# Investor Presentation

December 2021



PHOSPHATE | GREEN AMMONIA | NPK FERTILIZER | CARBON

Minbos Resources Limited

# COMPETENT PERSON'S STATEMENT

The Competent Person with responsibility for the total Mineral Resources of this report is Mrs Kathleen Body, Pr. Sci. Nat, who is an employee of Red Bush Analytics. Mrs Body was a full time employee of Coffey Mining at the time the original Mineral Resource estimation was completed in 2013. Mrs Body has 25 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 his/her information in the form and context in which it appears.

The information in this announcement that relates to the Mineral Resources contained within the Production Target, complies with the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code) and has been compiled, and assessed by Mr Ross Cheyne Beng (Hons), Mining, a Fellow of the Australian Institute of Mining and Metallurgy (AusIMM) and Technical Director at Orelogy Mine Consulting Pty Ltd, consultants to the Company. 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 JORC Code. Mr Cheyne is the competent person for the Mineral Resources contained within the Production Target and the Production Target itself and has relied on provided information and data from the Company, including but not limited to the Resource model and database. Mr Cheyne consents to the inclusion in this announcement of matters based on his information in the form and context in which it appears.

## DISCLAIMER

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's control.

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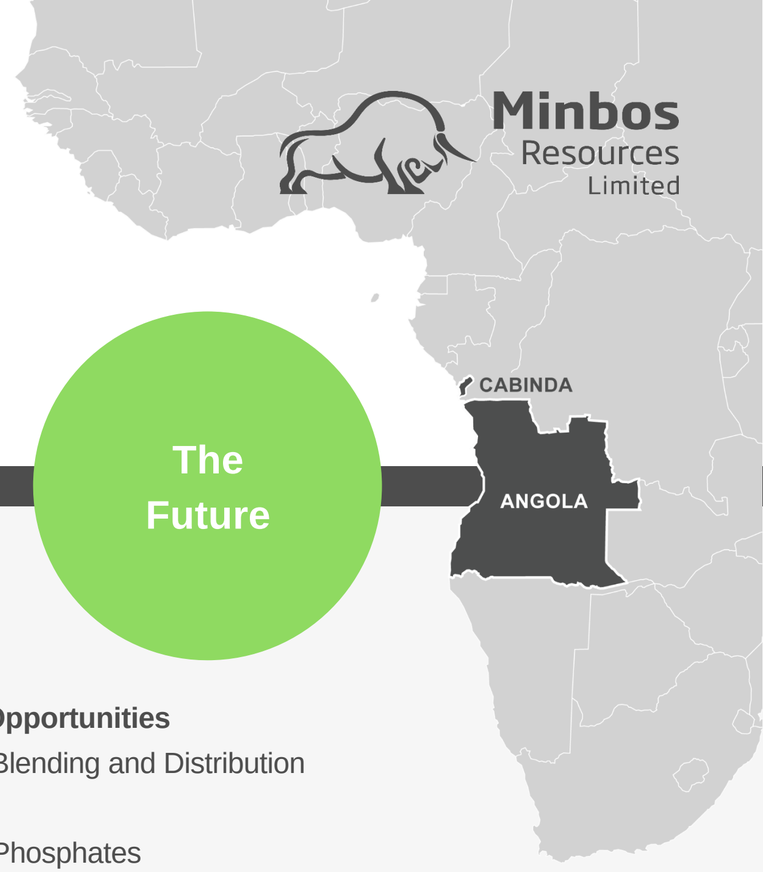
# ANGOLA NUTRIENT BUSINESS OVERVIEW

— GROW TO EAT — GROW TO SELL — GROW TO EXPORT




## Granulated Phosphate Fertiliser

**Phosphate Deposit**

- High-grade Resource 8.4MT @ 29.6% $P_2O_5$ (85% ownership)[1]

**Scoping Study**

- Technically and Financial robust
- Scoping Study[2]
  - Low CapEx - USD$28M
  - NPV $257M | IRR 58%
  - Scoping Study MAP Price $478/t

**Production**

- Long lead items ordered
- DFS and approvals Q1 2022
- Plant shipping ex USA Q2 2022
- First sales 2023

## Hydrogen & Green Ammonia

**Green Ammonia**

- Government support to establish a Green Ammonia Project
- Currently Engaging with technology partners
- Land allocated for Green Ammonia Plant
- Access to local markets to sell Ammonia Fertilizer through the IFDC and AFFPP
- Access to continuously available and clean hydropower with pricing negotiations underway

**Angola's Hydro Power**

- World-leading Hydro Power Generation
- Some of the cheapest power prices globally
- Currently negotiating even lower tariff for engaging with technology providers

## The Future

**Future Opportunities**

- NPK Blending and Distribution
- Lime
- Nitro Phosphates
- Soil Carbon
- Angola Agriculture
  - 57M ha arable land
  - 1,000 -1,500mm annual rainfall
  - 100% of fertilizers imported

*[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*

# COMPANY OVERVIEW



## Capital Structure

**6 December 2021*

| 465M | $63.0M | $2.1M | $61.0M |
|---|---|---|---|
| Shares on Issue | Market Cap | Cash* | Enterprise Value |


## Board & Management

### Lindsay Reed
— **Chief Executive Officer**

A Mining Engineer with 30 years' experience in exploration, development, operations and corporate finance. Lindsay has worked in minerals sands, copper and tin operations. He has spent the last 15 years on African project development. He has been CEO of Minbos since 2014.

### Peter Wall
— **Chairman**

Mr Wall is a corporate lawyer with over 25 years of industry experience, specialising in natural resources. He has acted as Chairman and Non-Executive Director of multiple ASX and TSXV listed entities and is currently the Chairman of ASX listed junior explorer Pursuit Minerals Ltd and listed investment company MMJ Group Holdings Ltd.

### Valentine Chitalu
— **Non-Executive Director**

Co-founder and Chairman of Phatisa Group, an African-focused private equity fund with ~US400 million funds under management and a well-respected track record of delivering for clients and communities. Phatisa is a proud signatory of the Principles on Responsible Investment which is implemented through a comprehensive ESG framework.

### Graeme Robertson
— **Non-Executive Director**

Over 40 years experience in the resources, energy, and infrastructure sectors including responsibility for shipping terminal developments in Indonesia and Australia. He is Chairman and CEO of the Intrasia Group of companies established from Singapore an operating from Mauritius. He is substantial shareholder and former director of AfrAsia Bank in Mauritius.

### Paul McKenzie
— **Non-Executive Director**

Chairman of Kangaroo Island Plantation (ASX:KPT), Chairman of Hay Australia Pty Ltd, a Director of the SALIC Australia Pty Ltd (Saudi Agricultural and Livestock Investment Co), Chairman of the Cooperative Research Centre for Honey Bee Products Ltd, and Specialist Agri Consultant WA to KPMG.

### Dganit Baldar
— **Non-Executive Director**

A qualified Israeli corporate lawyer with approximately 20 years experience in the legal profession. Until recently, she was the General Counsel for Mitrelli Group, a multinational organization which initiates, executes and manages large turn-key projects in developing countries.

# CABINDA PHOSPHATE PROJECT

## HIGH-GRADE PHOSPHATE ROCK FERTILIZER

- Cácata Phosphate Resource 6.9Mt @ 30% $P_2O_5$ *(M&I)*[1]
- Phosphate Rock to be trucked to Futila Granulation Plant
- Futila Industrial Zone has access to stable grid power, the water network, gas & diesel
- Close to the Ports of Caio and Cabinda for regional shipping
- Flexibility to blend Phosphate Rock, WSP, Secondary Nutrients, Micronutrients


[1] *ASX Announcement - Resource Update for High-Grade Cabinda Phosphate Project (23 Nov 2021)*

# FERTILIZER PRICES ARE FLYING

## STRUCTURAL CHANGES THAT MAY BE PERMANENT



### – December 2019

DAP FOB Tampa at $248/t as Minbos submits its winning tender for the Cabinda Phosphate Project.

### – August 2020

DAP FOB price increased to $328/t as Minbos published its Scoping Study using $428/t FOB ($478/t ex port)

### – December 2021

DAP FOB reaches $820/t after USA introduces countervailing duties on imports and China halts exports.[1]


[1]*Profercy Report Phosphates & NPK's (25th November 2021)*

# CABINDA PHOSPHATE PROJECT – SCOPING STUDY

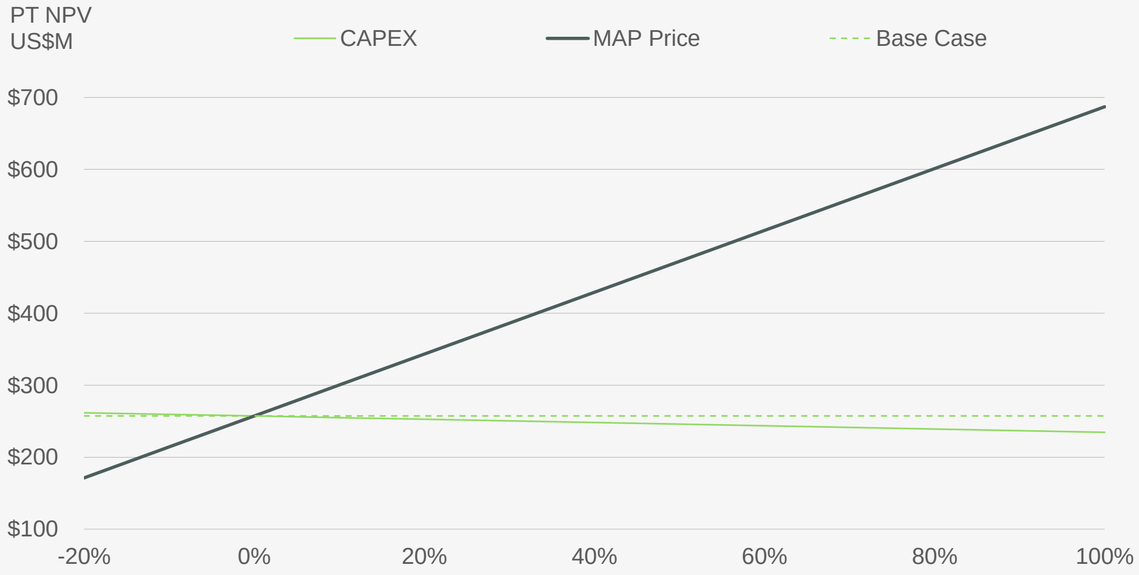
## MAP PRICE INCREASE OFFSETS EXPECTED CAPEX INCREASE



| Scoping Study[1] | HIGH | LOW |
|---|---|---|
| $NPV_{10}$ (pre-tax) | $US308M | $US191M |
| IRR (pre-tax) | 59%% | 41% |
| MAP Price | $US482/t | $US357/t |
| Project CAPEX | $US22.4 | $US28 |
| Av Selling Price | $US290/t | $US222/t |
| Payback Period | 3 years | |
| Project Life | 21 years | |
| Av annual production | 368kt | |
| PR : MAP Content | 84%:16% | |

| Mineral Resource[2] | Tonnes (Mt) | P2O5% | Contained $P_2O_5$ (kt) |
|---|---|---|---|
| Measured | 2.20 | 29.9 | 660,000 |
| Indicated | 4.76 | 29.7 | 1,410,000 |
| TOTAL M&I | 6.96 | 29.7 | 2,070,000 |
| Inferred | 1.45 | 28.5 | 430,000 |

| Map Sensitivity[1] | 10TH Percentile | Base | 90th Percentile |
|---|---|---|---|
| $NPV_{10}$ (pre-tax) | $US137M | 257 | $US406M |
| IRR (pre-tax) | 36% | 36 | 66% |
| MAP Price | $US345/t | $US478/t | $US643/t |




[1]ASX Announcement - Cabinda Phosphate Project Scoping Study (26 Nov 2020)
[2]ASX Announcement - Resource Update for High-Grade Cabinda Phosphate Project (23 Nov 2021)

# PROJECT MILESTONES

## BIG FIRST HALF FOR 2022

**Q1**

01 Mining Reserves

02 Granulation Plant Design

03 Definitive Feasibility Study

04 Mining Contract and EPCM Manager

**Q2**

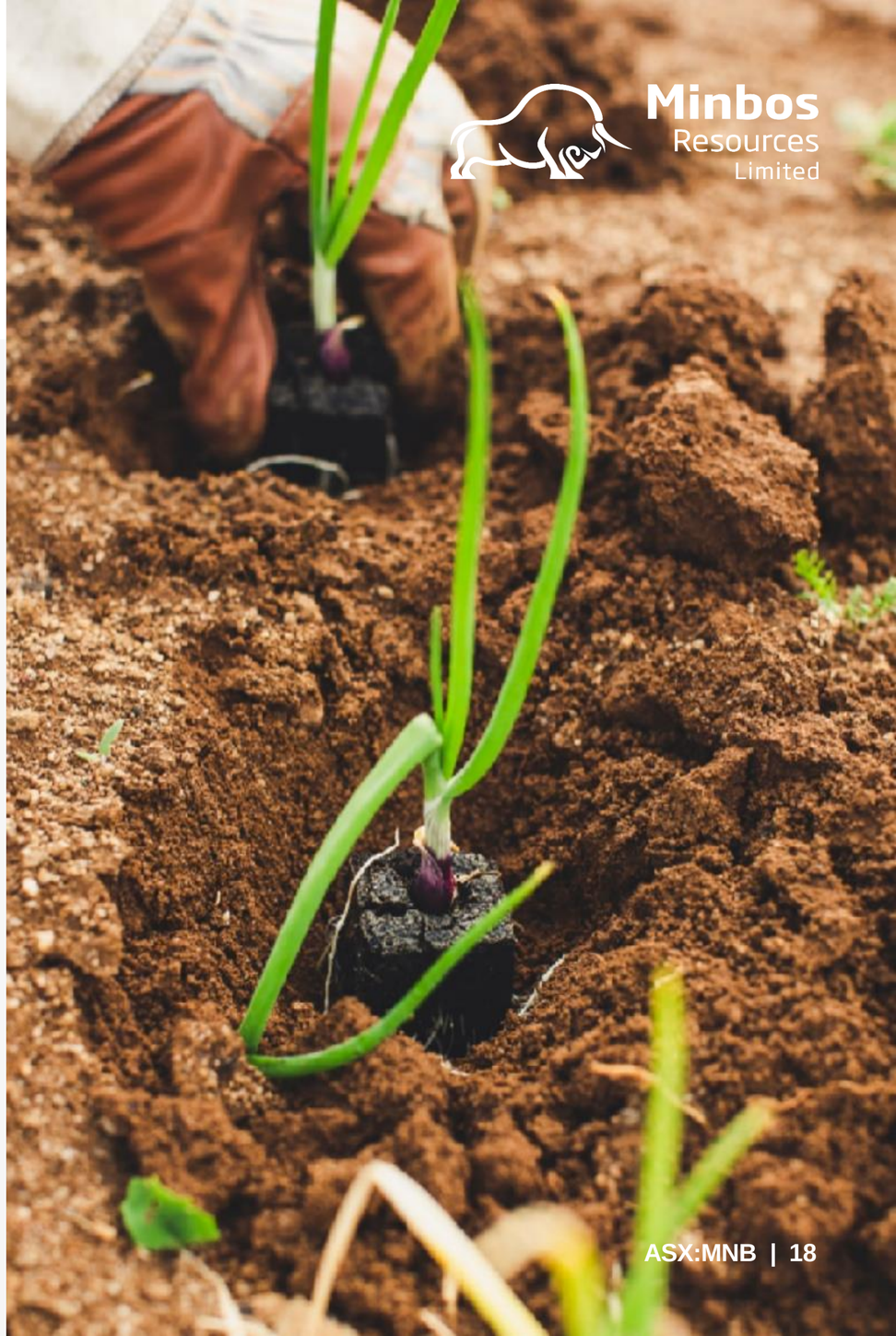
05 Construction

06 Offtake Agreements

07 Port and Utilities

08 Project Finance

09 Approvals



Minbos Resources Limited

# WORLD CLASS PROJECT TEAM

## DFS CONSULTANTS AND IN-HOUSE PROJECT TEAM



### Olainde Camaceh Caturichi
**Country manager**

Camache is a lawyer with more than two decades experience in Angola working with stakeholders to manage and progress mining and exploration projects.

### Steve Abbott
**Project Director**

Mining Executive with more than 25 years experience in senior international and resource sector roles. Proven technical and management experience senior levels across exploration, mining processing, metallurgy, maintenance, smelting, refining, infrastructure approvals and stakeholder engagement.

### Blair Snowball
**Chief Financial Officer**

Blair is a chartered accountant with over 25 years experience in senior roles across the resources, technology and audit sectors, in Europe, Australia and Brazil. He spent seven years in Brazil as Finance Director of the operating gold mine of then ASX listed Beadell Resources. During his tenure, the company completed a DFS, obtained project finance and completed construction of a $US110 million gold plant before successfully mering with Canadian miner Great Panther Mining.

### Chris Swallow
**Corporate Development Manager**

Chris has more than 15 years' experience across both public and private sectors. Most recently Chris worked in an operatonal capacity as the Corporate Development Office for Guinea-focussed gold explorer Predictive Discovery.

### Rebecca Morgan
**Manager Raw Materials**

Rebecca Morgan is a geologist and mining engineer with over 20 years of experience in exploration, operations and consulting. She has experience in West Africa and Brazil. Most recently she worked as geologist for First Quantum.

### Mauro Lopes
**Construction Manager**

Mauro is an experienced Mechanical Engineer, with over 20 years' experience in the mining industry, delivering a diverse range of projects in excess of USD $200M. Highly skilled in contracts negotiations and selection of contractors, Mr Lopes has a track record of delivering projects within time frames and within budget.

### Thomas Bruechner
**General Manager**

Thomas is an experienced Logisitcs Professional specialising in road, rail and sea freight and experience in development of logistiscs networks. He was previously COO of Porto do Caio in Cabinda and brings local experience and logistics expertise to the business.

# MINBOS' GREEN AMMONIA MOMENTUM

## WHY HYDROPOWER, LOCAL DEMAND & SUPPORT FROM ANGOLA'S GOVERNMENT ARE KEY



### Angola Has:

Cheap (renewable) electricity feedstock - Angola 1.7c/kWh vs. Australia 15.7c/kWh (industrial)

Continuously available hydro power is greener & more reliable than wind & solar

Agricultural growing conditions similar to Brazil's prolific Cerrado Region

No local fertilizer production

Local market demand, with fertilizer production at the farm gate saving ocean, port and land transport costs equiv. to approx. half the gas consumption

### Minbos Has:

Government support to establish a Green Ammonia Project

Land allocated for Green Ammonia Plant

Currently negotiating access to continuously available and clean hydropower

Access to local markets to sell Ammonia Fertilizer through the IFDC and AFFPP

DISRUPTION

**World's first industrial-scale fertiliser plant powered by renewable energy for Kenya**

Carbon-free ammonia, also known as Green Ammonia is the primary feedstock for green fertilizers. Its produced from renewable sources unlike traditional ammonia produced from fossil fuels.

*Source: RENEW AFRICA 18 May 2021*

**Incitec Pivot makes green ammonia plans as Gibson Island closure looms**

*Source: mininweekly.com 8 November 2021*

**Forrest promises to convert first ship to green ammonia within a year**

*Source: RENEW ECONOMY 12 November 2021*

**South Korea Plans To Promote Hydrogen Ammonia Power Plant Replacing Coal & LNG**

South Korea is all set to support the commercialization of hydrogen and ammonia co-firing power generation to replace coal and liquefied LNG power generation.

*Source: REPUBLICWORLD.COM 17 November 2021*

# GLOBAL AMMONIA MARKET

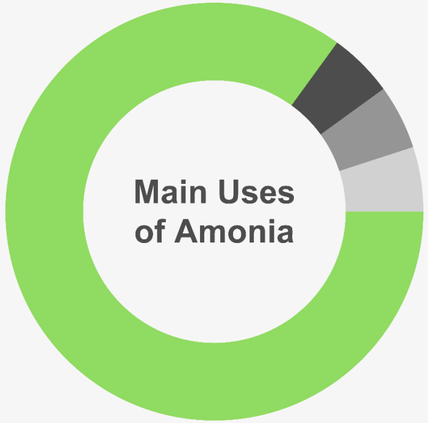
## SECOND MOST PRODUCED CHEMICAL IN THE WORLD

### Supply and Demand

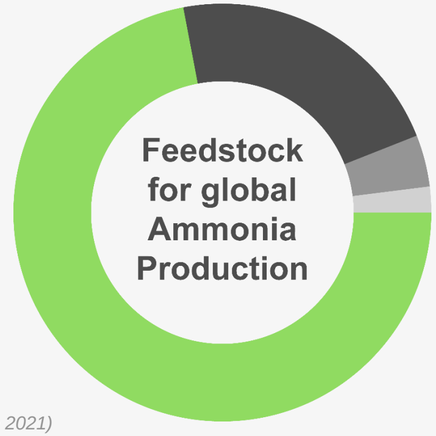
Global ammonia demand is 230 million tonnes per annum of which 85% is used in the fertilizer sector.

Ammonia production almost exclusively uses grey hydrogen from gas or black hydrogen from coal and emits more $CO_2$ than any other chemical production reaction.

**Decarbonisation of ammonia production is possible using green hydrogen from sustainable electricity.**




| | |
|---|---|
| 85% | Fertiliser |
| 5% | Explosives |
| 5% | Textiles |
| 5% | Other |




| | |
|---|---|
| 72% | Natural Gas |
| 22% | Coal |
| 4% | Fuel/Oil |
| 2% | Other |

*Source: national Hydropower Association, 2021 Hydropower Status Report (June 2021)*

### Ammonia 101

Basic building block for ammonium nitrate fertilizer

Releases nitrogen, an essential nutrient for growing plants, including farm crops and lawns

85% of ammonia produced worldwide is used in fertilizer, to help sustain food production for billions of people around the world

The production of food crops naturally depletes soil nutrient supplies

In order to maintain healthy crops, farmers rely on fertilizer to keep their soils productive

Fertilizers also can also help increase levels of essential nutrients like zinc, selenium and boron in food crops

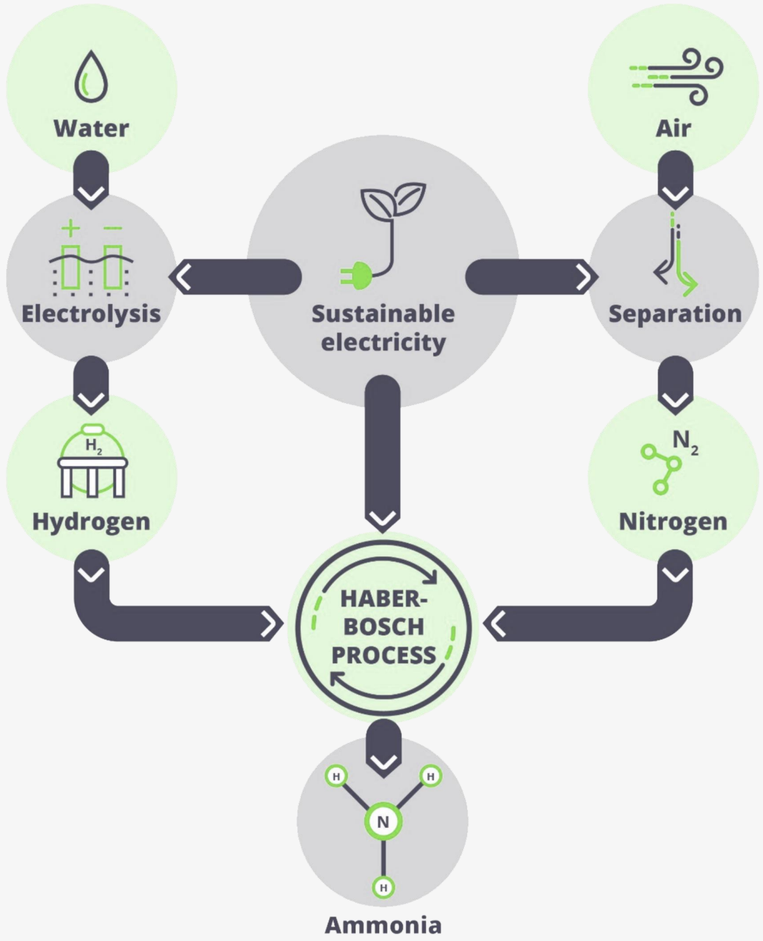
# GREEN AMMONIA - $NH_3$

## GREEN AMMONIA IS GREEN HYDROGEN



### Green Ammonia Production: a simple process with a long history

Commercial production of ammonia from electrolysis for fertilizer commenced early last century and has gradually lost favour as cheap gas and coal displaced hydro electricity feedstocks when competing demands drove up the electricity price




### Green Ammonia 101

Green ammonia was originally developed to produce ammonia based fertilizer which remains the most common application.

Potential applications for green ammonia in the future include:

**Energy storage**
Ammonia easily stored in bulk as a liquid at modest pressures (10-15 bar) or refrigerated to -33°C, an ideal chemical store for renewable energy.

**Zero-carbon fuel**
Ammonia can be burnt in an engine or used in a fuel cell to produce electricity. Ammonia's only by-products are water and nitrogen. Maritime industry is likely to be an early adopter, replacing the use of fuel oil in marine engines

**Hydrogen carrier**
Ammonia is easier and cheaper to store, and transport and can be readily "cracked" and purified to give hydrogen gas when required.

# LOCAL FERTILIZER GREEN AMMONIA

## THE LOW HANGING FRUIT OF GREEN HYDROGEN

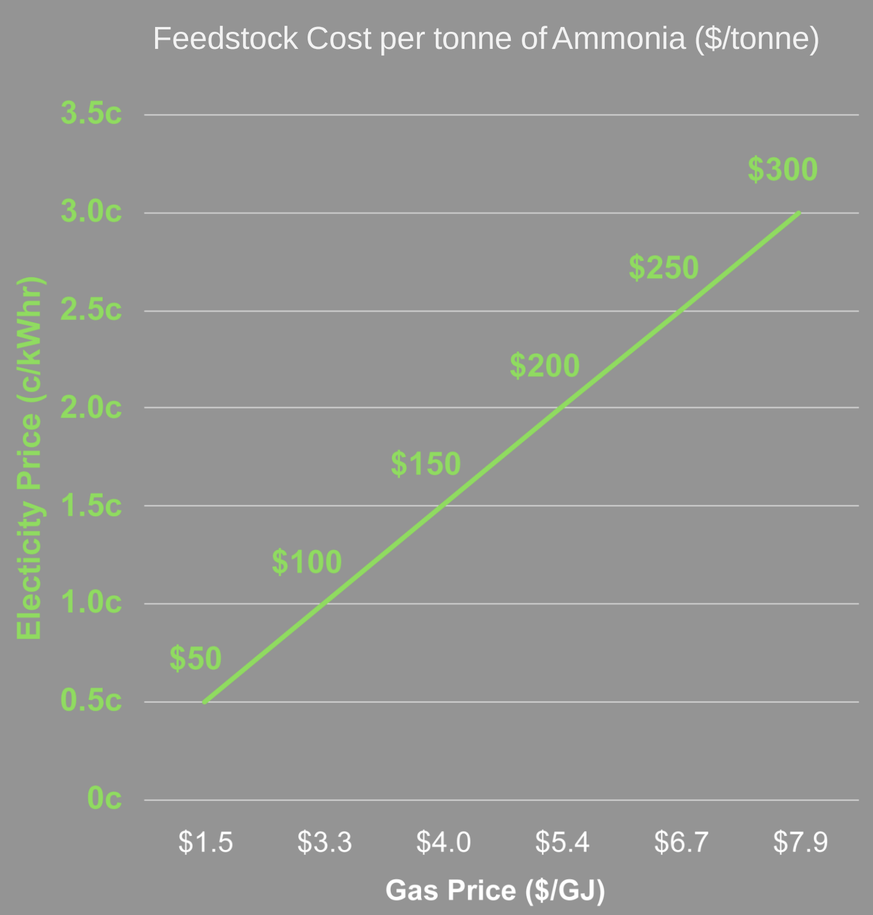


Fertilizer is acknowledged as the launching point for the green hydrogen economy because it already utilizes a large proportion of the world's hydrogen[1]

Cheap renewable electricity feedstock is the key to green ammonia. 1.5c/kWhr ~ $4GJ gas

Continuously available hydro power is greener and more reliable than wind and solar

Local fertilizer production at the farm gate saves ocean, port and land transport costs equivalent to half the gas consumption




[1]*Michael Liebreich/Liebreich Associates, Clean Hydrogen Ladder, Version 4.1 2021 • Concept credit: Adrian Hiel, Energy Cities.*
*Diagram Source: Adapted from Marietecnimont Presentation, Local Fertilizer Production from Renewable Energy*

# ANGOLA'S HYDRO POWER

## LARGE SCALE HYDRO THE PERFECT INPUT FOR GREEN AMMONIA

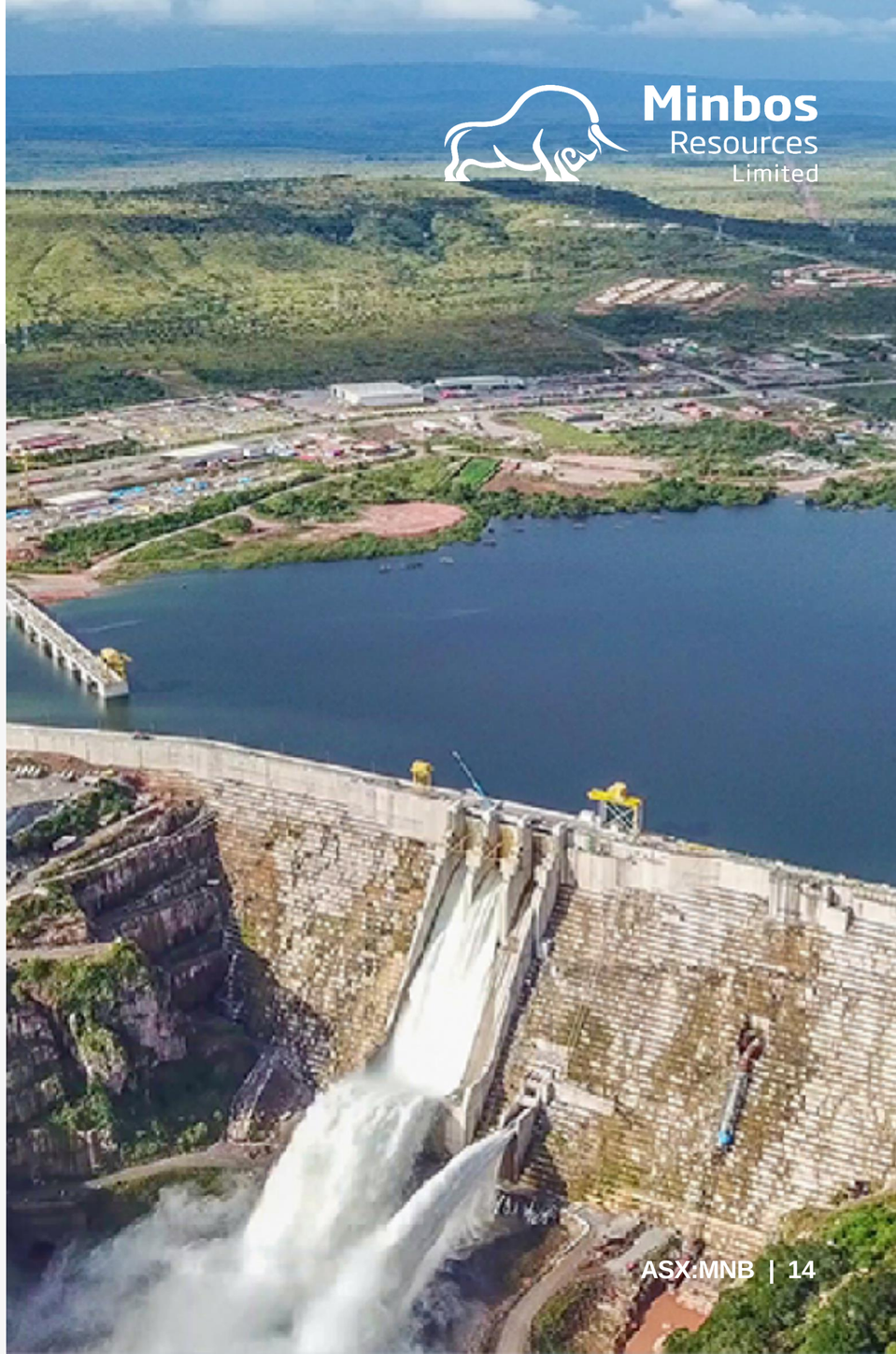
1000MW of unutilized hydropower available now in the Malanje Corridor[1]

Negotiations currently underway for base tariff with concessions being negotiated to support green ammonia industry formation

Commenced discussions with green ammonia technology suppliers

Production facility to be located on the doorstep of the power station and millions of hectares of high rainfall land and small holder farmers

[1]*The International Hydropower Association, 2021 Hydropower Status Report (June 2021)*



# ANGOLA'S AGRICULTURAL POTENTIAL

## VAST TRACTS OF UNOCCUPIED ARABLE LAND

**31M**
Population

**57M ha**
Arable Land

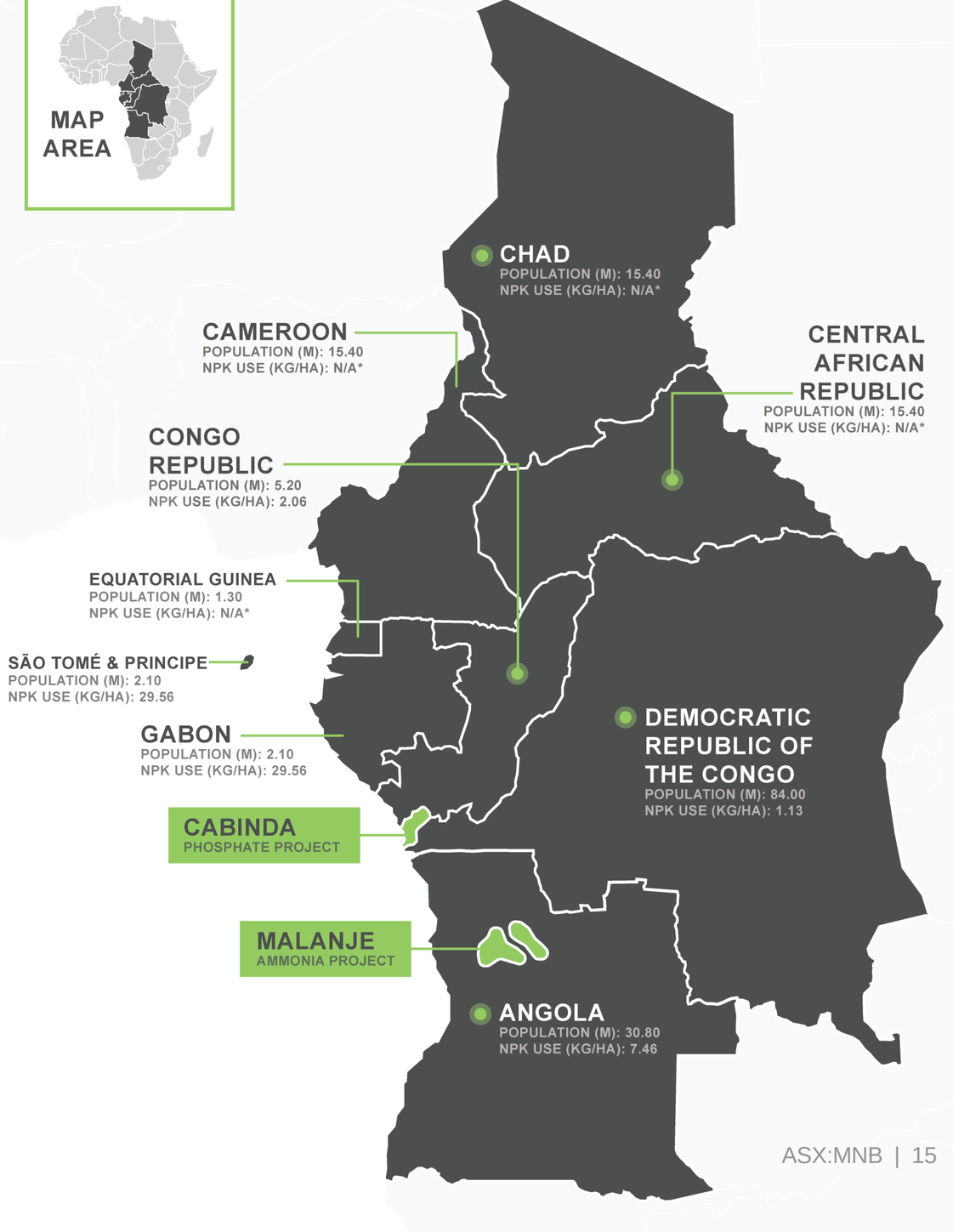
**5M ha**
Cultivated Land

- 1000-1500mm of rain per year
- 3 million farm households (~1-2 hectares)
- 95% smallholder farming
- 100% of fertilizers is imported

### ANGOLA WAS ONE OF AFRICA'S LEADING FARMING NATIONS:

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

*Sources: World Bank Group, Country private sector diagnostic, Creating Markets in Angola (May 2021)*



# ESG FRAMEWORK AND REPORTING

## — IMPACT CORPORATE GOVERNANCE FOR THE CABINDA PROJECT

**– ESG Risk**
climate impact, nature loss, and social unrest around inclusion and working conditions.

**– Reporting**
Impact monitoring tech platform “Socialsuite” to streamline the outcomes measurement & ongoing ESG reporting process.

**– Minbos ESG Framework**
The Board has resolved to adopt the World Economic Forum ESG framework.

**- Impact Investment**
Global sustainable investment now tops $30 trillion, up 68% since 2014 and tenfold since 2004.

| Principles of Governance | Planet | People | Prosperity |
|---|---|---|---|
| The definition of governance is evolving as organizations are increasingly expected to define and embed their purpose at the centre of their business. But the principles of agency, accountability and stewardship continue to be vital for truly “good governance”. | An ambition to protect the planet from degradation, including through sustainable consumption and production, sustainably managing its natural resources and taking urgent action on climate change, so that it can support the needs of the present and future generations. | An ambition to end poverty and hunger, in all their forms and dimensions, and to ensure that all human beings can fulfil their potential in dignity and equality and in a healthy environment. | An ambition to ensure that all human beings can enjoy prosperous and fulfilling lives and that economic, social and technological progress occurs in harmony with nature. |

*Source: World Economic Forum and Big Four Analysis. Definitions for Planet, People and Prosperity taken from the UN’s 2030 Agenda for Sustaibable Development of Governance[8]*

# NEWSFLOW CATALYSTS

## NEXT 12 MONTHS

| | | |
|---|---|---|
| PHOSPHATE | 01 | Completion of DFS |
| | 02 | MOU with Government of Angola and IFDC for AFFPP |
| | 03 | Commencement of Construction |
| GREEN AMMONIA | 04 | Confirmation of concessional hydropower tariff |
| | 05 | Desktop Ammonia Market Study |
| | 06 | Engagement with technology and/or project partners |
| OTHER | 07 | Initiate base line Soil Carbon Surveys over 5 million ha |
| | 08 | Continue to build NPK blending and distribution capacity |



## Contact For More Information

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Minbos Resources Limited

APPENDIX

# FERTILIZER & FARM PRODUCTIVITY PROGRAM

## — LINKING NUTRIENTS TO SOIL TO FARMERS TO MARKETS TO POLICY



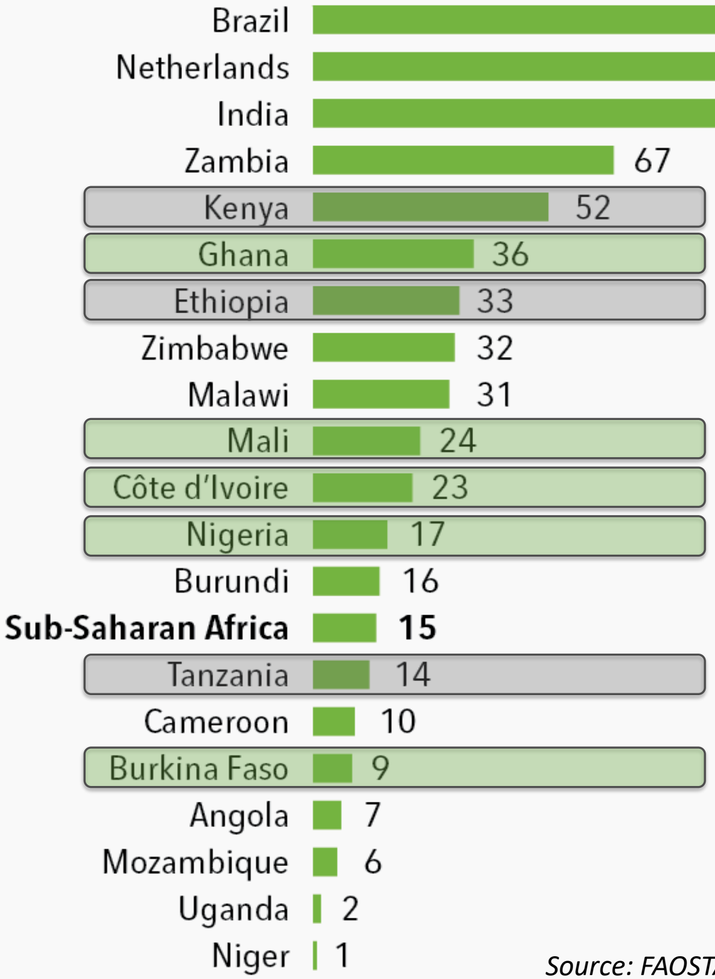
## Proposed cooperation between the IFDC, Minbos & the Angolan Government

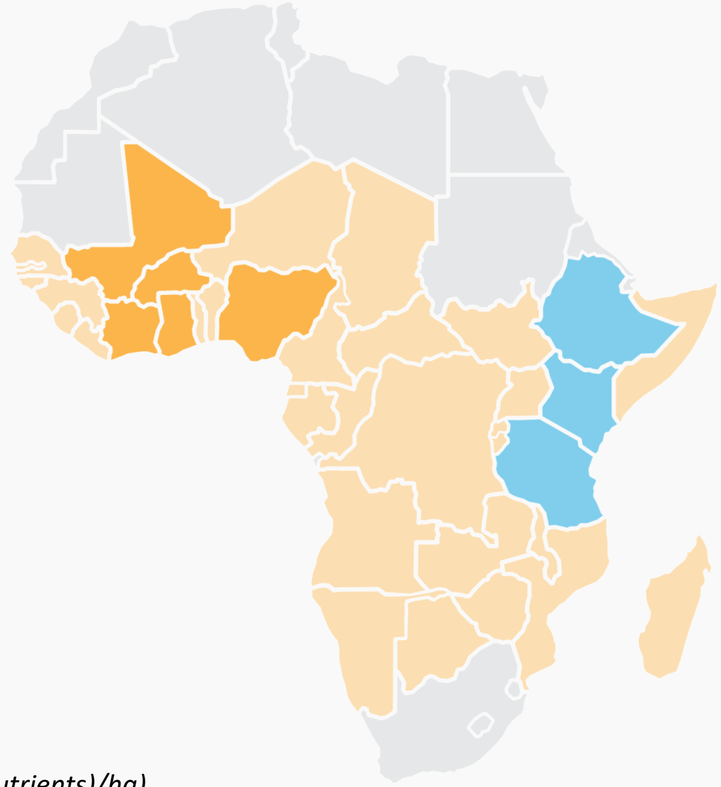
- Produce fertilizers from local resources
- Strong Government policies to support fertilizer sector
- Build farmer knowledge on fertilizer use & soil fertility management
- Develop input & output markets

*i. The International Hydropower Association, 2021 Hydropower Status Report (June 2021)*

# FERTILIZER USE LAGS MOST OF AFRICA

## — NO PRIMARY OR LOCAL MANUFACTURING OF FERTILIZER



*Source: FAOSTAT (kg(nutrients)/ha)*

APPENDIX

# ENHANCED PHOSPHATE ROCK

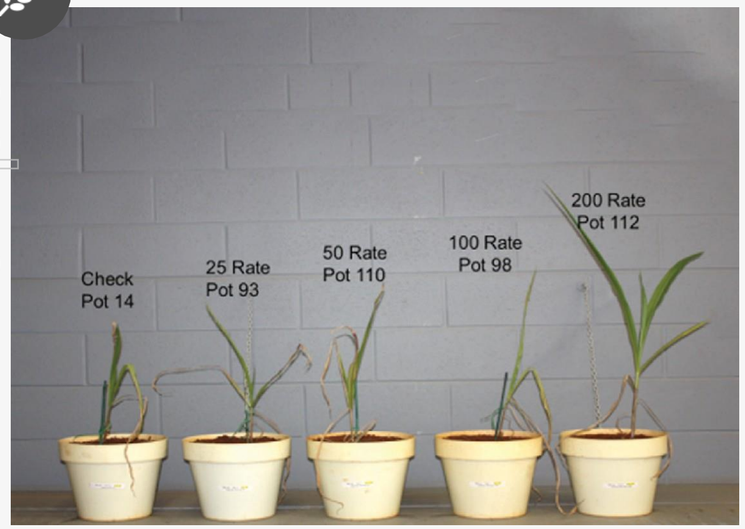
## — THE BEGINNING OF FERTILIZER SELF RELIANCE



**Fit for Angola** EPR works best in P-deficient acid soils, legume and cereal crops, high rainfall climates.

**AFFPP** program to target 3 million small holder farmers is critical to underpin the Cabinda Phosphate Production.

100% Phosphate Rock

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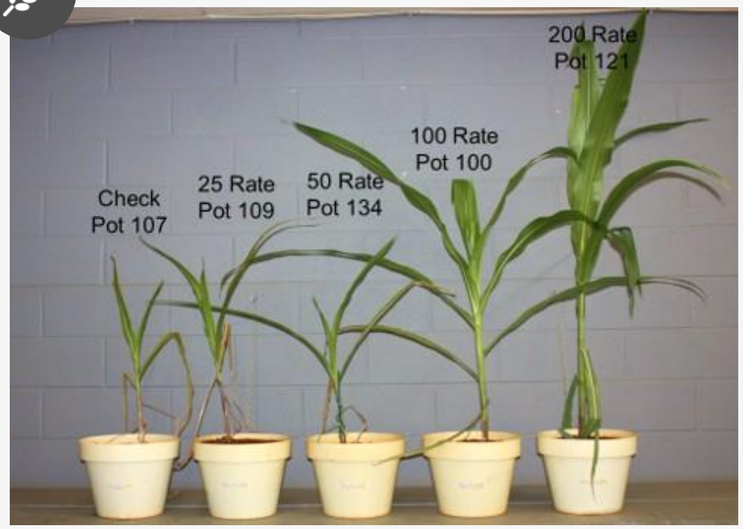
100% WSP Fertilizer

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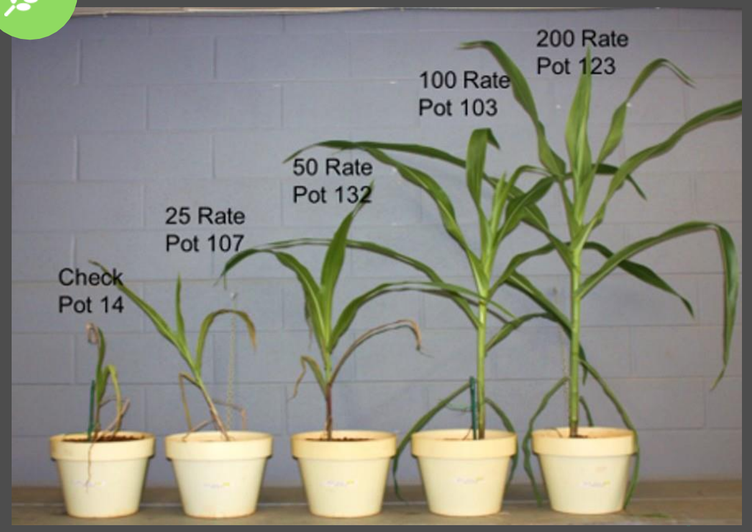
85% Phosphate Rock | 15% WSP Fertilizer




Minbos Resources Limited

## ENHANCED CABINDA PHOSPHATE ROCK

- ✓ 85% local phosphate rock/15% water soluble phosphate blend
- ✓ **Low-cost**
- ✓ High-solubility
- ✓ Suitable for Angola and wider Congo Basin
- ✓ Combines fast release WSP which solubilizes slow-release phosphate rock