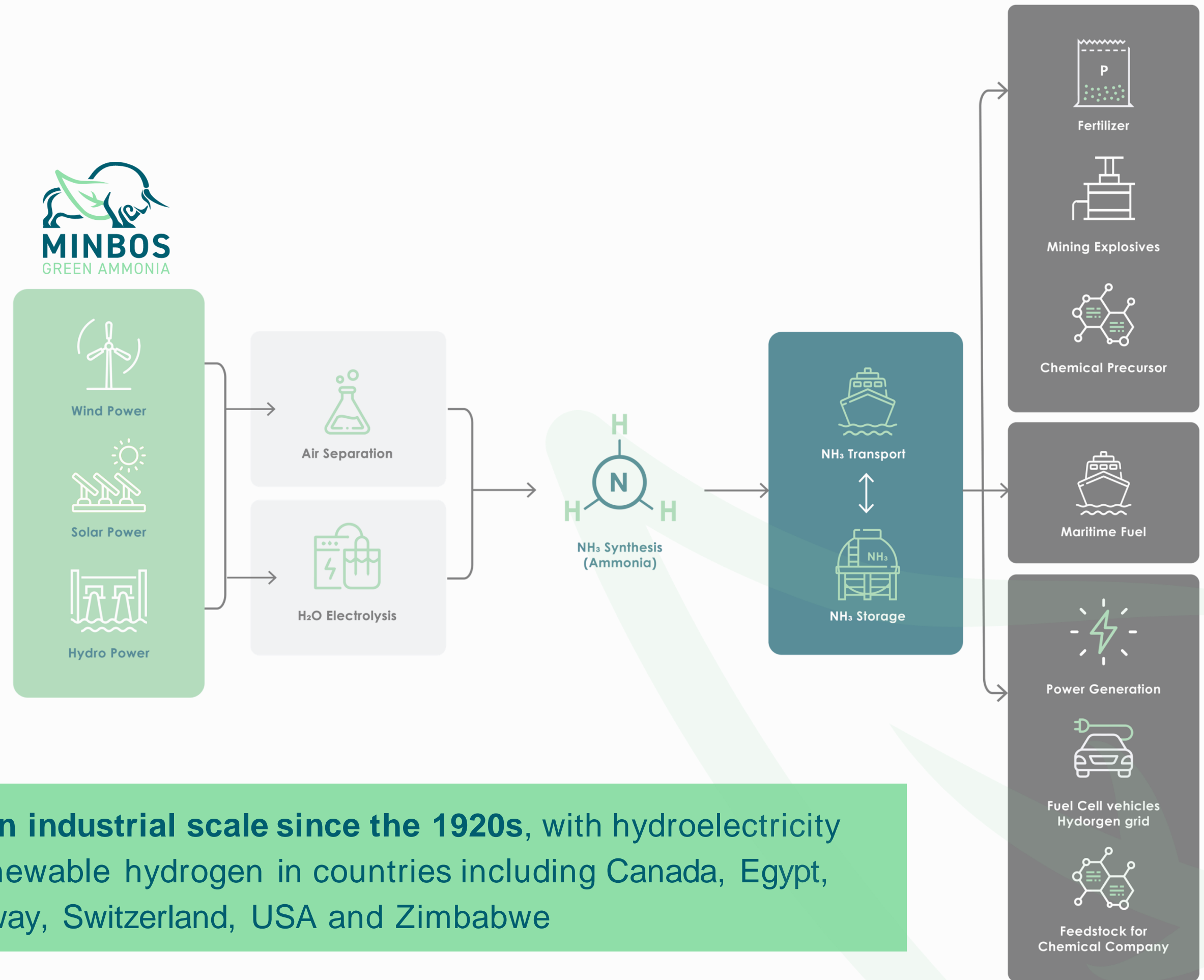
## — The Green Ammonia Economy

### Uses Renewable Electricity not Fossil Fuels.

- Renewable Electricity is used to produce Hydrogen from water and Nitrogen from air.
- The Hydrogen and Nitrogen are combined to produce ‘Green’ Ammonia.
- Green Ammonia is being targeted to replace stationary generation and transportation fuels, but the low hanging fruit are existing fertilizer and explosives markets.

### Zero Carbon

**Green Ammonia has been produced at an industrial scale since the 1920s, with hydroelectricity powering the Haber-Bosch process with renewable hydrogen in countries including Canada, Egypt, France, Iceland, India, Japan, S. Korea, Norway, Switzerland, USA and Zimbabwe**



<sup>1</sup>Smil, V., "Enriching the Earth – Fritz Haber, Carl Bosch, and the Transformation of World Food Production," The MIT Press, Cambridge, MA (Dec. 2000)



# Angola's Energy Advantage

— Large scale hydro the perfect input for Green Ammonia

## Angola's hydropower potential among the highest in Africa\*

- Top 10 Globally for new installed hydro capacity
- 2nd highest producer of hydropower in Africa

## Minbos Secures 200MW Of The Cheapest, Greenest Power Globally

MOU with Angolan power authority (RNT-EP) secured 200MW of Zero-Carbon hydroelectrical power:

- Initial 100MW at US \$0.4c/kWhr for 5 years, US \$0.8c/kWhr for 20 years and subsequent 100MW at US \$1.5c/kWhr for 25 years
- Electricity price of US \$1.0c/kwh megawatt-hour makes Green Ammonia competitive with \$2.50GJ gas -based ammonia

Power concession delivers one of the most compelling green projects globally, with other advantages including:

- Long-term power security (25-year offtake) & No upfront capital costs saving billions in CAPEX and a decade of feasibility studies

Source: The International Hydropower Association, 2021 Hydropower Status Report (June 2021)





# Africa Inland Premium

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

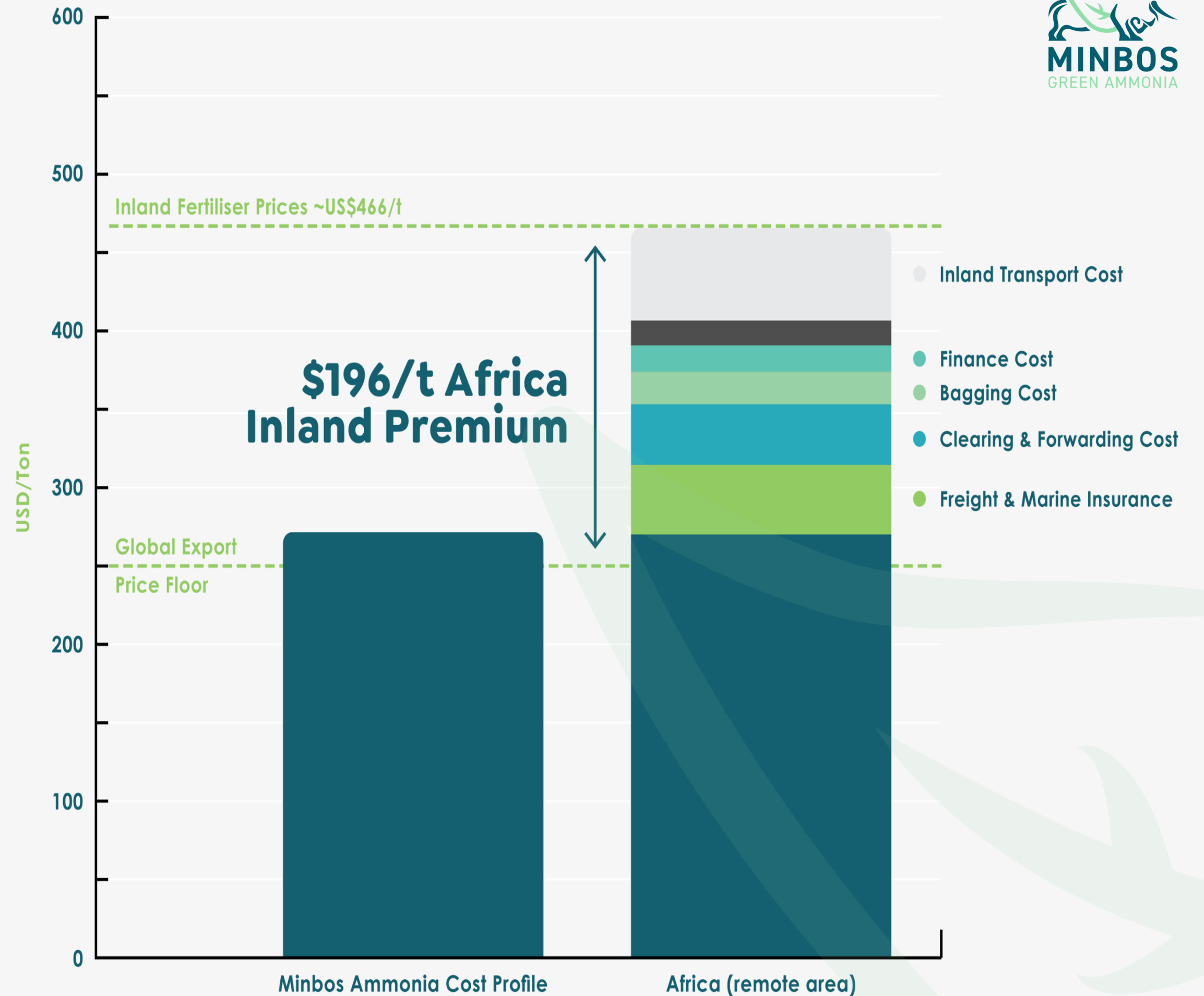
## What makes our Project Competitive

- Cheap Electricity
- High quality water
- Markets at the Factory Gate

## Africa Inland Premium\*

- Producing Ammonia and its derivative products proximal to inland markets eliminates significant delivery costs.
- Capanda is located 300km closer to agricultural markets and 1000km closer to mining markets than the entry ports for competing products.

Source: Stamicarbon CAN analysis derived from AFAP/IFDC





# Technical Study Stamicarbon

— One of the most promising green ammonia projects globally

## Key Study Outcomes

- 200MW of available power would power 172MW of average rated equipment capacity and the production of:
  - ~320 Metric Tonnes Per Day (MTPD) of Green Ammonia to produce the following finished products:
    - ~730 MTPD of Low-Density Ammonium Nitrate (LDAN) for use in mining explosives, or
    - ~980 MTPD of Calcium Ammonium Nitrate (CAN) for use in the local fertilizer industry.
- CAPEX of EUR 365 M – EUR 496 M (midpoint EUR 432M).
- OPEX \$US115-165/t
- The Electrolyser Unit and Ammonia Units makes up approximately 50% of the CAPEX and over 90% of the OPEX.

## Success Parameters

- ✓ Availability of electricity
- ✓ Electricity price
- ✓ Local cost of fertilizer
- ✓ Proximity to market
- ✓ Economies of scale





# Adding Scale with Strategic Partnerships

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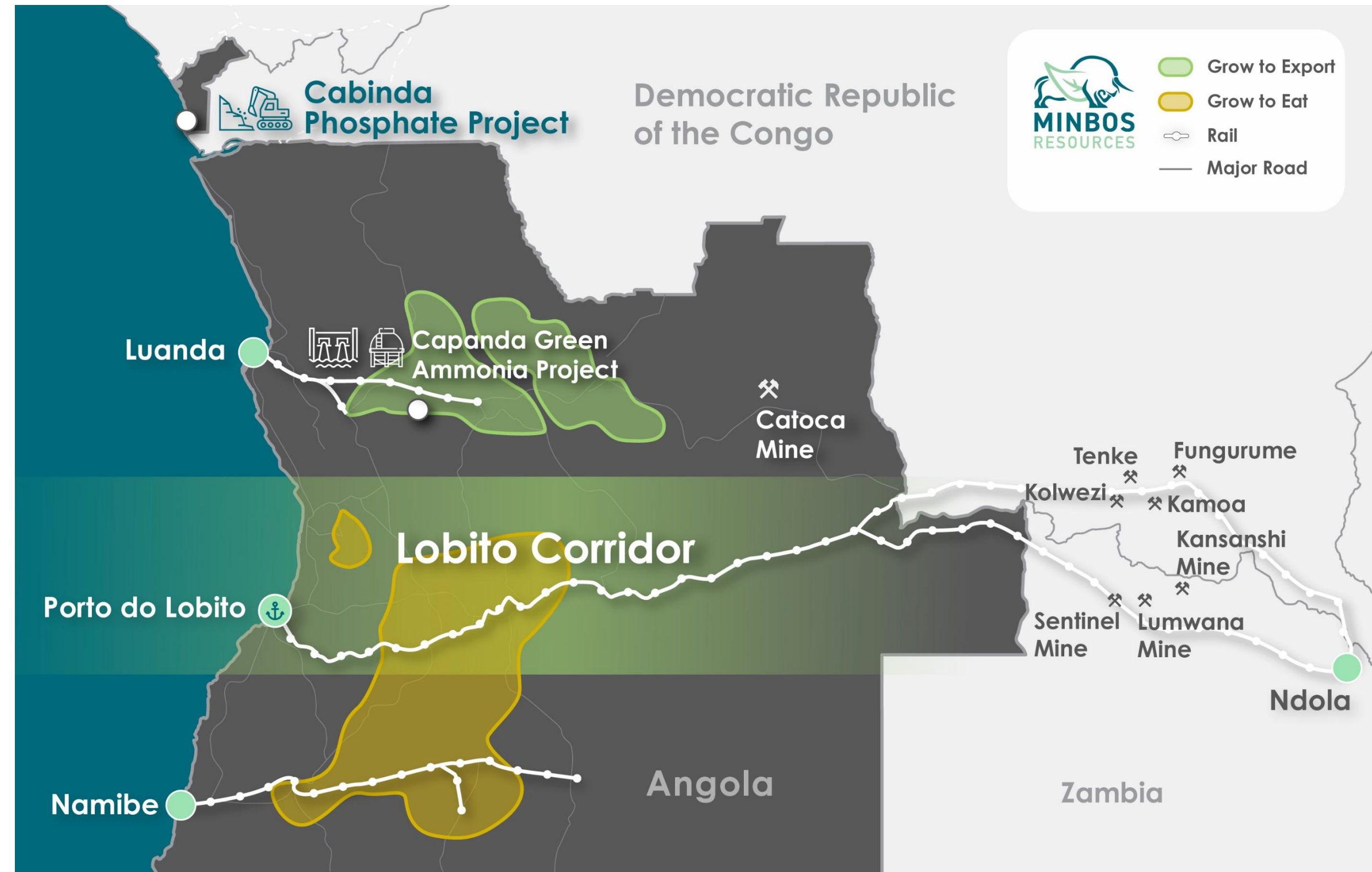




# Ammonium Nitrate for the Mining Sector

## — Lobito Corridor unlocks the de-carbonised explosives market

- November 2022: Trafigura, Mota-Engil and Vecturis signed a 30-year concession for the Lobito railway committing USD450M
- October 2023: The USA, EU, AFC, AfDB and the host governments of Zambia, DRC and Angola signed a funding MOU for the wider Lobito Corridor committing USD1.6B



Capanda Green Ammonia has a 1000km freight advantage to mines in the western Copperbelt consuming 200,000tpa of Ammonium Nitrate and increasing.



# Yellow Phosphorus (P<sub>4</sub>) for LiFeP Batteries

— Potential to double the scale of the Cabinda Project

## ALL THE ELEMENTS FOR LOW-COST LOW-CARBON P<sub>4</sub>

1. Medium Grade Phosphate Rock is preferred
2. Angola has 1.9c/kWhr hydro electricity, to power the furnace
3. Factory Location available in an Economic Free Zone

## MNB MAJOR SHAREHOLDER JAYSON NEW ENERGY MINERALS

1. Founded by the chairmen of CATL and Shanghai Putailia,
2. Looking to supply low carbon P<sub>4</sub> to European customers
3. Confirmed Cabinda Rock is suitable for P<sub>4</sub> production
4. Reviewing Bechtel Concept Study

**The EU classifies Yellow Phosphorus as a critical mineral and imports 100% of its needs. A large range of EU industrial sectors are dependent on P<sub>4</sub> and P<sub>4</sub> derivatives\***

\*European Commission: Critical Raw Materials Resilience: Charting a Path towards greater Security and Sustainability (September,2020)





# Export Opportunity - Porto do Caio Deepwater Development 2025

— Enquiries for 200,000tpa for regional export as an alternative to Yellow Phosphorus

## Key Considerations

- 8.4Mt total Mineral Resource (Measured + Indicated + Inferred)<sup>1</sup>
- 4.7Mt of Ore Reserves (Proven and Probable) utilised in DFS mine plan<sup>2</sup>
- Dry beneficiation of a bulk sample in 2017 upgraded Cacata ore from 30.5% to 33-34% with a mass recovery of 81-88% and P<sub>2</sub>O<sub>5</sub> recovery of 86-91%<sup>3</sup>
- Porto do Caio deepwater port is scheduled for operation in 2025 and is designed to accept Panamax size vessels.

With reference to the above statements, Minbos notes the following:

- The 2021 Cácata Mineral Resources have been classified and reported at a 19% P<sub>2</sub>O<sub>5</sub> cut-off grade on the basis of using Cácata Phosphate Rock for the production of phosphate fertilizer
- Mineral Resources are not Ore Reserves and do not have demonstrated economic viability, nor have any mining modifying factors been applied
- Minbos has yet to undertake any test work or economic evaluation to determine the viability of Cácata Phosphate Rock in the production of P<sub>4</sub>
- Resource Update for High-Grade Cabinda Phosphate Project – ASX Announcement dated 23 November 2021

### Mineral Resource Statement Cácata Phosphate Project as of 31 October 2021

Resource Update for High-Grade Cabinda Phosphate Project – ASX Announcement dated 23 November 2021

Classification	Cut-Off Grade (P <sub>2</sub> O <sub>5</sub> )	Tonnes (Mt)	P <sub>2</sub> O <sub>5</sub> (%)	Contained P <sub>2</sub> O <sub>5</sub> (%)	Density	Ca:P <sub>2</sub> O <sub>5</sub> ratio
Measured	19.0	2.20	29.9	0.66	1.83	1.48
Indicated	19.0	4.76	29.7	1.41	1.84	1.46
Measured + Indicated	19.0	6.96	29.7	2.07	1.84	1.47
Inferred	19.0	1.45	29.5	0.43	1.58	1.46

### Cácata Phosphate Mine Ore Reserve Statement as at September 2022

DFS Delivers Compelling Economics for Cabinda Phosphate Project- ASX announcement dated 17th October 2022

Classification	Tonnes (Mt)	P <sub>2</sub> O <sub>5</sub> (%)
Proven	1.17	30.5
Probable	3.54	30.0
Total (Proven + Probable)	4.71	30.1

<sup>1</sup>Minbos ASX release dated 23 November 2021 for further information

<sup>2</sup>Minbos ASX release dated 17 October 2022 for further information

<sup>3</sup>Minbos ASX released dated 6 February 2017 for further information





Angola has  
Land,  
Water,  
Renewable  
Energy, and  
Youth



**GROWING AN AFRICAN NUTRIENT BUSINESS  
WITH SUSTAINABLE BY-PRODUCT  
BUSINESSES.**



# Risk Factors



## Risks with Operating in Angola

The Company operates out in Angola, a country that has been the subject to civil unrest in the recent past. The Company believes that although tensions have eased considerably, civil and political unrest and an outbreak of hostilities remains a risk in jurisdictions like Angola.

Historically, there has also been a relatively high level of corruption in Angola, especially in the extractive industries. This corruption often influences the awarding of contracts or the granting of licenses. Furthermore, Angola does not have laws that specifically address corruption, bribery and conflict of interest.

Other possible sovereign risks include, without limitation: changes in the terms of the relevant mining statutes and regulations; changes to royalty arrangements; changes to taxation rates and concessions; changes in the ability to enforce legal rights; and expropriation of property rights.

Any of these factors may, in the future, adversely affect the financial performance of the Company and the market price of its shares.

No assurance can be given regarding the future stability in these or any other country in which the Company may have an interest.

## The Legal Environment in Angola

The Company's projects are located in Angola. Angola is considered to be a developing country and is subject to emerging legal and political systems as compared with the system in place in Australia. This could result in the following risks: political difficulties in obtaining effective legal redress in the courts whether in respect of a breach of law or regulation or in an ownership dispute; a higher degree of discretion held by various government officials or agencies; the lack of political or administrative guidance on implementing applicable rules and regulations, particularly in relation to taxation and property rights; inconsistencies or conflicts between and within various laws, regulations, decrees, orders and resolutions; or relative inexperience of the judiciary and court in matters affecting the Company.

## Changes in Government Policy

Adverse changes in government policies or legislation in Angola and other jurisdictions in which the Company may operate from time to time affecting foreign ownership of mineral interests, taxation, profit repatriation, royalties, land access, labour relations, and mining and exploration activities may affect the operations of the Company. It is possible that the current system of exploration and mine permitting in Angola may change, resulting in impairment of rights and possibly expropriation of the Company's properties without adequate compensation. In addition, there is a possibility that the Company's agreements with governments or joint venture partners may be unenforceable against such parties.

## Lack of Specific Infrastructure

The Company's projects are located in areas of Angola that generally lack some specific infrastructure. The lack of availability of this infrastructure may impact the Company's future operations and feasibility of its projects.

The Company also needs to locate required adequate supplies and obtain necessary approvals from national, provincial and regional governments, none of which can be assured.

## Workforce and labour risks

The skill base of the local labour force in Angola is extremely limited. There is a severe shortage of workers with good managerial or technical skills.

HIV/AIDS, malaria and other diseases represent a serious threat to maintaining a skilled workforce in the mining industry throughout Africa. HIV/AIDS, malaria and other diseases are a major healthcare challenge faced by the Company's operations in Angola. There can be no assurance that the Company will not lose members of its workforce, workforce man hours or incur increased medical costs which may have a material adverse effect on the Company's operations.

Also given the current high level of activity in the global mining industry, Minbos may be unable to source personnel and equipment to meet its objectives.

## Operating Risks

The operations of the Company may be affected by various factors, including failure to locate or identify mineral deposits, failure to achieve predicted grades in exploration and mining, operational and technical difficulties encountered in mining, difficulties in commissioning and operating plant and

equipment, mechanical failure or plant breakdown, unanticipated metallurgical problems which may affect extraction costs, adverse weather conditions, industrial and environmental accidents, industrial disputes and unexpected shortages or increases in the costs of consumables, spare parts, plant and equipment.

## Commodity Price Volatility and Exchange Rate Risks

If the Company achieves success leading to mineral production, the revenue it will derive through the sale of phosphate rock and potential later sales of other fertilizer products, exposes the potential income of the Company to commodity price and exchange rate risks. Commodity prices fluctuate and are affected by many factors beyond the control of the Company. Such factors include supply and demand fluctuations for fertilizer inputs, technological advancements, forward selling activities and other macro-economic factors.

## Environmental Risks

The operations and proposed activities of the Company are subject to the laws and regulations of Angola concerning the environment. As with most exploration projects and mining operations, the Company's activities are expected to have an impact on the environment, particularly if advanced exploration or mine development proceeds. It is the Company's intention to conduct its activities to the highest standard of environmental obligation, including compliance with all environmental laws.

## Construction Costs

In August 2020, the Company released a Scoping Study for the Cabinda Phosphate Project, which included an estimate for the construction of a Granulation Plant. The Company is currently completing a Definitive Feasibility Study that will revise this estimate. There are risks with all construction projects that material costs will rise. Additionally, it is likely that the COVID-19 (Coronavirus) pandemic will generate new and/or increased costs, such as its impact on global supply chains and on workforce, that will result in higher costs of construction.

## Green Ammonia and other new projects

The Company's proposed green ammonia project is at an early stage of development and consideration by the Company. The ability to commercialise this project (and other new ventures) is subject to the Company's completing feasibility studies, securing finance and obtaining binding agreements/approvals with local companies and government authorities in Angola. There is no guarantee that the Company will be able to adequately execute on these endeavours and, as early stage projects, they carry a considerable amount of risk.

## Additional Requirements for Capital

The Company's capital requirements depend on numerous factors. Depending on the Company's ability to generate income, the Company will require further financing. Any additional equity financing will dilute shareholdings, and debt financing, if available, may involve restrictions on financing and operating activities.

If the Company is unable to obtain additional financing as needed, it may be required to reduce the scope of its operations and scale back its development programmes as the case may be. There is no guarantee that the Company will be able to secure any additional funding or be able to secure funding on terms favourable to the Company.

## General Risk Factors

In addition to the above, the Company is also exposed to general risk factors that apply to nearly all ASX listed entities including share market volatility and other economics factors that are outside the Company's control.

## Speculative Investment

Potential investors should consider that the investment in the Company is speculative and should consult their professional advisers before deciding whether to invest.

The above list of risk factors ought not to be taken as exhaustive of the risks faced by the Company or by investors in the Company. The above factors, and others not specifically referred to above, may in the future materially affect the financial performance of the Company and the value of the Company's shares.





**MINBOS**