

# **STRONG FERTILIZER DEMAND AND MARKET PRICING TO UPDATE CABINDA PHOSPHATE DFS**

---

## **Highlights**

- **Major supply interruption to global fertilizer market providing near-term opportunities.**
  - **Strong local demand for Phosphate Rock enables pivot of project for additional return and flexibility.**
  - **Update of DFS to reflect new market opportunities and challenges, now due Q3 2022.**
  - **Progression on Hydrogen & Green Ammonia opportunity through advanced discussions with RTN-EP, Angola's electricity retailer responsible for the management and transmission of electricity through the national grid.**
- 

Minbos Resources Limited (ASX:MNB) (Minbos or the Company) is pleased to announce that, due to strong potential local demand for its raw Phosphate Rock (PR), the Company has decided to include new plant configurations to capture the current market opportunities in the Definitive Feasibility Study (DFS) for the Cabinda Phosphate Project.

## **Global Disruption in Fertilizer Market**

Fertilizer prices have broken new records as global supplies are hit by multiple factors including the war in Ukraine, Chinese fertilizer export bans and supply chain inflation, with prices for raw materials that make up processed fertilizers - ammonia, potash, phosphates, sulphur - rising 30% since the start of the year<sup>1</sup>.

Globally, phosphate markets are surging (Fig. 1), propelled by buyer concerns that major disruption to global ammonia supplies could, in the near-term, lead to DAP and MAP production cuts. More critically, supply constraints are accentuated in smaller markets with consumers and importers in Angola unable to source MAP and DAP regardless of price.

MAP and Phosphate Rock are the key ingredients in Cabinda Phosphate Granules. While the Company's Phosphate Rock is still available at cost, at current prices, MAP would comprise approximately 90% of the cost of raw material input costs for the granules, having a large and outsized impact on product pricing.

<sup>1</sup>Profercy Fertilizer Report, March 2022



12<sup>th</sup> April 2022  
ASX Announcement

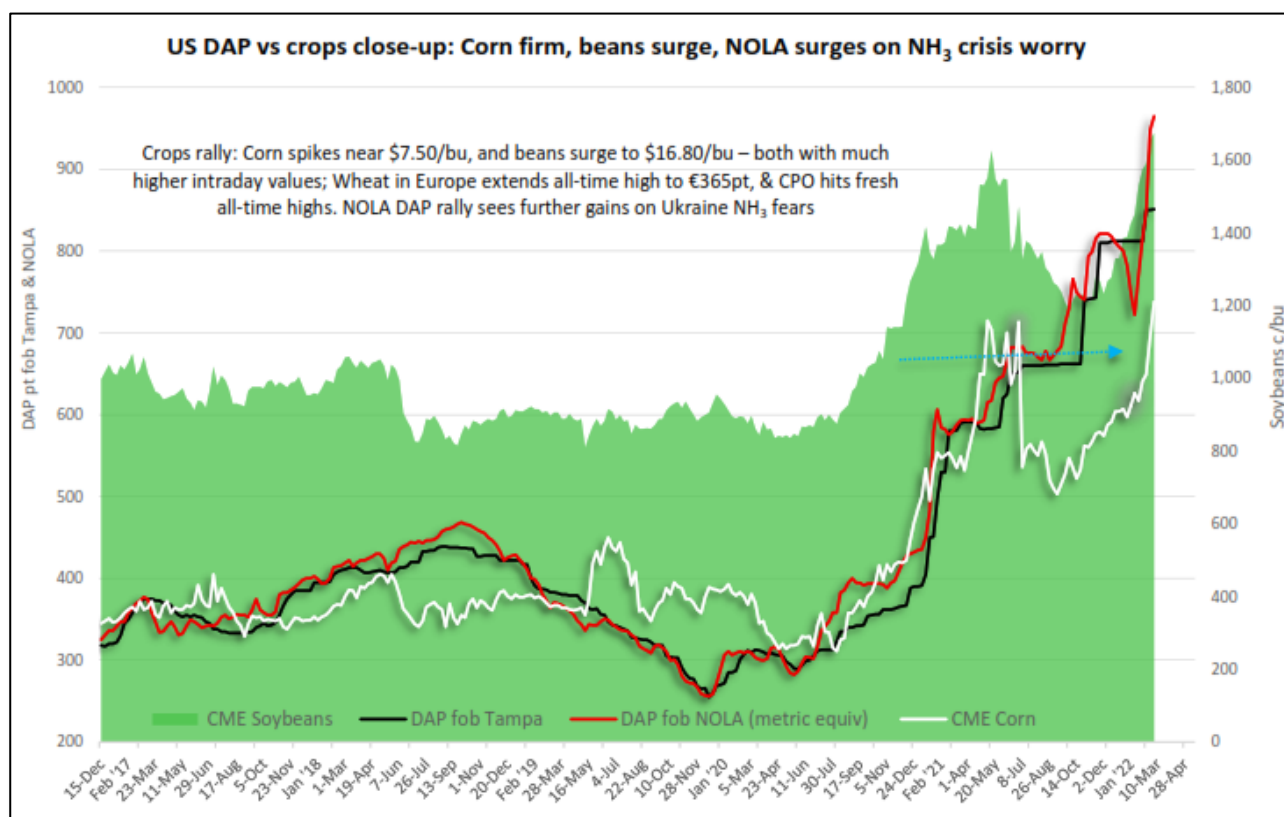


Figure 1 – Profercy Reports - DAP pt fob Tampa and Nola prices overlain CME Corn and Soybean pricing

## Strong Demand for Phosphate

The IFDC and the World Bank have advocated “Building Soil Phosphate Capital in Africa” with the benefit of incorporating several hundred kilograms of phosphate rock into soils in the first year well understood. A program of building phosphate levels in soils has been used successfully to develop major farming regions, including the development of new Cerrado farms in Brazil and historically in Australia through the Superphosphate Bounty Act (1941).

Technically, this application regime has many advantages, and the market is now providing a strong economic advantage. Minbos and IFDC are now planning a role for the Company’s beneficiated Phosphate Rock to be used in the Angolan Farm and Fertilizer Productivity Program (AFFPP).

High fertilizer prices also bring greater opportunity. Two years ago, the difference between global MAP and Phosphate Rock prices was only \$US200/t, today it is \$US1000. The price differential means that Phosphate Rock-based products now provide value in use for some crops and markets where none existed two years ago. In this regard, Minbos has recently been approached by regional mega farms and distributors, representing more than 60,000 hectares, regarding the availability of beneficiated Cabinda Phosphate Rock (CPR).

Preliminary analysis using a Phosphate Rock Decision Support System (PRDSS) has demonstrated the potential for CPR to be a viable nutrient source for the majority of new agricultural projects in Angola and, more importantly, cost competitive in the current market.

Our field trials in Angola over the last three seasons compared Cabinda granules with MAP and CPR demonstrating the efficacy of CPR for staple crops like beans and in some trials even outperforming MAP. The Company has received multiple requests for its CPR from exporters, importers and customers interested in both beneficiated and raw phosphate rock.

### **Definitive Feasibility Study**

The granulation flow sheet was designed to be flexible allowing for different products and formulations to be produced. An external review of the flowsheet by the IFDC concluded that the current plant is capable of producing beneficiated phosphate rock-based products with minor modifications. The mass and energy balances can be simply calculated and will be verified in a pilot plant trial scheduled in early June.

Updating the DFS requires updating the production flowsheet which can be repurposed to switch from granulation to Phosphate Rock beneficiation campaigns with relatively minor changes (see appendix 1).

The engineering calculations will be completed in the coming weeks and will be confirmed in the next pilot trial scheduled for the second week of June at the IFDC Headquarters. This trial will produce 7 tonnes of product for agronomic demonstration trials in Angola later this year.

The engineering component of the revised DFS can be completed in approximately 3 months and the Company will provide an update on the market component after technical discussions with new potential customers. Meanwhile, the Company will continue to build its Phosphate Plant through its EPCM contractors.

### **Commenting on updating the DFS, CEO Lindsay Reed:**

*"It has been a remarkable few weeks and months for Minbos with seemingly unlimited new business opportunities presenting themselves. What is clear however is that the local appetite for our Phosphate is both real and large.*

*Given the Company was completing a DFS which produced a fertilizer blend of MAP and Phosphate Rock, we have taken the decision to widen the scope of the DFS to include both blended fertilizer and beneficiated phosphate rock.*

*The Company is confident it can achieve similar returns, reduce working capital requirements, reduce customer outlays and possibly accelerate the timetable to full plant utilisation - all without delaying the plant commissioning.*

12<sup>th</sup> April 2022  
ASX Announcement



*We look forward to finalising the DFS which, if implemented, will provide greater food security to the Angola and the wider middle-Africa region."*

**-END-**

This announcement is authorised for release by the board of Minbos Resources Ltd.

For further information please contact:

**Chris Swallow**

Corporate Development

E: [c.swallow@minbos.com](mailto:c.swallow@minbos.com)

P: +61 412 174 882

A photograph of a cornfield with tall stalks and green leaves, serving as a background for the main text.

**Grow to eat.  
Grow to sell and  
grow to export.**

Minbos is an exploration and development company with a vision to build a nutrient supply and distribution business that stimulates agricultural production and promotes food security in Angola and the broader Middle Africa region, through development of its world-class phosphate ore project within the Cabinda Province



### **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.”



## Appendix 1

Flowsheet changes required to to switch plant from granulation to Phosphate Rock beneficiation campaigns:

1. Increasing the feed size by varying the speed of the cage mill. Additional Cabinda Phosphate Rock will be sent to Cage Mill supplier Stedmen to test the cage mill at various speeds to produce a size reduction curve in conjunction with the initial design test work. The tests will give some guidance to upside capacity for the cage mill at lower speeds.
2. Granulator Drum dust entrainment will be minimised by the introduction of a water misting circuit along with reducing the extraction air flow via the dampers and the variable speed drive on the exhaust fan already incorporated in the design. The ring dam at the end of the drum will also be removed for beneficiation.
3. The Rotary Dryer was designed to reduce moisture from ~8% down to ~0.8% from the granulated material. Without the granulation or need to recycle, the amount of moisture removed in dryer drops from ~10tph to less than 1tph. The current burner cannot be turned down that low, so an additional burner will be purchased suited to the reduced duty with considerably less fuel consumption. The burners can be easily changed out when changing from a granulation to a beneficiation campaign.
4. Recycle screens become redundant in the beneficiation flowsheet so the top cloth designed to reject oversize will be removed, and the bottom cloth designed to pass undersize will be replaced with a blind cloth in beneficiation campaigns. The screen unit will stay in the circuit but pass all the material exiting the dryer to the cooler.
5. The cooler drum will not be needed for simple beneficiation campaigns, but it can be used to add trace elements by the simple addition of coating sprays. This is very interesting in the context of the provisional patent application made last year. As cooling is not necessary it is likely that the cooler drum can operate at 30-40tph by changing to a higher duty motor.