

OVERVIEW OF SOUTH AFRICA'S PHOSPHATE
FERTILISER INDUSTRY, 2012

DIRECTORATE: MINERAL ECONOMICS



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

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ABSTRACT

From 2001 to 2010, South Africa's total fertiliser production grew at an average rate of 1.8 percent annually. With the exception of 2007, during the period 2005 to 2011 production increased but has since been declining due to increasing number of imports into the country. Nutritional concentration of fertilisers has increased over the years but there has not been much growth in the fertiliser industry in the past few decades. The effect of population growth, food shortages and climate change patterns continue to drive demand for phosphates at an annual compounded rate of 2 to 5 percent per annum. However, capacity expansion projects at several operations have the potential of addressing short supply. This report gives an overview of the phosphate based fertiliser industry of South Africa. The report outlines the phosphate industry, taking into consideration phosphate fertiliser processes and different fertiliser products produced from these mineral. The report concludes with an outline of the fertilizer industry's value to South Africa and the outlook on the industry.

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1. INTRODUCTION

About 80 percent of the world phosphate production is derived from sedimentary phosphate deposits. More than 75 percent of the globally commercially exploited phosphate rock is surface mined, which can take many forms from manual methods to the employment of highly mechanised technologies, with the remainder recovered by underground mining. Over 30 countries produce phosphate rock and most commercial producers exploit sedimentary sources. However, igneous rocks containing phosphate in the form of apatite are exploited in South Africa, Brazil, Russia, Finland and Zimbabwe.

The agricultural sector for the production of fertilisers is the principal consumer of phosphate rock, accounting for 80-85 percent of total production. The South African fertiliser industry is currently in a mature stage. The consumption of fertiliser on an annual basis has been around ± 2 million tons since early 1980s and it is not expected to change drastically in the short term. The effect of population growth, food shortages and climate change patterns continue to drive demand for phosphates globally, resulting in a firm market due to strong demand from the fertilizer industry.

Mineral fertilisers are materials, either natural or manufactured, containing nutrients essential for the normal growth and development of plants. Plant nutrients are food for plants some of which are used directly for human food, others to feed animals, supply natural fibres or produce timber. Man and all animals depend entirely on plants to live and reproduce. The three primary plant nutrients that are used in large quantities in fertilisers are nitrogen, phosphorus and potassium. Sulphur, calcium and magnesium also are required in substantial amounts. These nutrients are constituents of many plant components such as proteins, nucleic acids and chlorophyll, and are essential for processes such as energy transfer, maintenance of internal pressure and enzyme action. Seven other elements are required in small or trace quantities and are referred to as “micronutrients” or “trace elements”. Mineral fertilisers comprise naturally occurring elements which are essential to life.

The existence of a close relationship between fertiliser consumption levels and agricultural productivity has been established beyond doubt. Amongst the various agricultural inputs, fertilisers, perhaps next only to water, contribute the most to increasing agricultural production.

2. PRIMARY NUTRIENTS

The three primary plant nutrients that are used in large quantities in fertilisers are nitrogen, phosphorus and potassium. Sulphur, calcium and magnesium also are required in substantial amounts. Fertilisers are used in order to:

- supplement the natural soil nutrient supply to satisfy the demand of crops with a high yield potential and produce economically viable yields,
- compensate for the nutrients lost by the removal of plant products or by leaching or gaseous loss,

- improve unfavourable or to maintain good soil conditions for cropping.

This report will focus on phosphate based fertilisers, covering the value chain of the South African industry.

Phosphate is the second most widely-used fertiliser nutrient after nitrogen. Phosphates for the use in fertilisers are the most important factor in driving demand for phosphate rock. Almost over 90 percent of annual phosphate rock production is used in chemical fertiliser products with the rest being consumed by industrial end-use sectors and animal feed additives.

Phosphate rocks are a primary source of phosphorous. Apatite is the most common igneous source of phosphate. To be used in the fertiliser industry, phosphate rock and its concentrate need to contain at least 30 percent phosphorous pentoxide (P_2O_5) and reasonable amounts of calcium carbonate ($CaCO_3$), while having less than 4 percent combined content of iron and aluminium oxides.

The P_2O_5 content in phosphate rock typically varies from 4-42 percent P_2O_5 , with the term phosphate rock generally applied to any rock containing more than 20 percent P_2O_5 , the content of which is the main method of quantifying grade; BPL (bone phosphate of lime) may also be used. These terms are related as follow

$$\begin{aligned} \%P_2O_5 \times 2.1853 &= \% \text{ BPL} \\ \%P_2O_5 \times 0.4364 &= \% P \\ \%P_2O_5 \times 1.381 &= \% H_3PO_4 \end{aligned}$$

3. SOUTH AFRICA'S PHOSPHATE INDUSTRY

The South African fertiliser industry comprises of four companies that share about 94 percent of the market. The four companies are Sasol, Omnia, Yara and Profert. Fertilizer products that are produced include nitrogenous, potash, and phosphate fertilizers (including ground rock phosphate). Consumption of fertilizers has been around ± 2 million tons since the early 1980s till date. The main market for fertiliser is the agricultural industry. Although the nutritional concentration of fertiliser has increased over the years, there has not been much growth in the fertiliser industry in the past few decades due to the current economic market conditions in the grain and oilseeds industry (47% of total fertiliser consumption) do not allow for any profitable expansions in terms of area.

3.1. OCURRENCE

There are three main types of phosphate rock deposits, igneous, sedimentary and modern and ancient guano accumulations, which have widely differing mineralogical, textural and chemical

characteristics. Though all three types occur in South Africa, the igneous deposit at Phalaborwa is the major one currently being exploited.

The most prevalent phosphate minerals in these rocks are species of apatite, i.e. calcium phosphate with quartz, calcite, dolomite, clay and iron oxide as gangue components. Igneous rock is often associated with carbonatites and/or alkalic intrusions and is generally low in phosphate concentration. The abundance ratio of igneous versus sedimentary rock is 13 to 87.

The 2 billion year old (Archean) Palaborwa Carbonatite Complex in Limpopo Province contains apatite bearing zones which are the major source of South African phosphate production. The apatite is relatively coarse grained, with a well developed crystal structure, is hard and practically insoluble in water and weak acids such as citric acid. It is unsuitable as a direct application fertiliser and must first be treated with strong acids. The total radioactivity of the Palabora apatite is characteristically lower than other igneous phosphate minerals in the world. The Palabora carbonatite contains two types of apatite ores: foskorite and pyroxenite.

The foskorite embodies some 20Mt of ore for each 30m of depth, and has a mean phosphorous pentoxide (P_2O_5) grade of 8.6 percent, at a cut-off grade of 6 percent. Borehole results indicate that mineralisation persists to a depth of at least 1000m below surface. The pyroxenite contains 486 Mt of ore grading 6.9 percent P_2O_5 for each 30m of depth. A cut-off grade of 5 percent P_2O_5 , to a depth for 600m, was used in calculating the reserve base of some 2 500Mt, which represents the third largest in the world.

The Glenover phosphate deposit, located north of Thabazimbi, in Limpopo, occurs in a smaller carbonatite pipe. High-grade phosphate ore from Glenover was mined out in the past and its dumps are currently being re-worked to recover phosphate.

Sedimentary phosphates are “soft” as compared to the igneous phosphate of the Palabora Igneous Complex. As a result, sedimentary phosphates are suitable for direct application onto soil. Some sedimentary phosphate deposits occur along the western seaboard e.g. (Langebaan, Langfos) but are currently not being exploited. This is a potential opportunity for small scale miners and warrants further investigation. South Africa reserves are estimated at 1500 Mt.

3.2. MINING

Foskor is the sole producer of Phosphate rock in South Africa, with a design capacity of approximately 2.8 Mt per year. The company started mining the foskorite ore zone in 1954. Palabora Mining Company (PMC) was formed in 1957 to exploit the non-phosphate minerals i.e. copper and vermiculite in the carbonatite complex, while Foskor retained the rights to the phosphate minerals in the entire Phalaborwa Complex. Until recently, as a result of the various agreements between the two companies, Foskor recovered phosphate from a portion of PMC's tailings (40 percent). Now the only

foskorite from PMC is contained in a stockpile. Foskor also has an opencast mine in the north-western part of the pyroxenite region from which it mines pyroxenite for the production of high-grade phosphates (20 percent). In 1999, Foskor undertook the Extension 8 project that increased the plant capacity by 750 kt per annum.

The most recent extension to the mine is the Pyroxenite Expansion Project (PEP) which was divided into two phases PEP1 and PEP2. PEP 1, involved the construction of a new pyroxenite ore opencast mine together with the installation of a new primary gyratory crusher and an overland conveyor system, which was completed in June 2010. PEP 2 focused on de-bottlenecking the existing Extension 8 plant to improve its throughput rate in order to meet its original design capacity. This was completed in February 2011. The company now has a design capacity of approximately 2.8 Mt per year. Proven reserves in the existing mine will last at least another 60 years, with total ore resources extending for a further 8 years.

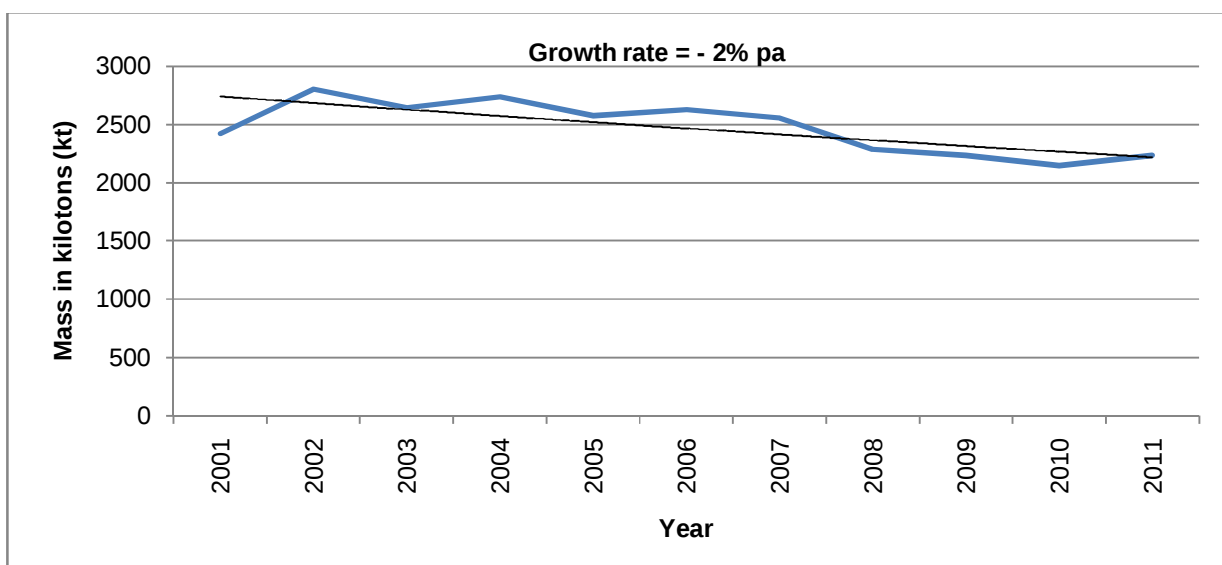
3.3. PROCESSING

Foskor's phosphate mine was re-sized to cater for internal demands from Foskor Richards Bay and domestic customers, which collectively consume less than one million tons per annum (i.e. Sasol Nitro and Omnia, which operate phosphoric acid and fertiliser plants). An expansion project at Foskor Richards Bay, with a R1.5 billion price tag was completed in June 2003. The plant produces sulphuric acid (H_2SO_4), phosphoric acid (P_2O_5) and granular fertiliser (MAP/DAP). H_2SO_4 is primarily an input in the production of P_2O_5 . The granular fertiliser plant operates independently from the acid plants and may be shut down at times when demand is low. At full capacity, Foskor Richards Bay can produce 2.2 million tons of H_2SO_4 per annum, 720,000 tons of P_2O_5 and 300,000 tons of MAP/DAP. About 88 percent of granular fertiliser is sold locally.

3.4. SUPPLY OF PHOSPHATE ROCK

South Africa's production of phosphate rock has varied between 2000 kt and 3000 kt since 2000 (Fig. 5). Production of phosphate has been on a decreasing trend since 2002, reaching a low of 2 148 kt in 2010 before increasing again to 2 575 kt in 2011 as a result of increased demand for fertilisers and depleting stock levels. Production decrease was mainly brought about by fluctuation in feed grades due to diminishing surface ground ore reserves. Technical problems that were experienced at Foskor since commissioning of Extension 8 project after 2003 also contributed further to the decrease, the mine was unable to reach full capacity of 750 000 tons as planned.

FIGURE 1 : SOUTH AFRICA'S PRODUCTION OF PHOSPHATE ROCK, 2001-2011

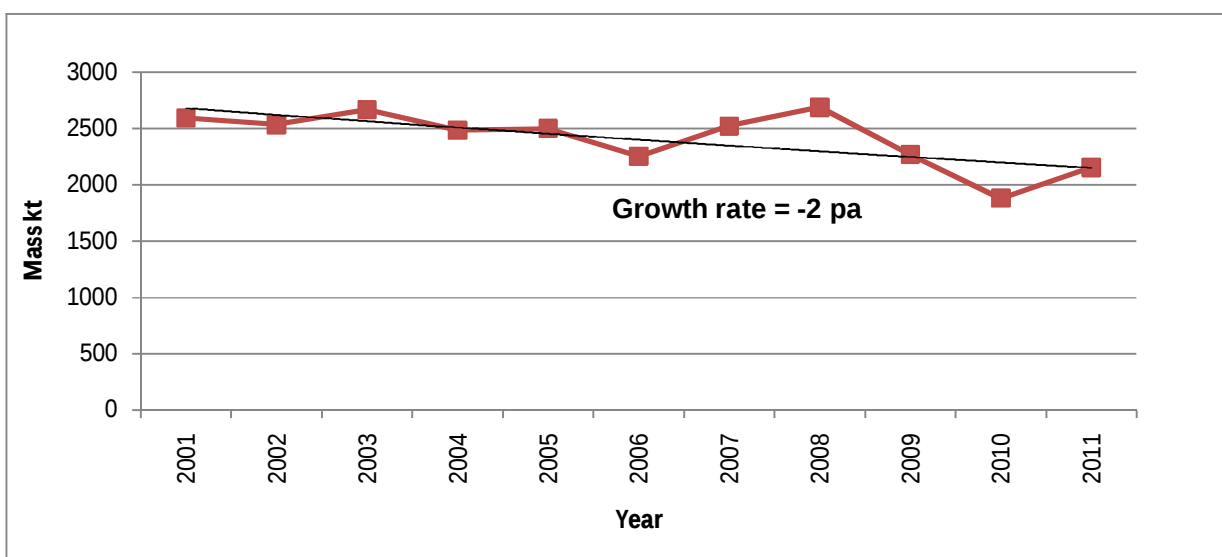


Source: Directorate Mineral Economics

3.5. DEMAND FOR PHOSPHATE ROCK

Local sales volumes of phosphate rock declined at an average rate of 2 percent annually, from 2 591 kt in 2001 to 2 155 kt in 2011(Fig. 6). Growth was experienced in 2003, 2008 and in 2011. The increase was attributed to the steady production of phosphoric acid at Foskor Richard Bay Plant, as well as improved railing capacity of phosphate rock from Phalaborwa to Richards Bay.

FIGURE 2: SOUTH AFRICA'S LOCAL SALES VOLUMES OF PHOSPHATE ROCK, 2001-2011



Source: Directorate Mineral Economics

3.6. DOWNSTREAM PHOSPHATE FERTILISER PRODUCTS

- **SINGLE SUPERPHOSPHATE (SSP)**

SSP was once the most commonly used fertilizer, but has been largely replaced because of its relatively low phosphorus content (P). In order to produce SSP ground phosphate rock is reacted with sulphuric acid to form a semi-solid which cools for several hours in a den. The plastic-like material is then conveyed to storage pile for several weeks of additional curing. The hardened material is then milled and screened to the appropriate particle size or granulated.

SSP can easily be produced on a small scale to meet regional needs. Since SSP contains both monocalcium phosphate and gypsum, there are no issues with phosphogypsum by-product disposal as occurs with the manufacture of other common P fertilizers. SSP is also known as ordinary superphosphate (TSP) production, which is made by reacting rock phosphate with phosphoric acid. SSPs are produced at Omnia.

- **ENRICHED SUPERPHOSPHATE**

This product is manufactured by treating phosphate concentrate with a mixture of sulphuric acid and phosphoric acid, in a process similar to manufacturing single superphosphate, and contains 10,5 percent water-soluble phosphorus. Additional soluble phosphorus is provided by the extra phosphoric acid and the product contains less CaSO_4 than the single superphosphate.

- **DOUBLE SUPERPHOSPHATE (ALSO CALLED TRIPLE SUPERPHOSPHATE)**

Double superphosphate is manufactured by treating phosphate concentrate with phosphoric acid in a process similar to that used in the manufacture of superphosphate. It contains approximately 19,6 percent water-soluble phosphate. The main difference in this case is that no or very little gypsum is formed, with the result that the monocalcium phosphate is not diluted with gypsum, and the P content is therefore high. With no gypsum the sulphur content is negligible. Double Superphosphates are produced by Profert and Sasol.

- **NITRO PHOSPHATE (NP)**

Phosphate concentrate can also be made soluble by treatment with nitric acid, HNO_3 . Usually too much acid is used and the excess is then neutralised with ammonia. The result is that the nitro phosphate consists of dicalcium phosphate, monocalcium phosphate and ammonium nitrate, therefore a NP-product. This was manufactured as a suspension in South Africa in the past.

- **MONO-AMMONIUM PHOSPHATE (MAP) AND DI-AMMONIUM PHOSPHATE (DAP)**

These are the important phosphate fertilisers, and are manufactured by the neutralisation of phosphoric acid with ammonia. MAP contains 11 percent nitrogen and 22 percent phosphorus,

whereas DAP contains 18 percent nitrogen and 20 percent phosphorus. MAP and DAP are produced by Sasol.

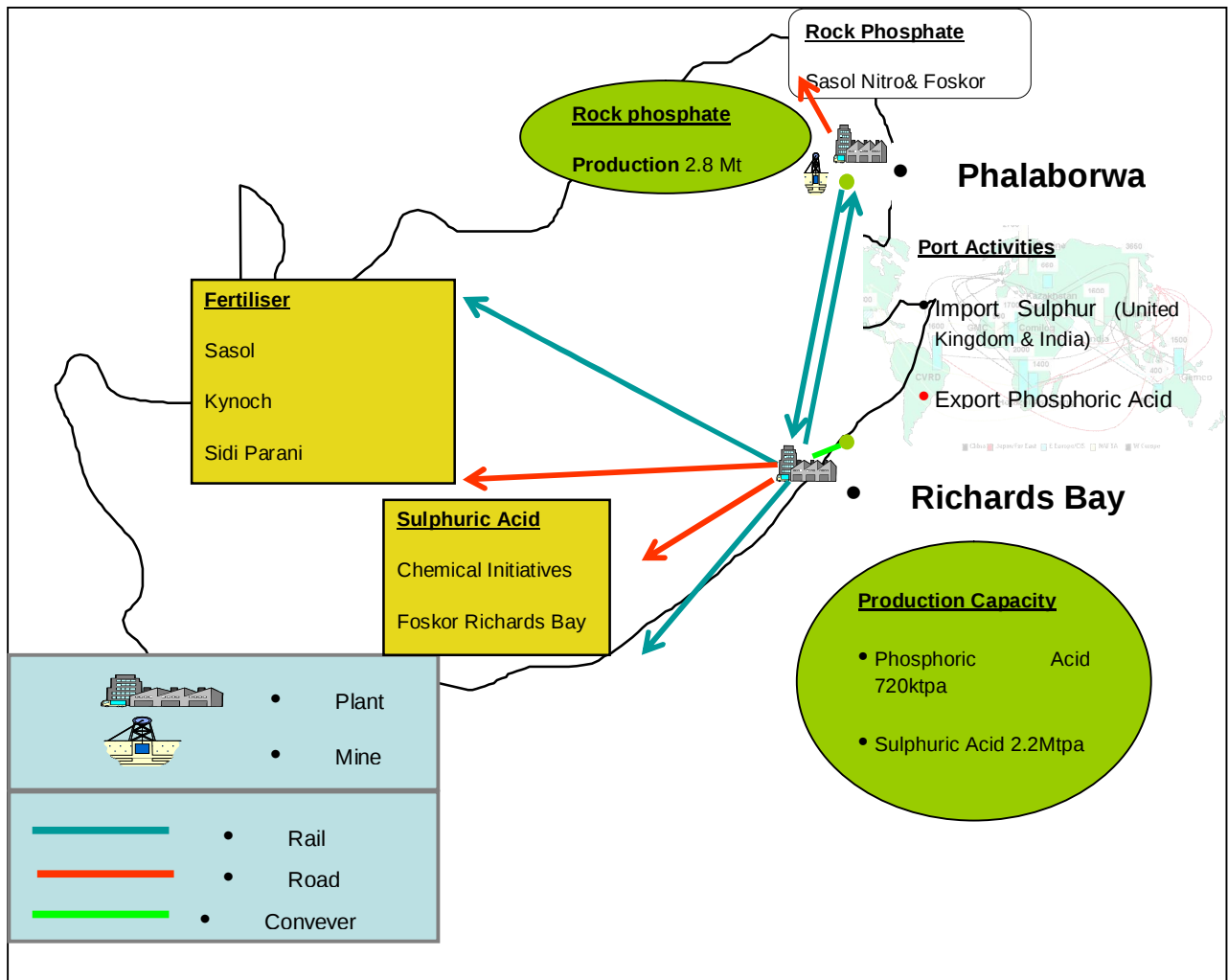
3.7. PHOSPHATE SUPPLY CHAIN

Foskor's Mining Division in Phalaborwa mines phosphate rock (foskorite and pyroxenite), from which Foskor's Acid Division in Richards Bay produces phosphoric acid and phosphate-based granular fertilisers for local and international markets. The opencast mine in Phalaborwa, in South Africa's Limpopo Province, has the capacity to yield 2.6 million tons per annum of phosphate rock concentrate from processing 35 million tons of ore per annum. Once crushed, milled, concentrated and dried, most of the phosphate rock concentrate is railed to Foskor's processing plant in Richards Bay, 800 km away on the country's east coast and the rest is sold to Sasol Nitro.

The Richards Bay plant produces sulphuric acid (H_2SO_4), phosphoric acid (P_2O_5) and granular fertiliser (MAP/DAP). H_2SO_4 is primarily an input in the production of P_2O_5 . The granular fertiliser plant operates independently from the acid plants and may be shut down at times when demand is low. Foskor Richards Bay is 3 km from the deep-sea port which, by virtue of its sheer proximity, provides easy access to market. Raw material inputs such as sulphur and ammonia from Canada and the Middle East are imported and final products are exported via the port of Richards Bay.

At full capacity, Foskor Richards Bay can produce per annum 2.2 million tons of H_2SO_4 , 720,000 tons of P_2O_5 and 300,000 tons of MAP/DAP. About 88 percent of granular fertiliser is sold locally. Foskor's fertiliser price is based on the global prices set in US Dollars and is published weekly in the Fertiliser Market Bulletin (FMB).

FIGURE 3: PHOSPHATE SUPPLY CHAIN



Source: Grain SA Fertiliser Report 2011

4. THE SOUTH AFRICAN FERTILISER INDUSTRY

4.1. HISTORY OF THE SOUTH AFRICAN FERTILISER INDUSTRY

The South African Fertiliser Industry dates back to 1903 when the South African Fertiliser Company (SAFCO) began production of phosphate by means of animal bones. As the industry developed during the 20th, the production of explosives became crucial, resulting in the production of larger quantities of by-product sulphuric acid. The by-product sulphuric acid, and imported phosphate rock, formed the basis of a viable fertiliser industry. Explosive producers such as Kynoch (Umbogintwini) and Cape Explosives (Somerset West) began fertiliser production in 1919 and 1920, respectively. The original Kynoch and Cape Explosives joined forces in 1924 as AE&E, which later became AE&CI (i.e. African Explosives and Chemical industries, at present AECL Limited). AECL continues to produce both explosives and fertilisers among other product ranges.

The fertiliser industry flourished in the early 1950's which led to the development of Foskor, Sasol and Iscor. As a result, the Fisons and Windmill (Sasolburg) and Bosveld (Phalaborwa) fertiliser factories were established. By 1969, these factories, together with Fisons factory at Milnerton, became part of Fedmis. Other companies such as Omnia and Triomf were also established. Sasol Limited, which previously had been a supplier to other fertiliser manufacturers only, established its own fertiliser company (Sasol Fertilisers) and started marketing directly to farmers in 1984. In 1986, Kynoch took over the local interests of Triomf. At about the same time an overseas consortium (Indian Ocean Fertiliser, IOF) took over the Richards Bay plant. IOF produced phosphoric acid and soluble phosphates mainly for the export market.

In 1988, the operational interests of Fedmis, a division of Sentrachem, were taken over by Sasol Fertilisers, Kynoch Fertilisers and Omnia Fertilisers. During 1990, Foskor became a shareholder in IOF. In 1992, Sasol fertilisers decided to cease its direct marketing to farmers. In 1993, Kynoch Fertilisers took over the nitrogen interests of AECL. Chemfos (a subsidiary of Samancor), which mined phosphates at Langebaan and which was also a fertiliser blender, ceased its activities towards the end of 1993. In the period 1999-2004, Foskor obtained the entire shareholding of IOF.

In 2008, 86 percent of the market share in terms of revenue in the fertiliser industry was shared between only three companies, Sasol, Ominia and Kynoch. With Profert included, four companies shared 94 percent of the market. Sasol, as in 1992 decided to focus on wholesale production and to stop selling fertiliser as retailers.

In 2009, South African petrochemical group Sasol mothballed its Phalaborwa phosphoric acid plant in Limpopo Province, owing to high feedstock prices and declining fertiliser demand. However, Farmers World Limpopo, a subsidiary of Meridian International Group has now taken ownership of the mothballed Sasol Nitro plant, which is now fully operational under new management. Ominia Fertiliser, a division of the Omnia Group also decided to cease operations at its phosphoric acid plant located outside Rustenburg. The plant produced phosphate based products, mainly phosphoric acid. The Industrial Development Corporation (IDC) remains the majority shareholder (59 percent) of Foskor, with Coramandel Fertilisers from India and Manyoro Consortium owning 14 percent and 15 percent respectively.

4.2. INDUSTRY STRUCTURE

The South African Fertiliser Industry comprises manufacturers, importers, blenders, retail distributors and agents, fertiliser applicators, and a number of associated service industries. The industry is dominated by four companies namely Foskor, Yara SA, Sasol Nitro and Ominia. Three of these companies, viz, Sasol, Omnia and Foskor are also into manufacturing (excluding blending). Profert, Nitrophoska, Nutri-Flo and Greenlands are bulk blenders that either import raw materials or source them from the local manufacturing companies.

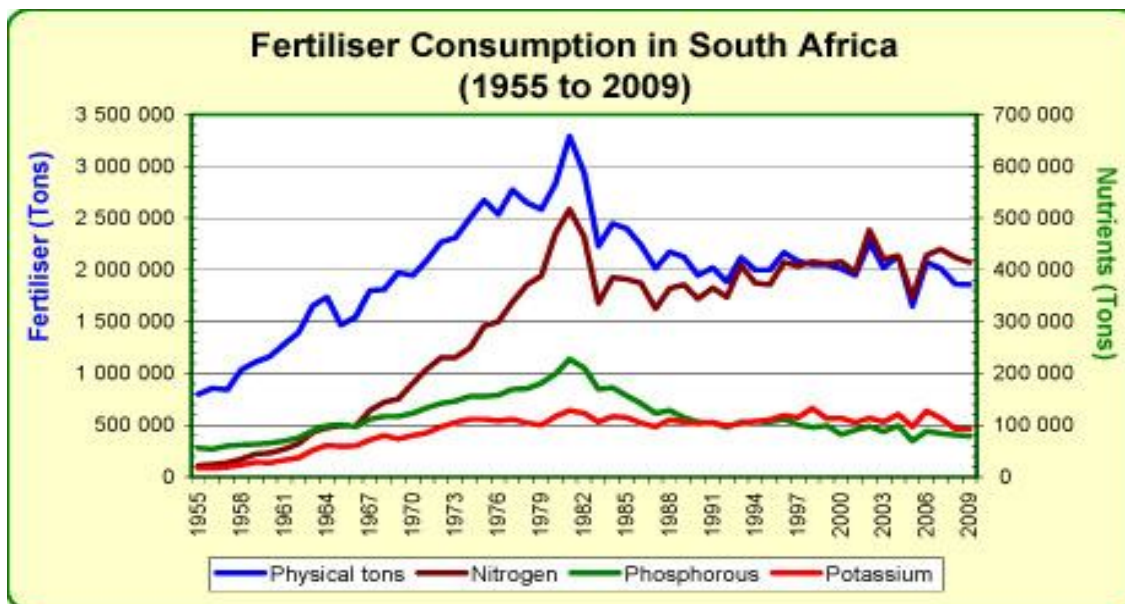
The industry is represented both nationally and internationally by the Fertiliser Society of South Africa (FSSA). The South African fertiliser industry is fully exposed to world market forces and competes in a tough global environment. Having been a net exporter of downstream fertilisers until the late 1990s, South Africa became a net importer after fertiliser plant closures in late 1999 and early 2000.

4.3. VALUE TO SOUTH AFRICA

The South African fertiliser industry is currently in a mature stage. The consumption of fertiliser on an annual basis has been around ± 2 million tons since early 1980s and it is not expected to change drastically in the short term. Nutritional concentration of fertilisers has increased over the years; there has not been much growth in the fertiliser industry in the past few decades. The South African fertiliser industry annually supplies about (750 000 tons of $N + P_2O_5 + K_2O$) of fertiliser products to the local market at a value of R3 billion (\$480 million). This represents 20 percent of the South African chemical industry (excluding oil).

Fertiliser consumption reached a peak of more than 3 million tons in 1982, when price control was in place and the industry operated in a protected trade environment. In 1982, the country suffered the most severe drought in two centuries. This coincided with the worst recession since 1930, which had a serious financial effect on both farmers and the fertiliser industry. Shortly after this, in 1984, the liberalisation of the South African trade policies started with the abolishment of price control and the opening-up of the economy. Once everything settled down, total fertiliser consumption levelled off in 1988 at around the 2 million ton per annum mark where it has stayed until 2007 when the fertiliser consumption started decreasing slightly till 2009 to 1.8 -1.9 million tons (Fig. 9).

FIGURE 4: FERTILISER CONSUMPTION IN SOUTH AFRICA, 1955-2009



Source: FSSA

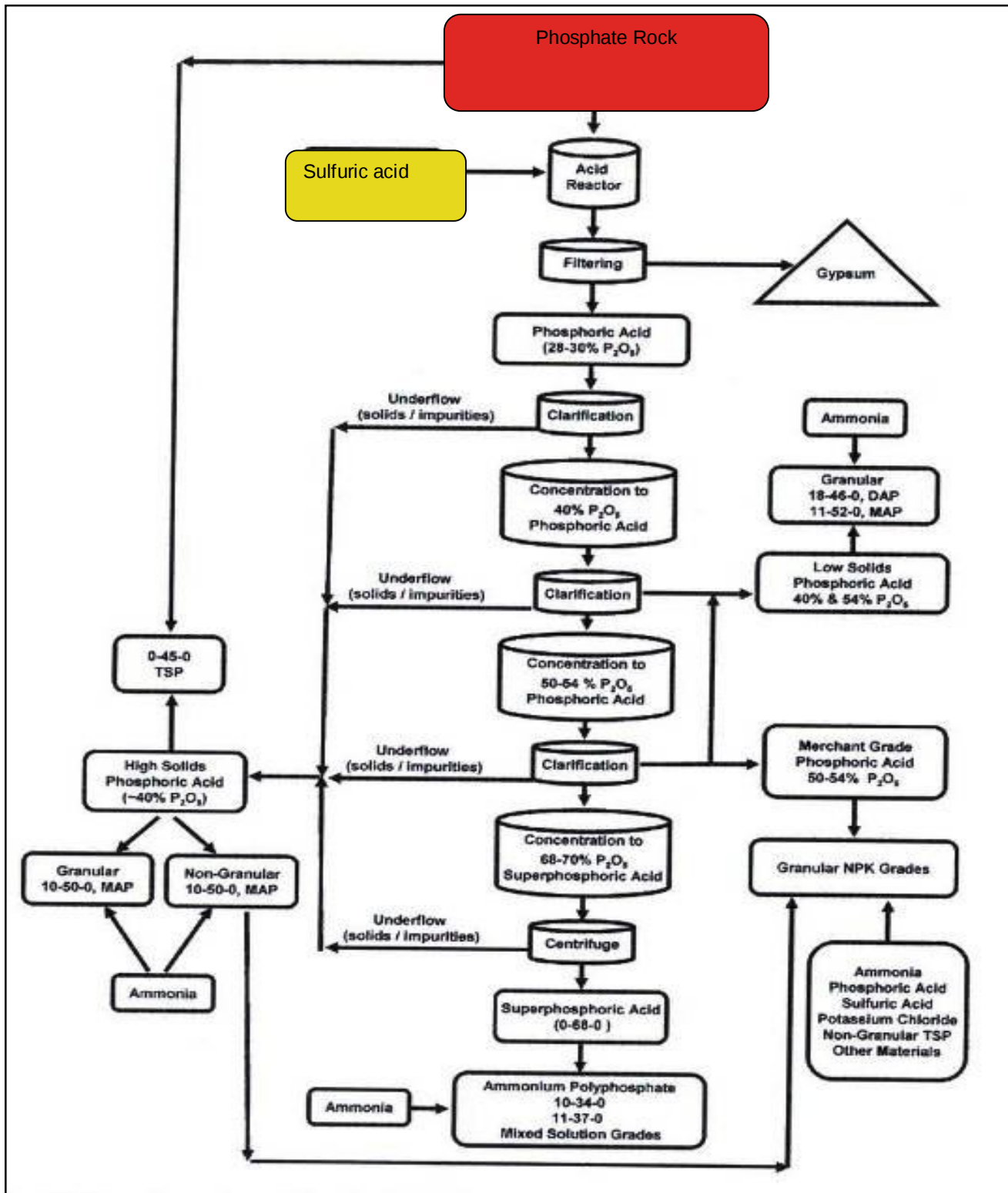
Maize farming is estimated to consume about 36 percent of the total fertiliser market while sugar cane, wheat, soft and stone fruit and vegetables consume 17.9 percent, 6.9 percent, 2.5 percent and 0.8 percent respectively. Grain and oilseeds uses make up half of South Africa's total fertiliser consumption.

5. PHOSPHATE FERTILISER PROCESS

The process of a phosphate fertiliser begins with the production of phosphoric acid. Phosphate rock is treated with sulphuric acid to produce phosphoric (orthophosphoric) acid, H_3PO_4 , a clear green viscous, oily liquid which is miscible with water in any ratio (Fig. 2). There are a number of commercial grades of phosphoric acid depending on the manufacturing process, P_2O_5 content, impurity content and end use. In the WET PROCESS, finely ground phosphate rock is mixed with water and a recycled stream of phosphoric acid to form a slurry that is treated with sulphuric acid (93 percent) to form 28 percent P_2O_5 dilute phosphoric acid plus gypsum solids (filtered by-product phosphogypsum). The initial phosphoric acid solution may contain 23–33 percent P_2O_5 , but is then concentrated by the evaporation of water to produce commercial- or merchant-grade phosphoric acid, which contains about 54 percent P_2O_5 . Furthermore, evaporation of water yields superphosphoric acid with a P_2O_5 concentration above 70 percent.

Digestion of the phosphate ore using sulfuric acid yields the insoluble calcium sulfate (gypsum), which is filtered and removed as phosphogypsum. Wet-process acid can be further purified by removing fluorine to produce animal-grade phosphoric acid, or by solvent extraction and arsenic removal to produce food-grade phosphoric acid.

FIGURE 5: PHOSPHORIC ACID PRODUCTION PROCESS

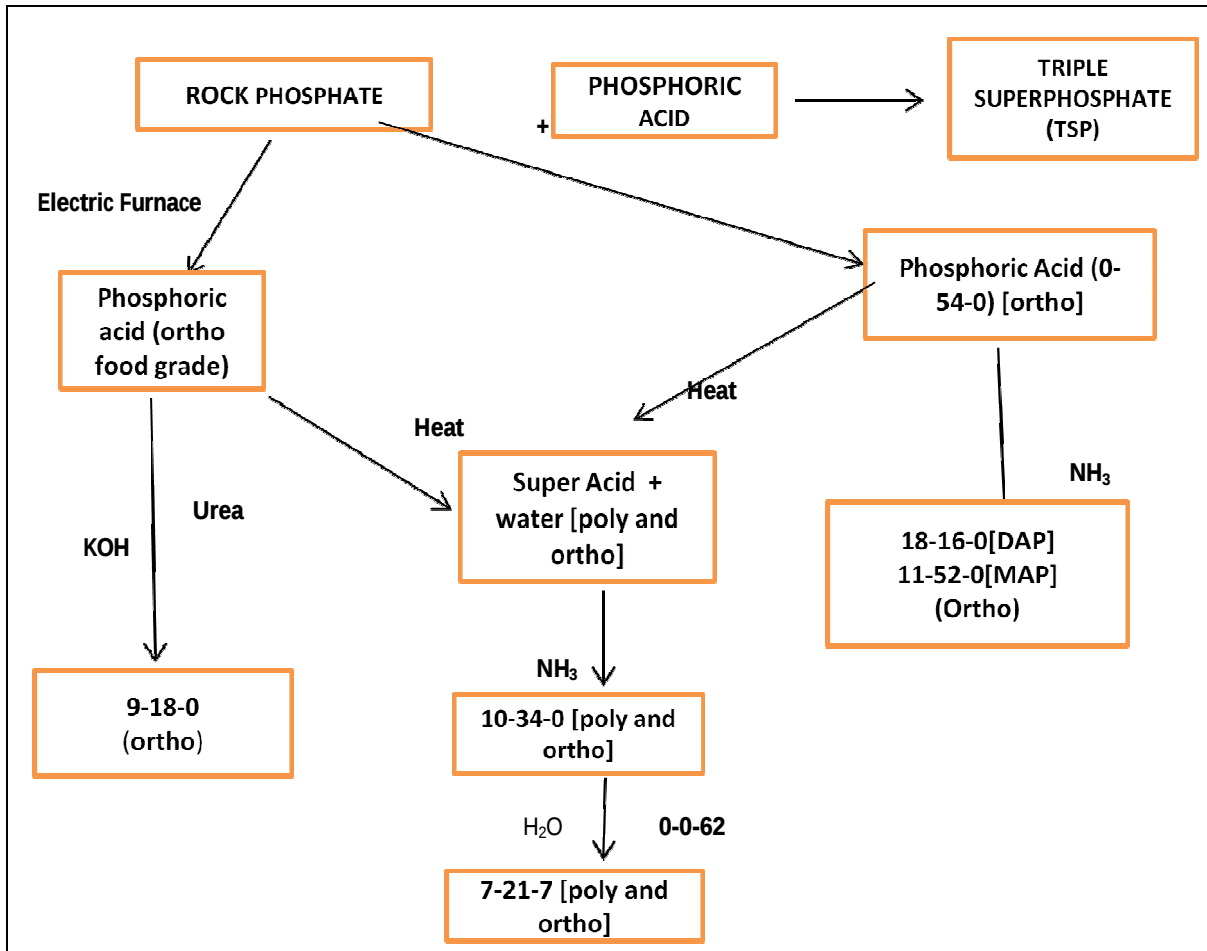


Source: Potash and Phosphate Institute

Triple super phosphate (TSP) is produced by the reaction of phosphate rock with phosphoric acid (Fig 6). Anhydrous ammonia is added to the phosphoric acid to produce mono-ammonium phosphate

(MAP) and di-ammonium phosphate (DAP). When phosphoric acid is heated, polyphosphate is formed and is used to produce ammonium polyphosphate fertilizers. All processes produce plant available forms of phosphate (orthophosphate).

FIGURE 6: PHOSPHATE FERTILISERS PROCESS



Source: Adapted from University of Minnesota

The manufacture of phosphate fertilizer produces fluoride and sulfur dioxide emissions; however, emissions are regulated to meet world health standards. A by-product associated with phosphate production is phosphogypsum which is produced in the wet-process and contains radium making it difficult to discard. Many improvements are being made to minimize environmental impact of fertilizer production and utilization. For example, by-products of the phosphate industry are being evaluated for use as soil amendments.

6. DRIVERS OF SOUTH AFRICAN FERTILISER PRICES

South Africa imports most of its fertiliser product needs (raw materials and end products), therefore, prices in the South African fertiliser market are driven by the same drivers as in the international fertiliser market. However, the most important factor that influences the South African fertiliser prices

is the prices of the imported products. The exchange rate also has an important role in determining local fertiliser prices. Imported materials are subjected to local factors after they have landed at a local harbour. Locally manufactured fertilisers are subject to international prices of ammonia, phosphate rock, phosphoric acid; MAP/DAP and sulphur. In both imported and locally produced materials, the South African transport system plays a pivotal role in the domestic structure of fertiliser prices. For imported materials, the capacity problems and the logistics in the harbour ports play a role in the local fertiliser price structure. In certain products, such as phosphate rock and phosphoric acid, supply and demand in the local industry also plays a role because South Africa is currently a net exporter of these products.

Figure 7 summarizes the relationships between local MAP and international DAP fertiliser prices. Local prices responded positively to changes in the international fertiliser prices. During the months between December 2007 and August 2008, fertiliser prices showed large increases which could be attributed to the influence of external factors such as above-average hikes in oil prices in the world market. Local fertiliser prices responded differently to corresponding increases (December 2007 to August 2008) and decreases (after August 2008) in international prices.

FIGURE 7: INTERNATIONAL DAP PRICE AND LOCAL MAP PRICE, APRIL 1993-MAY 2010



Source: Grain SA, 2010

7. SOUTH AFRICAN FERTILISER INDUSTRY DEVELOPMENT

South Africa's local fertiliser industry is exposed to international markets and uncertainty of the exchange rate with agricultural value chain contributing between 17 to 24 percent to South Africa's

Growth Domestic Product (GDP). The country is importing increasing amounts of fertiliser on an annual basis to satisfy the local demand. This poses a challenge in that the country is becoming increasingly reliant on imports, which has a negative effect on prices and also on the grain producers ability to produce affordable food in case of an international shortage. Infrastructure that is used to produce primary fertiliser materials is very old and very expensive to replace, but could be of so much benefit if replaced. This situation presents an opportunity for investors for expansion and development of new plants to address the domestic demand. The fertiliser Industry of South Africa is dominated by a few large raw material suppliers that supply raw materials to other fertiliser manufactures, opening up an opportunity for many more other players to come on board in order to ensure sufficient supply to the industry.

In July 2010, Sasol Nitro took a decision as part of an agreement with the Competition Commission, to divest from five of its regional fertiliser blending plants. The company intends to increase its focus on upstream activities of its fertiliser value chain, which was supported by investments in several new fertiliser production facilities at its Secunda operations. Sasol Nitro has made an agreement with the Competition Commission that they will market fertiliser from Secunda and three distribution centres within a 100km radius of Secunda and Sasolburg which has resulted in Sasol becoming the only wholesaler.

Yara, the world's largest supplier of crop nutrients, has shut down most of its local fertiliser manufacturing plants to focus mainly on importing. The company made an agreement in 2010 with Farmsecure Technologies (Pty) Ltd to acquire Yara's South Africa's fertiliser retail marketing businesses. The agreement was approved on the 31st of August 2010 leaving the company as an exclusive distributor of a selected range of premium Yara fertilisers in South Africa. Yara will soon be renamed to Kynoch Fertiliser.

Transport and distribution costs of fertilisers are a significant contributor to the price of South African fertiliser to the farmers. Transportation is mainly done by road, but was done dominantly by rail in the last ten years. However, it is much more cost efficient for Foskor to move enough phosphate rock to produce phosphoric acid and MAP between Phalaborwa and Richards Bay through rail transport. The company is dependent on Transnet Freight Rail (TFR) to provide rail services. Disruptions to rail services, and any ad hoc price increments on the part of TFR, may adversely affect Foskor's business, prospects or financial position. The group continually engages TFR on wagon availability and service delivery. Alternative export routes through Maputo are also being considered.

8. OUTLOOK

World phosphate demand remained firm in 2011, consolidating the global phosphate industry recovery experienced in 2010. Consumption of phosphate products rose in almost all consuming countries thus supporting record levels of production. World production is expected to increase to 256

Mt by 2016 as a result of mine expansion projects and development of new mines in several places in the world. There is unlikely to be any shortage of phosphate concentrate in the medium term if all these projects proceed as planned.

The phosphate rock industry fundamentals in South Africa are expected to remain strong in 2013, owing to growth in the agricultural sector as demand for food, feed and fuel continue to rise. The effect of population growth, food shortages and climate change patterns are expected to continue driving demand for phosphates at an annual compounded rate of 2 to 5 percent per annum. Capacity expansion at Foskor and re-commissioning of Sasol Nitro Plant in Phalaborwa by Farmers World Limpopo will ensure that there is a sufficient fertilizer for agricultural use.

Based on current crop and fertiliser prices, fertiliser demand is expected to remain at typical levels experienced over recent years, but adverse climatic conditions and/or unforeseen crop price decreases and/or fertiliser price increases could decrease demand by up to 20 percent in any given year. Local fertiliser demand is expected to remain close to 400 00 t for nitrogen, 100 000 t for Phosphate and 100 000 t for potassium in the short term. An adequate supply of all fertilisers for South African farmers is expected through local production and imports in the medium term at least until 2016. Prices of fertilisers are expected to decrease if the possibility of an oversupply materializes.

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