

## **QUARTERLY ACTIVITIES REPORT FOR THE PERIOD ENDING 31 DECEMBER 2022**

**Minbos Resources Limited (ASX:MNB) (“Minbos” or “the Company”)** is pleased to provide an update on its activities for the December 2022 quarter.

The Company’s focus during the period continued to be on developing a nutrient supply and distribution business that stimulates agricultural production and promotes food security in Angola and the broader Congo Basin.

### **CABINDA PHOSPHATE PROJECT**


#### **Field and greenhouse trials deliver strong relative performance**

- New results reported from three years of field trials in Angola and five seasons of greenhouse trials at the International Fertilizer Development Center (IFDC).
- Trial results affirm the flowsheet flexibility incorporated in the recently released DFS<sup>1</sup>. The equipment being delivered can be configured to produce beneficiated, granulated or acidulated phosphate rock.
- **A review has been commissioned to simplify the flowsheet to deliver beneficiated phosphate rock and is expected to deliver significant CAPEX savings and deliver a product that meets the market with strong relative performance at an attractive price point for compelling economics.**
- Cabinda Phosphate Rock contains ~31% total P<sub>2</sub>O<sub>5</sub> and 8.7-9.5% P<sub>2</sub>O<sub>5</sub> soluble in 2% citric acid. The field trials in Angola trialling maize, beans and potatoes have shown a strong agronomic effect with large yield increases.
- Yields in Minbos field trials are consistently much higher than the average yields in Angola, with Cabinda Phosphate Fertilizer performing strongly vs. other products (up to 90% of the yield increase provided by Monoammonium Phosphate (MAP) and equal to the MAP-Phosphate Rock blends).
- Results in IFDC greenhouse trials demonstrated that a single application of Cabinda Phosphate Fertilizer before the first crop can improve yields in two successive crops without further application. Wheat, maize, soybean and sorghum were trialled successfully.
- Importantly, trials confirmed Minbos’ phosphate rock is suitable as a direct application fertilizer product in a soil acidity profile of <pH5.5 (H<sub>2</sub>O). This includes

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

much of the area of interest for the Angola Fertilizer and Farm Productivity Program (AFFPP) which is targeting 120,000tpa of Cabinda Phosphate Fertilizer<sup>2</sup>.

## Definitive Feasibility Study - Key Outcomes

Scenario Discount Rate	Spot Price Case (85%)			Base-Price Case (85%)		
	NPV \$USM	IRR	PAYBACK	NPV \$USM	IRR	PAYBACK
 (REAL) <b>10%</b>	 (POST TAX) <b>399.4</b>	 (POST TAX) <b>61%</b>	 <b>3.6yrs</b>	 (POST TAX) <b>203.2</b>	 (POST TAX) <b>39%</b>	 <b>4.8yrs</b>

Notes: The BPR product price is derived from the price of Triple Superphosphate (origin Tunisia, FOB) of which the current price quoted by the World Bank is the August 2022 price of USD703.75/t. This derives a BPR spot price of USD 495.84/t.

- 85%-ownership: Spot-Price Case Post-Tax NPV<sup>10</sup> of US\$399 million and 61% IRR, underpinned by Base Case assumptions (Minbos will have an 85% ownership interest in the project, with the other 15% held by local partners).
- The current market for fertilizers has potentially been altered fundamentally by the decarbonisation of global energy markets – a trend that appeared in both energy and fertilizer markets well before the Ukraine invasion.
- 85%-ownership: Base-Case Post-Tax NPV<sup>10</sup> of US\$203 million and 39% IRR, underpinned by the 15-year average price for bulk Triple Super Phosphate (TSP).
- Compelling low-CAPEX/high-NPV delivers a clear pathway to project financing with CAPEX of US\$48.5 million remaining and the Project only requiring further funding of US\$40.0 million, after allocation of existing cash and including working capital requirements. These CAPEX numbers do not take into account the likely significant savings from simplifying the flow sheet for the plant.
- Plant capacity up to 187,500tpa in a one plant scenario, expanding to two plants in supporting a 20-year project life, which will deliver project gross revenues over US\$1.4B.
- Maiden Ore Reserve (JORC 2012) for the Cácata Phosphate Mine, totalling 4.72 Mt at 30.1% P<sub>2</sub>O<sub>5</sub> of Proven and Probable Ore Reserves.
- High phosphate grade, favourable local soil conditions and no local competition should enable Minbos to produce a high-quality/low-cost beneficiated phosphate fertilizer using simple drum processing.
- The Angolan Government, Development Finance Institutions, and major food

<sup>2</sup>ASX Announcement - MOU lodged for the Angolan Fertilizer and Farm Productivity Program (24<sup>th</sup> August 2022)

processors have committed more than US\$1 billion to programs and initiatives to address a 2Mtpa shortfall in grain and oil seed production via the 3 million smallholder farmers that comprise our initial target market.

- First production expected Q4 2023, with fabrication of key major equipment from FEECO now completed.
- Key consultants to the DFS include DRA Global, Orelogy, SRK Consulting, FEECO Inc, EPC Engenharia, HCV Africa, Grupo Simples and the International Fertilizer Development Center (IFDC).

### **Site secured for Cabinda Phosphate Plant**

- Land acquisition contract executed for the site of the Cabinda Phosphate Fertilizer Plant, located within the Subantando commercial precinct (Fig.1).
- The Subantando site is located near the main highway (EN201) between Cácata and Cabinda City, ~36km from Cácata, and 16km from Cabinda Port.
- The Subantando site for the Cabinda Phosphate Fertilizer Plant has significant OPEX and production advantages to Futila, the previous site under consideration (and upon which the DFS was based), including:
  - reduced distance for ore haulage from Cácata to the plant;
  - reduced distance for product delivery from the plant to the Port of Cabinda;
  - reduced truck traffic through the city of Cabinda; and
  - reduced costs to hold and maintain site.

The Subantando site has been zoned as an industrial area with the intent to move a number of industrial business's out of the town of Cabinda itself. Power and water currently run along the main road, less than a kilometre to the site, which will be investigated as a supply for the processing plant as part of the final design.

The studies required to obtain the environmental and construction licence are currently being expedited.



Figure 1 - Cabinda Phosphate Project Plant, close to the Cacata Phosphate Deposit

## Phosphate Rock Decision Support System (PRDSS)

Minbos is developing a web-based platform for the PRDSS to enable potential customers to quickly ascertain the relative economic effectiveness of the Cabinda Phosphate Fertilizer vs imported phosphate products.

Developed by the International Fertilizer Development Centre ([www.prdss.ifdc.org](http://www.prdss.ifdc.org)), the PRDSS algorithm predicts effectiveness based on phosphate fertilizer solubility and different crops species grown under variable soil properties and climate conditions. The Minbos platform will enable automatic uploading of soil and climate conditions from existing databases.

The engine for the web-based platform has been completed and the user interface will be developed and refined over the next two quarters.

## **New field trials installed in Angola with more planned for this quarter**

Six field trials have been installed across the provinces of Huambo, Cuanza Sul, Bié, Huila and Benguela. The trials will demonstrate the efficacy of the Cabinda Phosphate fertilizer on its own and placed with water soluble products over four seasons in conditions experienced by smallholder farmers. The trials have been installed by Angolan Institute of Agronomic Investigation (IIA) under the guidance of Dr Luis Prochnow of NPCTBrasil.

Three field trials will be installed by Minbos and the IIA at three large commercial farms in collaboration with their respective agronomic teams.

- Biocom Sugar Plantation (30,000Ha) in Malange Province will trial phosphate rock as an alternative to WSP in the planting phase of sugar cane.
- SARIS Congo Sugar Plantation (12,000Ha) in the Republic of Congo will trial phosphate rock as an alternative to WSP in the planting phase of sugar cane.
- Fazenda San Antonio, (5,000Ha) one of the largest producers of soybean and maize in Angola, is trialling soybean with the Cabinda Phosphate Fertilizer.

Sugar and soybean are known to respond well to incorporated phosphate rock and the results of these trials are keenly anticipated.

## **CAPANDA GREEN AMMONIA PROJECT**

- Historic Memorandum of Understanding ("MOU") signed between Angola's National Electricity Transmission Network ("RNT-EP") and Minbos' 100%-owned subsidiary, Green Ammonia LDA.
- The Agreement represents a global green energy first, outlining the framework and conditions for the supply of 100%-renewable and installed hydroelectric power from the Capanda Dam and Electric Substation to the proposed site of the Capanda Green Ammonia Plant.
  - The MOU confirms a formal resolution received in late May 2022 1 outlining the key commercial parameters of the power supply as the basis for a Market Assessment Study, which includes:
    - Initial 100MW at \$US0.004 (0.4c) kilowatt hour for 5 years then \$US0.008c (0.8c) kilowatt hour for 20 years.
    - An Additional 100MW at \$US0.015 (1.5c) kilowatt hour for 25 years.
- The MOU binds the parties to complete various studies and commit to enter contract negotiations for an Electrical Supply Contract, within the commercial

parameter proposed by Minbos, upon demonstration of the project's feasibility.

- The parties commit to completing a Market Assessment Study and technical and financial feasibility studies. Upon their confirmation, studies will be carried out on environmental impact, social impact and electrical network impact, as well as Green Ammonia plant basic design engineering, automation and telecommunications architectures.
- The term of the MOU will conclude upon the signing of an Electricity Supply Contract or the completion of studies that demonstrate the project is not feasible. The MOU may also cease upon mutual agreement, a substantiated Force Majeure event, bankruptcy of either party or written notice of termination for breach of obligations.
- Technical Study with Stamicarbon now well advanced and expected to be delivered in early 2023 and feed into the Market Assessment Study.
- Initial desktop work undertaken by the Company highlights the potential for the Capanda Green Ammonia Project to produce Ammonia Nitrate at a cost competitive unit price vs. traditional grey (fossil fuel), blue (fossil fuel plus carbon capture) and turquoise (methane) Hydrogen-Ammonia.
- Importantly, proximity to markets is now recognised as the gold standard for viable Green Hydrogen Ammonia projects. Recently, Rio Tinto Chief Scientist Nigel Steward was quoted as saying "shipping Hydrogen long distances is potentially worse for the climate than burning natural gas", highlighting the environmental and cost benefits of hydrogen-ammonia projects located close to their market.
- The Capanda Green Ammonia Project plant site is proposed to be located within 5 km of the Capanda hydroelectric dam along an existing transmission, and within trucking distance to the Malanje growing corridor and major regional mining projects, potentially reducing transport costs and ensuring the Project's cost advantages are maintained.
- Angola's installed hydroelectric power is largely located in the country's regional/agricultural areas, with the Capanda hydroelectric dam and station located within the Malanje Agriculture Corridor.
- The Malanje Corridor is analogous to Brazil's Cerrado Region, with similar annual rainfall, and available land approximately 1,000km closer to port facilities, and with

a surplus of cheap hydropower (Fig. 2).

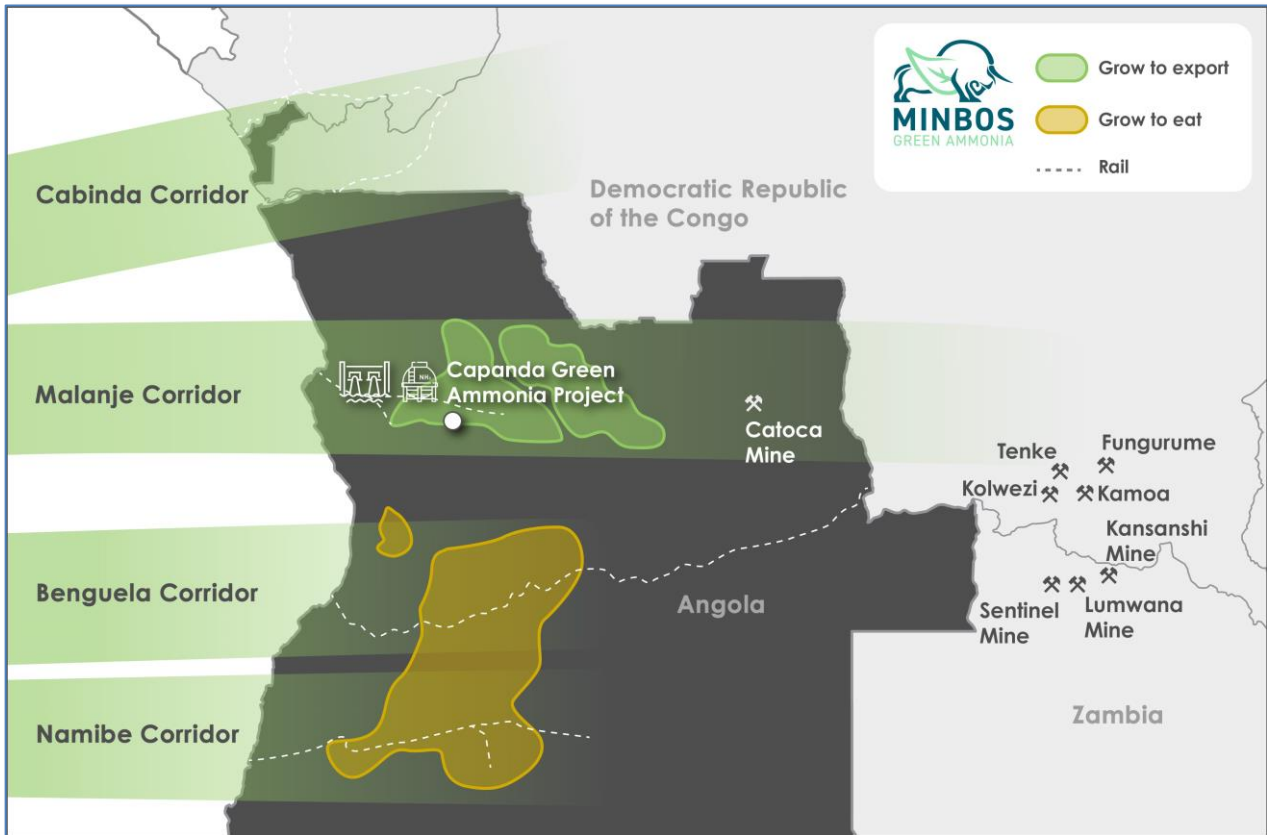


Figure 2 – Capanda Green Ammonia Project, located within the Malanje Corridor, close to existing rail infrastructure and close to ports and major regional mines.

## MINBOS RESOURCES - QUARTERLY ESG DISCLOSURE AND REPORTING

Minbos is committed to building Environmental, Social, and Governance (ESG) credentials. It is measuring and reporting ESG disclosures according to the World Economic Forum (WEF) Stakeholder Capitalism Framework.

The WEF framework is a set of common metrics for sustainable value creation captured in 21 core ESG disclosures. By integrating ESG metrics into the Company’s governance, business strategy, and performance management process, it is appropriately considering all pertinent business risks and opportunities.

The Company’s progress towards disclosures under the four pillars of the WEF ESG framework (Governance, Planet, People, and Prosperity) is captured in the following quarterly dashboard.



Progress  
P In progress  
C Completed  
N Not applicable

**Period Comparison (Period 7 vs 3)**

Governance		Period 7 (Oct to Dec 2022)		Period 3 (Oct to Dec 2021)	
Code	Description	Status	Progress (A1-A5)	Status	Progress (A1-A5)
<b>GOVERNING PURPOSE</b>					
GO-01-C1	Setting purpose	VERIFIED	C C C C C	VERIFIED	C C C C C
<b>QUALITY OF GOVERNING BODY</b>					
GO-02-C1	Governance body composition	REPORTED	P C C C P	REPORTED	C C C C C
<b>STAKEHOLDER ENGAGEMENT</b>					
GO-03-C1	Material issues impacting stakeholders	VERIFIED	C C C C C	REPORTED	C C C C C
<b>ETHICAL BEHAVIOUR</b>					
GO-04-C1	Anti-corruption practices	VERIFIED	C C C	REPORTED	C C C
GO-04-C2	Mechanisms to protect ethical behaviour	VERIFIED	C C	REPORTED	C C
<b>RISK AND OPPORTUNITY OVERSIGHT</b>					
GO-05-C1	Integrating risk and opportunity into business process	VERIFIED	C C C C C	REPORTED	C C C C C
<b>Planet</b>		<b>Period 7 (Oct to Dec 2022)</b>		<b>Period 3 (Oct to Dec 2021)</b>	
Code	Description	Status	Progress (A1-A5)	Status	Progress (A1-A5)
<b>CLIMATE CHANGE</b>					
PL-01-C1	GHG emissions	REPORTED	C C N	DRAFT	C P P
PL-01-C2	TCFD implementation	REPORTED	N C N	DRAFT	
<b>NATURE LOSS</b>					
PL-02-C1	Land use and key biodiversity areas	REPORTED	C C C C C	DRAFT	C
<b>FRESHWATER AVAILABILITY</b>					
PL-03-C1	Water consumption	REPORTED	C C C P C	DRAFT	C
<b>People</b>		<b>Period 7 (Oct to Dec 2022)</b>		<b>Period 3 (Oct to Dec 2021)</b>	
Code	Description	Status	Progress (A1-A5)	Status	Progress (A1-A5)
<b>DIGNITY AND EQUALITY</b>					
PE-01-C1	Diversity and inclusion	REPORTED	C C C C C	REPORTED	
PE-01-C2	Pay equality	REPORTED	C C P P	REPORTED	C C
PE-01-C3	Wage level	VERIFIED	P C	REPORTED	
PE-01-C4	Child, forced or compulsory labour	REPORTED	P	REPORTED	
<b>HEALTH AND WELL-BEING</b>					
PE-02-C1	Health and safety	REPORTED	C C	REPORTED	C C
<b>SKILLS FOR THE FUTURE</b>					
PE-03-C1	Training provided	DRAFT	P P	DRAFT	C P
<b>Prosperity</b>		<b>Period 7 (Oct to Dec 2022)</b>		<b>Period 3 (Oct to Dec 2021)</b>	
Code	Description	Status	Progress (A1-A5)	Status	Progress (A1-A5)
<b>EMPLOYMENT AND WEALTH GENERATION</b>					
PR-01-C1	Rate of employment	REPORTED	P P	REPORTED	
PR-01-C2	Economic contribution	VERIFIED	C C	REPORTED	C C
PR-01-C3	Financial investment contribution	VERIFIED	C C	REPORTED	C C
<b>INNOVATION OF BETTER PRODUCTS AND SERVICES</b>					
PR-02-C1	Total R&D expenses	VERIFIED	C	REPORTED	C
<b>COMMUNITY AND SOCIAL VITALITY</b>					
PR-03-C1	Total tax paid	REPORTED	C	REPORTED	C

## Financial Position

As at 31 December 2022, the Company held \$17.5 million in available cash with no debt.

## Expenditure on Mining Exploration Activities

In accordance with ASX Listing Rule 5.3.1, the Company advises its exploration and



evaluation expenditure during the December 2022 quarter totalled \$184,000 included at item 2.1(d) of the Appendix 5B.

### Payments to Related Parties and their Associates

In accordance with ASX Listing Rule 5.3.5, payments to related parties of the Company and their associates during the Quarter totalled \$89,000. The Company advises that this relates to Directors’ fees and legal fees and company management fees of service providers related to Directors.

### Capital Structure

Minbos currently has 770,180,625 fully paid Ordinary shares on issue and 66,562,500 listed Options and 72,250,000 unlisted options on issue at various exercise prices and expiry dates.

### 2022 DECEMBER QUARTER - ASX ANNOUNCEMENTS

This Quarterly Activities Report contains information extracted from ASX market announcements reported in accordance with the 2012 edition of the “Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves” (“2012 JORC Code”).

Further details (including 2012 JORC Code reporting tables where applicable) of exploration results referred to in this Quarterly Activities Report can be found in

the following announcements lodged on the ASX:

Date	Announcement
14/12/2022	Historic Green Energy MOU signed for Capanda Green Ammonia
1/12/2022	Strong field and greenhouse trials for Cabinda Phosphate
10/11/2022	Minbos Secures Site for Cabinda Phosphate Plant
17/10/2022	DFS Delivers Compelling Economics for Cabinda Project

### -ENDS -

This announcement is authorised for release by the Board of Minbos Resources Limited. For further information please contact:

### Investor and Media Enquires

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### Interest in Mining Licences

Below is a list of the Company's interest in licences, where they are situated and the percentage of interest held.

Licence Number	Type	Interest	Location
314/03/03/T.E/ANG - MIREMPET/2021	Mining Licence	100%	Angola

### Compliance Statement

With reference to previously reported Scoping Study Results, 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.

### 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.