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# Competition, concentration, and market outcomes in fertiliser markets in East and Southern Africa

Simon Roberts, Olwethu Shedi, Isaac Tausha, Kondwani Kaonga, Grace  
Nsomba, Ntombifuthi Tshabalala

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## About the authors

**Simon Roberts** is a Lead Researcher for the Centre for Competition, Regulation and Economic Development (CCRED) and a professor at the University of Johannesburg.

**Olwethu Shedi** is an Associate Researcher for the Centre for Competition, Regulation and Economic Development (CCRED) at the University of Johannesburg.

**Isaac Tausha** is the Chief Economist at the COMESA Competition Commission.

**Kondwani Kaonga** is a Principal Economist at the COMESA Competition Commission.

**Grace Nsomba** is a Researcher for the Centre for Competition, Regulation and Economic Development (CCRED) at the University of Johannesburg.

**Ntombifuthi Tshabalala** is a Research Associate for the Centre for Competition, Regulation and Economic Development (CCRED) at the University of Johannesburg.

**This working paper is written in the authors' personal capacities and should not be construed as reflecting the views of the CCC or those of the University of Johannesburg.**

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### CCRED: Centre for Competition, Regulation and Economic Development

69 Kingsway Avenue,  
Auckland Park,  
Johannesburg, 2092

E-mail: [infoccred@uj.ac.za](mailto:infoccred@uj.ac.za) | [www.competition.org.za](http://www.competition.org.za)

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## Executive Summary

This paper analyses the fertiliser markets in and across seven COMESA member states. Fertiliser is a key input in commercial agriculture. Fertiliser is used extensively in production of commodities such as maize, a staple food in Eastern and Southern Africa. There is very little production of fertiliser in the region – this is mostly imported by a few large firms. Because fertiliser is a traded product, this means that the prices of fertiliser are largely determined by the costs associated with importing – costs such as transportation costs, warehouse handling and bagging – and the margins of importers and traders. The markets are regional in nature, as customers look to source from firms able to import and transport fertiliser products efficiently.

The findings show that markets in East and Southern Africa are oligopolistic in nature, with just two to five large firms that are sourcing fertiliser internationally in bulk, with bagging and warehousing facilities at the main ports. These suppliers are vertically integrated from international production through to distribution across the region. These main exporting companies sell fertiliser to local and regional companies that they then compete with at the distribution level of the supply chain.

The fertiliser markets are characterised by high levels of concentration in terms of the major importers able to supply in bulk. In Eastern Africa there are three main importers – Yara, ETG/SABIC and OCP. These companies have maintained similar market shares (35-40%, 35-40% and 15-20%, respectively) across the region. Southern Africa is similar, although with some differences in the main companies. ETG is present across the countries, along with Meridian (owned by Saudi Arabia's Ma'aden, and including FSG and Optichem), with these companies appear to each have shares of 30-40%. Yara supplies Zambia but does not appear to be present in Malawi and Zimbabwe. In Zambia, Omnia is also a supplier, as is the relatively new entrant United Capital Fertiliser. In Zimbabwe, ZFC, Windmill and Sable are suppliers meaning that this is likely to be the least concentrated at the national level.

The high levels of concentration in the region are further underpinned by high barriers to entry in the first tier of the supply chain – importing and supplying in bulk. Very few firms have the capacity to import in bulk as this requires substantial working capital and access to storage, bagging facilities and logistics at or close to the main ports. There are also high barriers to entry in manufacturing fertiliser given the substantial investments involved.

Fertiliser prices across the region increased along with international prices in late 2021, however, they have not reduced in line the prices in international markets. Prices have been much higher than would be required to cover costs of importing, with mark-ups over all efficient costs including trader margins estimated at more than 40% in the first half of 2023. The high prices are to the detriment of farmers, and of governments which have chosen to subsidise fertiliser prices.

There have been a number of large mergers which have increased vertical integration. While vertical integration can realise efficiencies, the mergers also appear to have included companies which were potential competitors in East and Southern Africa. The mergers involving Ma'aden and SABIC, who have common shareholders and which co-own production plants, mean that there are ownership links between ESA competitors Meridian and ETG. It is recommended that



the CCC together with national competition authorities conducts an in-depth ex post review of the fertilizer mergers. Such a review can assist in improving information gathering and analysis of likely effects at the regional level in complex merger cases.



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## 1. Introduction

### 1.1. Fertiliser supply chain overview

This report analyses competition, concentration, and market outcomes in fertiliser markets in East and Southern Africa drawing on publicly available information and interviews with market participants, institutions, and government bodies. Fertiliser is a key input in commercial agriculture and for some crops is the single largest input cost in production (Ncube, Roberts and Vilakazi, 2015). The effective operation of fertiliser markets is thus essential for agriculture including of staple food crops. There is little primary production of fertiliser in sub-Saharan Africa outside South Africa which means that the prices of fertiliser are largely determined by the costs and trader margins associated with importing – costs such as transportation, port charges, blending and processing costs.

Global fertiliser markets tend to be oligopolistic with many examples of cartel behaviour (Jenny, 2012). In the East and Southern Africa region markets are also oligopolistic with a relatively small number of large suppliers involved in bulk importing and blending of fertiliser, even while there are larger number of local traders and agro-dealers. Fertiliser is imported through a very few major ports, where companies have bagging facilities and access to warehouses.

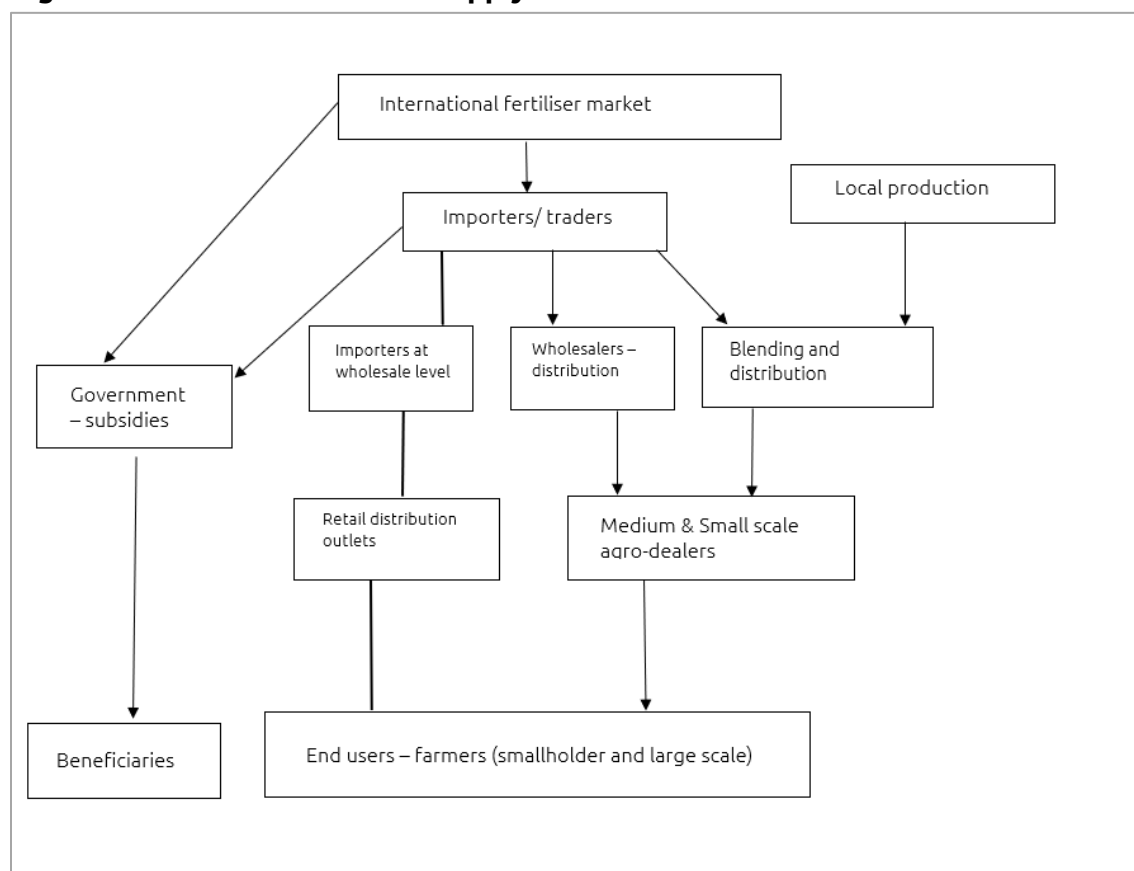
Prices of fertiliser in the region have remained at historically high levels through 2022 to mid-2023, even while global prices of fertiliser declined by two-thirds from highs in April 2022 to March 2023. We examine market structure and market outcomes at different levels of the supply chain, along with government policies. This raises a range of questions and issues which should be addressed for the markets to work better.

In the remainder of this section 1 the paper maps out the supply chain and explains the methodology. Section 2 provides an overview of fertiliser supply in East and Southern Africa. Sections 3 and 4 assess market structure and market outcomes, including the effects of government policies within each country. Section 5 concludes.

The seven COMESA countries that are the subject of this study are Democratic Republic of the Congo (DRC), Kenya, Malawi, Rwanda, Uganda, Zambia and Zimbabwe. Of these, DRC, Uganda and Rwanda are at the lower end, using between 90-100 thousand metric tonnes (hereafter Mt) per annum. Kenya and Zambia are at the higher end, using up to 700-800 thousand Mt of fertiliser each year, while Malawi and Zimbabwe's annual consumption has fluctuated between these levels. Almost all the fertiliser consumed in these countries is imported and cross-border trade is very important for market outcomes and competition. The main ports for the importation of fertiliser by these countries are Mombasa, Dar es Salaam, Beira, and Durban. The west of the DRC imports through Matadi. The geographic markets (the areas from which buyers can readily seek alternatives) relate to the main transport routes, including to the land-locked countries, which are most of the countries in the study. For Rwanda, Uganda, Kenya and the east of the DRC, the fertiliser comes through the ports of Mombasa and Dar es Salaam and is transported overland. For Malawi, Zambia, Zimbabwe and the south of the DRC, fertiliser comes from Beira in Mozambique or from South Africa, including from Durban port. (See appendix B for maps of the routes).

Not all fertiliser is imported in final product form. Some traders and suppliers of fertiliser have blending facilities, where they import the raw materials and blend it either at the ports or inland in their blending facilities (Figure 1). The largest companies are involved in the primary manufacture of fertiliser around the world, where there is abundant and low-cost natural gas and raw materials such as phosphate rock. They are engaged in international trading and may in some cases be vertically integrated through to wholesale and distribution at the national and local levels - through agro-dealers and in sales to large commercial farmers and for government fertiliser subsidy programmes. Together with other large international traders and importers, these are tier 1 suppliers to East and Southern Africa. There is then a network of smaller national and regional traders (tier 2) doing wholesale and distribution who generally have to source their product from international suppliers. The tier 2 suppliers may do some local blending to supply the combinations of fertiliser required for different crops. These companies both source from, and compete with, tier 1 suppliers in local markets. There is also some very small-scale local production in the region, with additional investments in capacity coming onstream. At the local level agro-dealers retail fertiliser along with other products for farmers.

**Figure 1. Tiers in the fertiliser supply chain**



Source: Developed by authors

Governments in the countries in the region participate in the fertiliser markets through subsidy programmes of various types. They can buy the fertiliser from international suppliers, or through wholesalers and retailers in each country. This fertiliser is then distributed through agro-dealers, where beneficiaries present a voucher, or directly through outlets set up by the

government. In Malawi, for example, the government has provided large volumes of subsidised fertiliser as part of the Farmers Inputs Support Programme, (FISP). Governments' involvement through subsidy programmes varies across the countries. In DRC and Kenya subsidy programmes are minimal and government intervention is ad hoc and due to extreme changes in prices. In Zambia, Zimbabwe and Uganda the subsidy programmes constitute a sizable portion of the supply chain, while in Rwanda and Malawi fertiliser distribution has largely been through the Government subsidy programme in recent years.<sup>1</sup>

There are two to three companies in each of these countries accounting for the majority of the importing and blending of fertiliser, reflecting the fact that international trading is a large-scale activity. In Eastern Africa, the major importers of fertiliser are Yara, ETG (SABIC) and OCP; the other suppliers in the market tend to buy from these 3 major importers.<sup>2</sup> In Malawi, Zambia, and Zimbabwe the leading companies are ETG and Meridian, while Yara and Omnia are also important suppliers who ship through Beira and from South Africa, respectively, along with several other companies in Zimbabwe.

## 1.2. Approach

The study draws on competition economics literature together with other studies on fertiliser, including studies and inquiries undertaken in the ESA region.

The secondary data for this paper include trade data (by volumes and value) and price data. Trade data is sourced from the Trade Map portal of official data. World fertiliser prices are drawn from the World Bank Pink sheet. Data are also sourced from statistics authorities and other relevant departments in the countries, along with the interviews which were conducted.

Semi structured interviews were conducted in the seven COMESA member states between March and May 2023. In each country, contacts were made with government departments, farmers and producer associations, NGOs, and market participants. The individuals interviewed have been anonymized in the interest of confidentiality. In preparation for the interviews, a general questionnaire was provided to interviewees.

## 1.3. Competition and regional trade

Competition is an essential part of realising the gains from regional economic integration while anti-competitive conduct can undermine regional trade, as in the Preamble of the COMESA Competition Regulations<sup>3</sup> which recognises that:

"... anti-competitive practices may constitute an obstacle to the achievement of economic growth, trade liberalisation and economic efficiency in the COMESA Member States. Growth in regionalisation of business activities correspondingly increases the

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<sup>1</sup> Other sources of fertiliser in these countries include donated fertiliser that is then distributed by government directly to farmers – such donations include the Russia donation of 20,000Mt of fertiliser to Malawi. Banjo, 2023. [Online]. Available: <https://www.passblue.com/2023/01/31/malawi-to-receive-russian-donated-fertiliser-near-the-end-of-planting-season/>

<sup>2</sup> Interviews with companies.

<sup>3</sup> December 2004; COMESA COMPETITION REGULATIONS available: <https://comesacourt.org/wp-content/uploads/2020/01/COMESA-Competition-Regulations-December-2004.pdf> (Accessed 01 September 2023)

likelihood that anti-competitive practices in one country may adversely affect competition in another country..."

This is in line with findings in studies of the European single market (Berthelon, 2004; Dahlberg, 2015; Henrekson et al., 1997). Anti-competitive conduct includes firms in concentrated markets colluding to divide markets and driving-up prices which will result in allocative inefficiencies and welfare losses. There are also weakened incentives for productive efficiency and innovation (Motta, 2004). Where the main sources of demand are located across the region and are supplied along the main cross-border transport routes, restriction of supplies to undermine competition necessarily works through regional trade being distorted and is why cartel detection is an essential part of the work of regional competition authorities.

In oligopolistic markets, where there are few firms, each firm's profit level depends not only on the firm's own decisions, but also on the decisions of the other firms in the industry (Church and Ware, 2000; Shapiro, 1989). If the firms compete, they seek to attract customers with low prices and good quality products, including in export markets. However, if the firms collude to exploit customers and maximise joint profits then one of the easiest ways to do this is to divide markets between them. This may be combined with agreeing on pricing. The collusive understanding must be monitored so that firms can respond to deviations by others from the cartel. Vertical integration and networks of relationships, cross-ownership and multimarket contacts can also facilitate collusion. This applies equally to international cartels where coordinated conduct undermines the benefits from trade and regional integration (Vilakazi, 2019). We discuss the signals or 'red flags' for coordination in section 3 below.

Vertical agreements between companies in a vertical relationship, between a supplier and a customer, may also have the effect of harming competition in a market alongside possible efficiency rationales.<sup>4</sup> Agreements with obligations imposed on one or both parties restricting their commercial freedom include where a supplier grants an exclusive territory to distributors which cannot compete with each other (Klein and Murphy, 1988). The 2019 COMESA Guidelines on Restrictive Practices<sup>5</sup> note that vertical business practices can have restrictive effects on competition such as by reducing intra-brand competition, that is, competition between a supplier's distributors. Such restrictions may cause concern if inter-brand competition is weak, and the supplier has substantial market power. Vertical agreements could also potentially create obstacles to market integration.

A single dominant firm can harm competition if it has a position where it can exclude competitors or limit their capacity to compete. Competition law regimes typically make provisions that prohibit such conduct. As the fertiliser markets in the region are oligopolistic in nature, with no single dominant firm, this paper does not focus on unilateral conduct.

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<sup>4</sup> Please see <https://www.compcom.co.za/enforcement-and-exemptions/>

<sup>5</sup> COMESA GUIDELINES ON RESTRICTIVE BUSINESS PRACTICES 2ND APRIL 2019  
[https://www.comesacompetition.org/wp-content/uploads/2019/08/Final-Guidelines-on-RBP\\_May-2019.pdf](https://www.comesacompetition.org/wp-content/uploads/2019/08/Final-Guidelines-on-RBP_May-2019.pdf)  
(Accessed 29 August 2023)

## 2. Supply of fertiliser in East and Southern Africa

### 2.1. Main products, sources of imports and main transport routes

There are important distinctions between specifications of fertiliser, with concentration being substantially higher in phosphates and in nitrogenous fertiliser, which are complementary in terms of soil nutrients (World Bank, 2016).<sup>6</sup> The most important nutrient is nitrogen (N) which can be supplied in a 'straight' form, as urea or calcium ammonium nitrate, or in combination with potassium (K) or phosphate (P) as compounds or blends such as di-ammonium phosphate (DAP) or NPK blends. Manufacturing nitrogenous fertiliser, generally through first producing ammonia, is highly energy intensive and large-scale plants are typically located where there is abundant natural gas such as in the Middle East, Russia and Norway. These are the main producers in the world for nitrogenous fertiliser exports to East and Southern Africa.

Morocco is a major producer of phosphate fertilisers, by state-owned OCP, due to its phosphate rock mineral endowments (supplied as mono-ammonium phosphate, MAP, or di-ammonium phosphate, DAP).<sup>7</sup> For potassium fertilisers, Canada and Russia account for 80 per cent of global potash reserves, with the three largest North American potash producers operating in the Canpotex joint marketing organisation and the three largest Russian and Belarusian potash producers in the BPC joint venture. Mark-ups from the international collusion in potash supply have been estimated for 2008 to 2012 at around 50 per cent to 63 per cent (Jenny, 2012; Gnutzmann and Spiewanowski, 2016).

Russia, Canada, China, Saudi Arabia and Morocco are major producers and the largest exporters of all fertilisers.<sup>8</sup> The largest global fertiliser producing companies are Nutrien (Canada), CF Industries (USA), Mosaic (USA), Yara (Norway), Saudi Arabian Basic Industries (SABIC), K&S (Germany), ICL Group (Israel), PhosAgro (Russia), OCI (Netherlands), OCP (Morocco).<sup>9</sup>

In terms of defining appropriate product markets, different crops have differing requirements, which also vary through their growing cycle and depending on soil conditions. Fertilisers are not therefore good substitutes from the farmers' perspective. However, as the major international traders are sourcing from producers worldwide, they can source and supply a portfolio of products to meet farmers' needs. This means there may be supply-side substitutability as a given international supplier can vary the mix between e.g., urea, DAP and NPK blends, by country. The picture is somewhat complicated as some suppliers who are also manufacturers, such as Norway's Yara, Saudi Arabia's SABIC, and OCP of Morocco, have a focus on specific groups fertiliser producers which they manufacture.

In terms of geographic market definition, the alternative sources to which customers can turn depend on the logistics routes and costs. The Small but Significant Non-transitory Increase in

<sup>6</sup> They can be combined in compounds such as di-ammonium phosphate.

<sup>7</sup> Over three quarters of global reserves of phosphate rock are located in Morocco and the Western Sahara. phosphates, PhosChem is a USA Webb-Pomerene export cartel whose members include PotashCorp and Mosaic which are also members of Canpotex.

<sup>8</sup> See Observatory of economic complexity <https://oec.world/en/profile/hs/fertilisers>

<sup>9</sup> See Grain/IATP (2022) There is also the state-owned Belarus Potash Company and privately owned Russian companies Uralchem and Eurochem, on which data are not readily available.

Price (SSNIP) test means considering the alternatives to which customers will turn in response to a price increase and means careful consideration of the costs involved in switching. For example, customers in Kenya may find that prices increase by more than 5-10% if they looked to switch from suppliers through Mombasa port to suppliers through Dar es Salaam. However, customers in Rwanda are almost equidistant (1450km to 1500km) from Mombasa and Dar es Salaam ports (although Mombasa requires an additional border crossing). Moreover, it may be the case that the main suppliers are the same through both ports. Kenya, Rwanda and Uganda would not, however, look to source through Nacala or Beira in Mozambique or Durban in South Africa, as reflected in the transport costs of doing so.

By comparison, Zambia can source through Beira or Nacala in Mozambique (1056km or 1700km to Lusaka), from Dar es Salaam (1940km to Lusaka), or from production sites in Sasolburg in South Africa (1700km). While Beira is the closest, its port has been constrained in handling the largest ships because of the dredging required (although more recently it has been an important port for fertiliser imports). Zimbabwe and Malawi have similar alternatives.

For the DRC it is important to distinguish which part of the country is being considered as quite different logistics apply to supplies to the east, south and west of the country. Table 1 summarises the main products, sources and routes for the countries covered in this report.

In calculating transport costs, it is important to distinguish between reasonably efficient costs and charges which may already include a supra-competitive margin reflecting market power already being exerted (and which would constitute a case of the cellophane fallacy). See section 2.2 below.

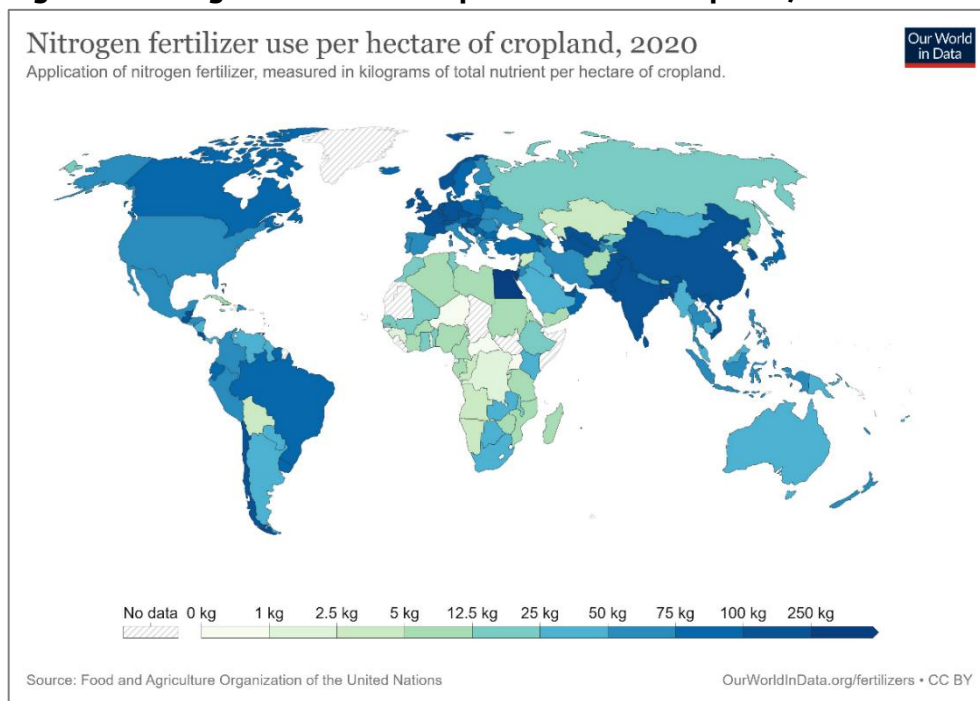
**Table 1. Approximate apparent demand by country and main supply routes**

Country	Thousand Mt	Main products	Main sources	Main routes
Kenya	500-800	urea, AN, NPK, DAP	Russia, Middle East, Italy, Norway, China	Mombasa
Rwanda	100	NPK, NK, DAP	Middle East, Russia, Finland, Morocco	Mombasa, via Kenya, and Dar es Salaam, Tanzania
Uganda <sup>a</sup>	90	NK, NPK, urea	Middle East, Russia, China, Kenya	Mombasa, via Kenya
Malawi	350-400	NPK, urea, AS	Middle East, China, Nigeria, India	Beira, Nacala, Mozambique
Zambia	600-700	urea, AN, NPK, NK	South Africa, Middle East, Switzerland, China	Beira & Nacala, Mozambique via Malawi; Dar es Salaam; South Africa via Zimbabwe & Botswana
Zimbabwe	300-600	urea, AN, MAP	South Africa, Mauritius, Russia, Middle East, Mozambique	Beira, Nacala, Mozambique; South Africa
DRC <sup>a</sup>	90	AN, urea, NPK	South Africa, Russia, Zambia, China	Various

Notes: <sup>a</sup> the Kenya Uganda border is porous which means an estimated 50<sup>th</sup> tonnes recorded for Kenya in trade data is actually shipped to Uganda. The DRC borders in the south with Zambia and the east from Tanzania and Uganda have unrecorded imports of fertiliser from neighbouring countries.

Fertiliser use is relatively low in Africa, with the highest in the countries studied being in Zambia and Kenya (at 50kg and 30kg respectively of nitrogen fertiliser per hectare of cropland, according to the FAO, see Figure 2).

**Figure 2. Nitrogen Fertiliser use per hectare of cropland, 2020.**



Source: Our World in Data

## 2.2. Fertiliser supply stages

The fertiliser supply stages involve sourcing volumes in bulk from producers around the world. This is typically done only by international traders which are able to organize bulk shipping. It is possible to import smaller volumes, such as already in bags packed into containers, however, this is more expensive. For example, typically the major traders organize supply for the whole of East Africa, or for Malawi, Mozambique, Zambia and Zimbabwe together, based on estimated demand in the various countries. Traders may share shiploads to benefit from scale economies in bulk shipping. A full ship into East Africa is typically 25<sup>th</sup> tonnes.<sup>10</sup>

At the port the fertiliser is offloaded, stored, and bagged in mechanized facilities. The importance of storage and bagging facilities for being able to organize large-scale supply means that there are barriers to the companies which can effectively supply. There may also be blending of different fertilisers at this point by the major suppliers. The fertiliser can then be transported along overland transport routes. The bulk of volumes go by road, although

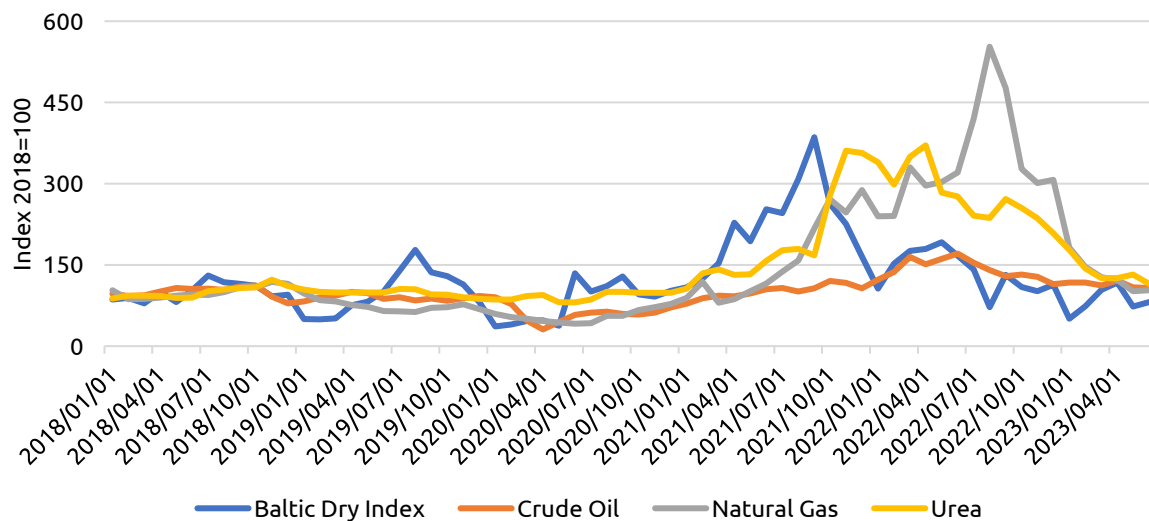
<sup>10</sup> Industry interviews with SABIC.

investments in rail mean that from Mombasa to Nairobi, and from Nacala, there are new rail lines.<sup>11</sup> We generally use road transport costs on a per tonne basis.

Supply to farmers can involve smaller traders who purchase and on-sell countries. These companies are not able to compete at the upstream bulk supply level.

Sea freight costs increased substantially over 2021 and 2022 as fuel prices fluctuated and due to disruptions in international sea freight. The Baltic Dry Index which is a composite of international bulk shipping costs almost quadrupled from 2020 to the September 2021 peak (Figure 3).<sup>12</sup> Over 2022 it returned to levels in line with long-term averages. Reasonably efficient overland transport costs increased with fuel prices, which went up substantially over 2022 in line with crude oil prices. Natural gas prices, affected by the Russia-Ukraine war, increased by much greater proportions through 2022 which impacted on nitrogenous fertiliser (such as urea) much of which is manufactured from natural gas.

**Figure 3. Sea freight, fuel, energy, and fertiliser price trends (indices)**



Source: Baltic Dry Index and World Bank for crude oil, natural gas and urea

The international prices and sea freight costs are important components of the prices of fertiliser in ESA. However, from the ports where the imported fertiliser is landed to the farmers there are market dynamics and costs involved, which is our main focus. The main costs therefore cover:

- Deep sea freight costs
- Port charges
- Bagging
- Overland transport
- Trader margins *within* ESA

<sup>11</sup> Even where the rail line for Nacala runs past fertiliser facilities in Malawi, the volumes from Beira are more than double those from Nacala.

<sup>12</sup> The average for 2021 was close to three times the average for 2020.



To analyse the extent to which extremely high fertiliser prices in African countries are justified by costs the study makes a detailed assessment in section 4. Considering all sea freight, port, storage and logistics charges, the costs to import in bulk and bag are around \$90-148/Mt. The higher-end includes assumptions about third party bagging and warehousing services which do not apply to the main importers who have their own facilities. Overland transport costs depend on the distance and borders to be crossed, with estimates for trucking to inland such as Malawi, Zambia, Rwanda and Uganda, by the major suppliers around \$100/Mt. This implies reasonable costs around \$200/Mt in 2023 to supply into inland regions. In 2021 and 2022, sea freight (but not wharfage and port charges) and overland trucking costs were higher as reflected in the Baltic Dry Index for sea freight and the fuel price, meaning transport and logistics costs may have been around 50% higher, indicating costs to supply in inland areas of around \$300/Mt in 2021/2022. A reasonable combined trader and agro-dealer margin is estimated at around 20%, which is included in the costs.<sup>13</sup>

### 3. Competition assessment: market structure and market dynamics

#### 3.1. Overview of possible competition issues

This section provides an analysis of the competition issues exhibited by fertiliser markets in the ESA region. The markets are highly concentrated and oligopolistic in nature. This particularly affects the evaluation of mergers and possible coordination (collusion) at national, regional and international levels. The section briefly reviews the key factors in considering market structure and mergers (in 3.1.1), and the likelihood of collusion (in 3.1.2) before giving an overview of the main companies in the region (3.2) and a review of mergers (in 3.3). These companies are multinationals and operate across several countries in East and Southern Africa meaning the COMESA Competition Commission (CCC) has a critical role to play in any competition assessment. The main suppliers in the region are also vertically integrated along the supply chain depicted in Figure 1, from sourcing bulk supply to distribution within countries.

##### 3.1.1. Market structure and mergers

Horizontal mergers are mergers between firms that supply competing products, typically at the same level of the supply chain and in the same geographic market. First, this type of merger may lead to 'unilateral effects' on competition in that the number of competitors is reduced such that the merged entity has increased market power. Second, the merger may have 'coordinated effects' on competition in that the structure of the industry and the nature of competition is altered in a way that significantly increases the likelihood of collusion (whether tacit or explicit), or likely strengthens collusion if it was already taking place (Fabra and Motta, 2018; COMESA Merger Assessment Guidelines, 2014).<sup>14</sup>

Vertical mergers are where firms which are in actual or potential supplier-buyer relationships merge. Note that mergers may be both horizontal and vertical in nature. In vertical mergers, there are also possible unilateral and coordinated effects on competition. As a result of the

<sup>13</sup> Firm interviews.

<sup>14</sup> [https://www.comesacompetition.org/wp-content/uploads/2014/10/141121\\_COMESA-Merger-Assessment-Guideline-October-31st-2014.pdf](https://www.comesacompetition.org/wp-content/uploads/2014/10/141121_COMESA-Merger-Assessment-Guideline-October-31st-2014.pdf)

merger, the firm may have the ability and incentive to block or degrade supply to rivals to its own, now merged, subsidiary with effects on competition. Market foreclosure theory looks at vertical mergers as being harmful to competition by potentially denying competitors access to either to either a supplier or a buyer (Chen, 2014). An example of a merger with possible vertical and horizontal dimensions that could potentially change the market structure and lessen competition (through both unilateral and coordinated effects) in the region is the joint venture between ETG and SABIC discussed below.

The regional and cross-border dimensions of mergers are essential aspects of the analysis in tradable products such as fertilizer. Supply happens along major transport routes through international trade, and national borders are not likely to be a good guide to geographic markets. Customers can turn to alternatives from different international and regional suppliers.

Merger guidelines set out the ways in which competition authorities will examine whether a merger is likely to change the market structure and/or change the way in which players in the market interact, including inducing substantially more coordinated interaction. These guidelines are updated from time-to-time based on experience in merger review and ex post evaluations of mergers.

### **3.1.2. Factors influencing likelihood of collusion**

Where companies collude, they reach an understanding or agreement to increase their collective profit by not competing. If the firms do not compete to attract customers from each other they can all charge higher prices and realise bigger profit margins (Carlton and Perloff, 1994; Motta, 2003).

Collusion is seen as the most serious violation of competition law as it results in monopoly-like outcomes, including monopoly profits shared by the colluding parties (Connor and Lande, 2005). Cartels can agree to limit output, raise prices, or outright divide markets at the expense of consumer welfare (Carlton and Perloff, 1994; Lande and Marvel, 2000). Direct price-fixing is the simplest. As an alternative, the cartel can create monopolies for the market by dividing it into segments allocated to specific cartel members which removes price competition. Cartels can do this by designating exclusive customers or territories. Another common variation, bid rigging, gives the impression of competition while agreeing on who is going to win which tender (Stigler, 1968; Lande and Marvel, 2000).

Cartel members can also take actions to harm competitors in the market that are not part of the cartel (Krattenmaker et al, 1987). Firms can raise the costs of their competitors in a way that enables the colluding firms to raise their prices under a protective umbrella created by the higher prices the victims must charge. This behaviour from colluding firms allows them to either raise prices or to discourage entry that would otherwise erode prices (Lande and Marvel, 2000; Langenfeld and Silvia, 2004).

In general, cartel conduct is more likely to occur in markets where there is a high concentration of firms, relatively homogenous products, high barriers to entry, stable demand conditions, firm symmetry, multi-market contact between firms, cross-ownership, and the sharing of disaggregated information (Church and Ware, 2000; Motta, 2004; Harrington, 2006). There have been many cartels identified in concentrated industries for industrial products such as between

the major fertiliser suppliers at different times, including export cartels (Connor & Helmers 2006; Connor, 2020; Hernandez & Torero, 2013; Vilakazi & Roberts, 2019; Jenny, 2012).

Agreements can be reached explicitly or tacitly. Firms engage in explicit collusion when they mutually devise a common plan of action and exchange mutual assurances to follow that plan (Motta, 2004; Harrington 2006). Tacit collusion occurs when firms are able to coordinate their behaviour simply by observing and anticipating their rivals' pricing behaviour without any communication or reaching a common understanding (Harrington, 2006). Arrangements such as agreeing to share information which undermines competition or using common price and cost benchmarks can go beyond tacit coordination to constitute collusion.

The stability of a collusive agreement or understanding requires monitoring of firms' compliance as each firm has an individual incentive to deviate from a collusive action because it can increase its own profits by expanding its market share (Motta, 2003). Collusion is thus enabled by mechanisms to '*detect deviations*' from a collusive action (Church and Ware, 2000; Marshall and Marx, 2012). Second, the stability of collusion is assisted by firms recognizing that deviation will attract a response (or '*punishment*') – which may take the form of rivals producing much higher quantities or selling their products at much lower prices (Carlton and Perloff, 1994; Motta, 2003; Porter, 2005).

Mechanisms for monitoring, detecting, and punishing deviations from collusive understandings include exchanging detailed information on sales volumes and using excess capacity to be able to flood the market (Marshall and Marx, 2012; Garrod, Harrington, Olczak, 2021). For example, cement cartels have included information sharing on sales volumes given the variable nature of cement demand (Roberts, Simbanegavi, Vilakazi, 2023; Khumalo et al., 2014).

Vertical integration can aid in monitoring as well as in deterring new entry which may undermine the cartel (Church and Ware, 2000; Khumalo et al, 2014). Networks of relationships, cross-ownership and multimarket contacts can also facilitate collusion. This is equally the case where cartel conduct stretches across borders (World Bank, 2016). Importantly, if the firms control a significant proportion of the regional market, the conduct can also undermine the benefits of reducing trade barriers to enhance the flow of goods, and any efforts by governments to support new entrants in certain sectors through industrial development strategies (Vilakazi, 2019).

### **3.1.3. International and export cartels**

Cartels and other anticompetitive agreements can be regionally and internationally based. The most prominent illustration is a cartel that splits markets by assigning nations to certain suppliers. Although it looks that each nation has one or two suppliers, this is due to collusion at the regional level which hurts consumers in every nation and undermines regional trade. Firms can equally share or allocate markets by allocating market shares across a region and/or fixing prices at the regional level. Cartels working along these lines have already been discovered to be active in several southern African nations in the fertiliser, cement, and concrete product industries. According to the cartel agreements in these cases, the markets of larger countries are split between two or three producers, while the markets of some smaller economies were

controlled by just one provider, and there were understandings on setting prices above competitive levels (Roberts, 2016).

Regional and international collusion pose challenges for competition enforcement and point to the importance of regional authorities (Ezrachi and Kindl, 2011; Martyniszyn, 2021).

Competition authorities further need to strengthen international cooperation. In the case of export cartels which cause no harm to the domestic market, this conduct is not prohibited in many jurisdictions (Martyniszyn, 2021). For example, in the US the 1982 Foreign Trade Antitrust Improvement Act '*cut back the reach of the Sherman Act ... principally to protect U.S. sellers from challenges ... for their activity abroad*' (Fox and Crane, 2010). Even though, in terms of ease of enforcement, hosting states are better equipped to deal with anticompetitive behaviour in export markets, they often wash their hands of it (Martyniszyn, 2021). There may be efficiency justifications given for exporter cooperation, such as the formation of a logistics joint venture, however, fixing export pricing jointly has no efficiency rationale (Jenny, 2016).

### **3.1.4. Cartel screening**

To effectively combat cartels, the collusive arrangements must be identified, prosecuted and penalised (Harrington, 2006a). Methods of identifying likely cartels can be grouped into consideration of structural features and behavioural signals. The structural features involve identifying markets with traits that give rise to collusion. For example, it has been broadly shown that cartels are more likely in a market with fewer firms, more homogenous products, barriers to entry, and more stable demand (Harrington, 2005; Kovacic et al 2011; Marshal and Marx, 2012). Cartels are also more likely where firms have similar costs and supply characteristics and can maintain similar market shares. Markets with many entrants that disrupt market shares are less likely to form cartels.

Behavioural screening involves assessing the ways by which firms might coordinate and observing the market outcomes. For example, the way firms' price or supply quantities over time are relevant. If firms adjust supplies to demand shifts such that market shares are stable, then this is an important red flag. Parallel movement in prices or unexplained price increases may also raise concerns (Harrington, 2005). However, since price increases can occur for a variety of reasons unrelated to collusion, it may not always be an effective marker (Harrington, 2006a). Uniformity in pricing, including through using common pricing components not related to individual firms' actual costs, or through limited discounting, differs from what would be expected under competition. Common approaches to pricing make it easier to monitor compliance by members to the cartel as compared with differential pricing and discounts reflecting market conditions and differences between customers consistent with competitive interactions to increase sales (Harrington, 2006a).

## **3.2. Major suppliers and market shares in fertiliser markets**

The major companies are those which are able to supply across countries in the East and Southern African region in bulk, which means they can organize sea freight at competitive costs and have access to wharfage, storage, and bagging facilities, together with arranging overland distribution. They are also typically vertically integrated into manufacturing of fertiliser, whether through in-house production or through long-term supply relationships. Table 2

summarises key features of the main suppliers before providing more details below. Mergers involving these companies are assessed in more detail in section 3.3.

**Table 2. Large company profiles**

ETG/SABIC	Yara	Omnia	OCP	Meridian Group/ Ma'aden
Infrastructure in processing, storage, and logistics facilities in ESA	Major global producer of nitrogenous fertilisers and NPK blends	Producer of ammonium nitrate fertilisers in South Africa – from ammonia imported and sourced from Sasol	70% world's phosphate reserves, in Morocco, manufacturer of phosphate fertilisers	Blending – 6 facilities (Bindura, Blantyre, Liwonde, Chimoio, Nacala and Lusaka) and supply logistics across the region
Supply relationship with SABIC and then merger in 2022/23 (SABIC acquired 49% stake of EIHL)	Present in 5 continents	25 countries including Mozambique, Zambia, Zimbabwe, Kenya, and Brazil.	Present in 5 continents	Importation of fertiliser & other agri products
		Manufacturers fertiliser as well as blending	Joint Venture – Rwanda Fertiliser Company	Malawi, Zambia, Zimbabwe: Farmer's World Ltd, FSG, Demeter Seed Ltd, Malawi Fertiliser Co. Ltd, Agora Ltd, Grain Securities Ltd, Liwonde Property Investment Ltd and Optichem (2000) Ltd

Source: Developed by authors

## ETG/SABIC

ETG, established in Kenya in 1967, is one of the largest and fastest growing integrated agricultural conglomerates in Sub-Saharan Africa (SSA), processing and trading in soft commodities in 48 countries including Tanzania, Kenya, Malawi, Mozambique, Nigeria, and South Africa (Bosiu and Vilakazi, 2020). In 2023 ETG had over 400 strategically placed warehouses and port related infrastructure supported by over 600 trucks and retail assets across over 20 countries in Africa with over 2.5 million tons of storage capacity and operates 71 processing plants across the globe.<sup>15</sup>

<sup>15</sup> <https://www.etgldistribution.com/about%20ETGL.html> (accessed 01 September 2023). See also Bosiu and Vilakazi (2020).

More specifically, ETG has diversified their supply chain and invested significantly in infrastructure in processing, storage, and logistics facilities in ESA. ETG has developed an extensive network of port, city and rural infrastructure supported by rail and road logistics. This is done under ETG Logistics, a logistics service provider which offers freight forwarding, ocean freight, airfreight, custom brokerage, ship agency, container handling (ICD), bonded warehousing, fertiliser and grains handling, cleaning & bagging and warehousing and transportation services – this service is provided to over 20 African countries.

In 2012 the company introduced private equity shareholding, with an investment of US\$210 million from a group of private investors made up of The Pembani Remgro Infrastructure Fund, The Carlyle Group and Standard Chartered Bank Private Equity.<sup>16</sup> Between 2012 and 2017 the Public Investment Corporation from South Africa acquired a shareholding in ETG Fertiliser and Inputs Vertical, ETG Inputs Holdco Limited (EIHL), and Mitsui also became a shareholder of the ETG group. During this period, the ETG group also acquired Zamanita in Zambia, and Sidi Parani in South Africa.<sup>17</sup>

In 2023, SABIC Agri-Nutrients, a public joint-stock company owned 50.1% by SABIC acquired 49% stake of EIHL.<sup>18</sup> The merger was notified to the CCC only after the Commission was made aware of the transaction on 19 May 2022 by a third party and found that the merging parties had failed to notify the transaction with the 30-days period prescribed under the Regulations. The merging parties submitted that signing agreement on the proposed transaction did not constitute a 'decision to merge'. However, it was later decided that the decision to merge occurred on the 24<sup>th</sup> of January 2022, the date of the signing of the binding agreement between SABIC and ETG and that the merging parties were indeed in breach of Regulations by failing to notify.

## Yara<sup>19</sup>

Yara was founded in 1905 as Norsk Hydro and renamed Yara in 2004. Yara is a Norwegian chemical company, the first producer of mineral nitrogen fertiliser, and a major global fertiliser producer. Yara is partly owned by the Norwegian government which owns over 40 per cent of its shares<sup>20</sup>. The company has factories throughout Europe as well as in Brazil and Canada and sells over 20 million tonnes of fertiliser a year<sup>21</sup>. Yara has a presence in Europe, the Americas, Africa, and Asia. To further strengthen their reach in Africa, in 2015, Yara signed an agreement to acquire Greenbelt fertiliser – a leading distributor of fertiliser in Zambia, Malawi and Mozambique<sup>22</sup>. Greenbelt was a leading fertiliser distributor in Zambia, Malawi, and

<sup>16</sup> See <https://www.theasset.com/article/23120/africas-export-trading-group-gets-new-equity-investments-of-usd210-million--news->

<sup>17</sup> <https://www.etgworld.com/about-etg.html>

<sup>18</sup> Available online at <https://www.sabic.com/en/news/39145-sabic-agri-nutrients-completes-acquisition-of-49-percent-stake-in-eihl>

<sup>19</sup> Available online at <https://www.yara.com/>

<sup>20</sup> See <https://corporatetwatch.org/yara-the-fertiliser-giant-causing-climate-catastrophe/>

<sup>21</sup> See <https://issuu.com/industryeuropa/docs/v21-9/s/14632950>

<sup>22</sup> Please see [AgroPages-Yara acquires Greenbelt Fertilisers for \\$51 million in Africa-Agricultural news](#)

Mozambique, with sales of 80 kilotons in 2015, and owned three blending plants and three warehouses.

Yara distinguishes between its upstream and downstream activities. Upstream, Yara sources much of the phosphate ore from its own mine at Siilinjärvi in Finland. Yara produces ammonia for their nitrogenous fertilisers at various plants including the largest ammonia production plant in Europe with an annual capacity of 1.7 million tonnes of ammonia. In 2022 August, as a result of the high gas prices in Europe, Yara cut its total European ammonia capacity utilization across its plants to about 35 per cent - this translated to 3.1 million tonnes ammonia and 4 million tonnes finished product (1.8 m urea, 1.9 m nitrates and 0.3 m tonnes NPK) of reduced annual capacity across Europe.<sup>23</sup>

As with ETG, Yara has its own terminals at ports for handling and bagging fertilizer in the region. In 2015, Yara commissioned a fertiliser terminal at the port of Dar Es Salaam with an annual capacity in excess of 500 000/Mt. In 2018, Yara invested in a storage and blending plant in Beira (Richardson, 2018),<sup>24</sup> however, in 2021 it closed this facility in Beira and supplied its Southern African markets from Durban.<sup>25</sup> Yara also has a storage distribution and storage facility in Mombasa, Kenya, making their fertiliser more accessible to their East African clientele.<sup>26</sup>

## OCP

Office Cherifien des Phosphate (OCP) was founded in Morocco in 1920.<sup>27</sup> The state-owned OCP has sole access to the world's largest phosphate reserves and is the leading phosphate fertiliser supplier to the African continent, ahead of the Russia-based PhosAgro and the Saudi-based Ma'aden.<sup>28</sup> OCP is operational on five continents and is involved in all the steps of the value chain, from mining and manufacturing all the way to education and community development. In 1976, OCP acquired 65 per cent of Phosboucraa, and later became the sole owner in 2002. OCP diversified into phosphate processing, opening chemical facilities in Safi (1965) and Jorf Lasfar (1984). OCP produces Di-Ammonium Phosphate (DAP), Mono-Ammonium Phosphate (MAP) and Triple Super Phosphate (TSP) fertilisers. To manufacture these products, OCP has to import large quantities of ammonia. MAP, TSP and DAP fertilisers can all be used directly or in blended, customised solutions.<sup>29</sup>

OCP (2008) became the OCP Group SA – owned by the Moroccan government and the Banque Populaire du Maroc. In 2011 and 2013, OCP established a joint venture with Jacobs Engineering and DuPont de Nemours. In 2016, OCP created OCP Africa, as a subsidiary of the OCP Group. The OCP Rwanda office was incorporated in 2019 and a joint venture, the Rwanda Fertiliser

<sup>23</sup> See <https://www.yara.com/corporate-releases/yara-implements-further-production-curtailments-in-europe/>

<sup>24</sup> See <https://www.freightnews.co.za/article/beira-hub-cuts-costs-fertiliser-companys-customers>

<sup>25</sup> See <https://www.zitamar.com/yara-to-close-beira-fertiliser-facility-and-move-regional-hub-to-durban/>

<sup>26</sup> Please see <https://zaubee.com/biz/yara-distribution-center-tce0hald>

<sup>27</sup> Available online at <https://www.ocpgroup.ma/history>

<sup>28</sup> Please see <https://www.theafricareport.com/282610/ocp-africa-intends-to-build-upon-its-east-african-inroads/>

<sup>29</sup> Please see

<https://www.ocpgroup.ma/fertilisers#:~:text=OCP%20produces%20binary%20fertilisers%20Di,or%20in%20blended%2C%20customized%20solutions.>

Company, was subsequently established.<sup>30</sup> In early 2023, OCP Africa announced its intentions to build upon the East African inroads and widen their reach in the region with blending units being established in Tanzania.<sup>31</sup>

In 2023, OCP made public their plans to invest US\$7 billion in a green ammonia plant in Morocco using green hydrogen, produced from renewable energy fuel. This plant would produce 200 000/Mt of ammonia by 2026, increasing to three million Mt by 2032.<sup>32</sup>

### **Meridian/Ma'aden**

The Meridian Group focuses on the importation, blending and distribution of fertilisers and agricultural products across Malawi, Mozambique, Zambia, and Zimbabwe. The group is headquartered in Mauritius. Meridian Group comprises Farmer's World Limited, Demeter Seed Limited, Malawi Fertiliser Company Limited, Agora Limited, Grain Securities Limited, Liwonde Property Investment Limited and Optichem (2000) Limited (Chilumbu, 2020)<sup>33</sup>. The fertiliser is sourced from global producers and is imported through the group's port operations in Mozambique (Beira, Nacala and Maputo), to their various blending facilities in the region. The company is made up of companies that originated within the region more than 30 years ago.

In 2019, the Meridian Group was acquired by Ma'aden<sup>34</sup>, the largest Middle Eastern multi-commodity and metals company, a publicly traded company 70 per cent owned by Saudi Aramco (ultimately owned by the Saudi Arabian state).<sup>35</sup> Ma'aden acquired 85 per cent of Meridian Group in 2019, and the remaining 15 per cent of the Group was expected to be acquired over four years from 2020<sup>36</sup>.

In 2021, Ma'aden opened a fertiliser terminal in Malawi, in Liwonde. This terminal is strategically located on the rail line to the deep-sea port of Nacala – allowing for access to Ma'aden's fertiliser across central and southern Africa. The port is equipped with a bagging facility and total blending capacity of 360 000Mt (Woodroof, 2021).<sup>37</sup>

### **Omnia<sup>38</sup>**

Omnia was established in South Africa in 1953 and is a diversified chemicals Group. It is based in Johannesburg, South Africa and operates in 25 countries including Mozambique, Zimbabwe, Kenya, and Brazil. In 1967 Omnia expanded into the fertiliser market and commissioned South Africa's first fertiliser plant at Sasolburg in 1972. Omnia relies on Sasol for most of their

<sup>30</sup> Available online: <https://www.ocpafrika.com/en/rwanda>

<sup>31</sup> Please see <https://www.theafricareport.com/282610/ocp-africa-intends-to-build-upon-its-east-african-inroads/>

<sup>32</sup> Please see <https://www.miningweekly.com/article/moroccos-ocp-plans-7-million-green-ammonia-plant-to-avert-supply-problems-2023-06-20>

<sup>33</sup> <https://mwnation.com/saudi-miner-buys-85-stake-in-malawian-firm/>

<sup>34</sup> See <https://www.maaden.com.sa/en/news/details/440>

<sup>35</sup> See

<https://www.maaden.com.sa/en/about/partnerships#:~:text=A%20publicly%20traded%20company%20based,30%25%20held%20by%20private%20investors.>

<sup>36</sup> Statement by Christopher Davies, CEO Ma'aden. Available online at <https://ceobusinessafrica.com/saudi-arabian-mining-company-buys-85-stake-in-malawian-firm-meridian-group/>

<sup>37</sup> See <https://www.worldfertiliser.com/phosphates/23112021/maaden-opens-fertiliser-terminal-in-malawi/>

<sup>38</sup> Available online: <https://www.omnia.co.za/about-us/geographic-scope>



ammonia input requirements and relies on deep sea imports for the rest of their demand. In 1988 it acquired 25 per cent of the Richards Bay ammonia import terminal. In 1991, Omnia fertiliser established porous prill ammonium nitrate at Sasolburg and in 1992 it extended its African operations, establishing Omnia Fertiliser in Zambia. In 1995 Omnia speciality fertiliser division was launched, introduced OmiaSap technology. Omnia Kenya (Agri) was established in 1998, as well as Omnia's first fertiliser bulk blender in Zimbabwe. In 2003 Omnia Malawi opened and in 2012 Omnia (Agri) was established in Mozambique. In 2016, Zimbabwe Omnia had a total of 26 retail stores. In 2018, Omnia acquired 100 per cent of LDRC Precision Technical Field Services. In 2019, Omnia commissioned a new Nitrophosphate plant in Sasolburg, South Africa, at an investment cost of R695 million. The plant has the capacity to produce at a rate of 500Mt/day, as measured in dry Nitrophos production and an additional train would raise its capacity to 1000Mt/day. Additionally, the plant also produces Nitrophos liquid as well as calcium nitrate.<sup>39</sup>

### Other smaller national/regional companies

**One Acre Fund (OAF)** is a nonprofit social enterprise that supplies smallholder farmers with agricultural resources, financing, and training required<sup>40</sup>. Access to credit is one of the main barriers to entry for smallholder farmers, especially women in Africa and OAF bridges this gap by providing farmers with access to credit.<sup>41</sup> OAF received a US\$10 million investment loan from the John D and Catherine T. MacArthur Foundation – this funding will enable them to expand their client base from 1 million smallholder farmers in 2019 to 4 million by 2030. OAF sources its fertiliser from the major importers in the region. For example, in Malawi, OAF sources its fertiliser from ETG.

**United Capital Fertiliser (UCF)** Zambia Company Limited is part of the Wonderful Group established by Chinese foreign direct investment. UCF was established in 2021 to construct the first closed circuit fertiliser and ammonia plant in Zambia using local coal and phosphate. Phase 1 was completed in August 2022.<sup>42</sup> The ground-breaking for the construction of the ammonia and urea plant only took place in May 2023, meaning that production is still some way off. UCF's plant is located in Chilanga District, Zambia, and will have the capacity to supply up to 300,000 metric tons per year of Urea, DAP, NPK and other customised blended fertilisers. It has been importing and blending fertiliser while the main production is established. While the announcements on the investment indicated that prices of fertiliser would be reduced by 40-50 per cent,<sup>43</sup> this has not transpired. The scale of production even when the main plant comes onstream will not meet local demand and the market clearing price will still be set by imports through regional competition or coordination.

Other national companies are discussed in the country specific sections in 3.4 and 3.5 below.

<sup>39</sup> Please see <https://www.agricultureportal.co.za/index.php/all-agri-news/news-of-the-day/1042-omnia-sees-r695m-nitrophosphate-investment-as-fertiliser-game-changer-south-africa>

<sup>40</sup> Please see [https://www.macfound.org/media/files/c3\\_one\\_acre\\_fund\\_fact\\_sheet.pdf](https://www.macfound.org/media/files/c3_one_acre_fund_fact_sheet.pdf)

<sup>41</sup> Please see <https://share.america.gov/helping-africas-small-farmers-access-credit-improve-yields/>

<sup>42</sup> <https://www.foodbusinessafrica.com/wonderful-group-of-companies-opens-us300m-united-capital-fertiliser-manufacturing-plant/>

<sup>43</sup> <https://zambianbusinesstimes.com/new-300m-fertiliser-plant-to-cut-prices-by-40/>

### 3.2. Market shares by country and region

The main companies have a strong presence across the region with some companies, notably Yara and ETG, present in almost every country under consideration. The multi-market contact and high levels of concentration mean competition is an important issue. In addition, the major companies share shiploads at times, have bagging operations in the main ports and supply each other, and appear to have means of information sharing.

In Eastern Africa, there are three large firms involved in importing fertiliser and these firms are vertically integrated in the supply chain, with strong regional ties. Yara and ETG have the biggest market shares in the region and have maintained similar market shares in Kenya and Rwanda.

**Table 3. Major importers of fertiliser and estimated shares – Eastern Africa**

Kenya	Rwanda	Uganda
Yara (40%) ETG (40%) OCP (20%)	Yara (35%) ETG (35%) Rwanda fertiliser Company (OCP) (15%) One Acre (15%)	Yara ETG OCP Local traders

*Source: Compiled from interviews*

In Southern Africa, fertiliser markets present as oligopolies with three to four large firms involved in importing of fertiliser – government is also a significant player in the market through fertiliser subsidies in countries such as Zambia and Malawi. The major importers of fertiliser in Southern Africa are not only involved in the first tier of the supply chain, importing of fertiliser from international markets, but are also involved in the second tier of the supply chain as distributors through distribution channels they have in their respective countries.

The DRC fertiliser market has shrunk over time – firms that were previously heavily involved in importing fertiliser have reduced their capacities due higher transportation costs and taxes charged within the country<sup>44</sup>.

**Table 4. Major importers of fertiliser and estimated shares - Southern Africa and the DRC**

Malawi	Zambia	Zimbabwe	DRC
ETG (& One Acre) Meridian/FSG Government – subsidy programme	ETG (~40%) Meridian/FSG (~40%) Omnia Yara United Capital Fertiliser	Meridian/FSG (30%) ETG (~30%) ZFC Limited (20%) Windmill (18/19%)	Indigo

*Source: Compiled from interviews*

<sup>44</sup> Insights from interviews conducted in the DRC in May of 2023.

### 3.3.Review of mergers

The COMESA Competition Regulations provide that mergers with a regional dimension must be notified to CCC for examination. Since inception of the COMESA Competition Commission (CCC) until June 2023 it has assessed and unconditionally approved five notified mergers in the fertiliser sector. The six National Competition Authorities and the Uganda Ministry of Trade, Industry and Cooperatives all significantly contributed on the assessment of the mergers notified to CCC where such mergers had an effect in their jurisdiction. Two of the National Competition Authorities (Zambia and Zimbabwe) have separately assessed one merger each during the period under review (2013-2022).

This section first briefly describes the seven mergers before making a review in light of the overall market developments and then makes some overall observations.

#### i. **Yara Nederlands BV and Greenbelt (December 2015)**

Yara Nederlands BV (Yara) acquired Greenbelt Fertiliser Limited Zambia and Greenbelt Fertiliser Limited Malawi (collectively 'Greenbelt'). Greenbelt business involved fertiliser blending and marketing in Malawi, Mozambique, and Zambia focusing on producing crop and soil specific fertilisers, primarily for the commercial farming sector. Greenbelt also provided sampling and analysis of soil services for its customers.

In the assessment of this transaction the relevant product market was identified as the supply of nitrogen fertilisers while the relevant geographic market was defined as the global supply of nitrogen fertilisers and the national distribution of nitrogen fertilisers. Based on the information obtained, the transaction was assessed as a vertical merger. The markets were observed to be highly contested with several players operating therein. In view of this, the Committee responsible for Initial Determinations (CID) established that the merger is unlikely to affect the pattern of trade and structure of the market in the Common Market. It was noted that the merged entity was unlikely to engage in market foreclosure or influences any other conditions of trade in the Common Market on account of its market position and countervailing power by the buyers. It was concluded that the merger was not likely to substantially prevent or lessen competition in the Common Market and therefore was approved without conditions.

#### ii. **Saudi Arabian Mining Company and Meridian Consolidated Investments Limited<sup>45</sup> 8<sup>th</sup> May 2019**

Saudi Arabian Mining Company (SAMC) acquisition of a majority of the issued share capital of Meridian Consolidated Investments Limited (Meridian). SAMC is a Saudi Arabian Stock Exchange listed company which was formed in 1997. It was ranked among the top 10 global mining companies by market capitalization. The firm was diversified with operations in mining and minerals extraction in gold and base metals; phosphorus; aluminium; and industrial minerals. Meridian was a Mauritian-based agricultural commodity trading company that, through its subsidiaries, operates from Mauritius across Malawi, Seychelles, Zambia, and Zimbabwe (see above). It imports, blend and supply fertiliser, under the Superfert Fertiliser brand. It also

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<sup>45</sup> CCC/MER/04/12/2019

operates agricultural and hardware retail outlets, and trades commodities including soya beans, maize, oilseed, groundnuts, and salt.

In Malawi, Meridian blends and supplies fertiliser. It operated over 100 retail outlets; produced and distributed its own seed brands. In Zambia, Meridian, through Ferts, Seeds and Grain Zambia ("FSG") distributes Superfert Fertiliser and trades in various commodities. Superfert Fertiliser was retailed across seven of the ten provinces of Zambia through various third-party agri-dealers. FSG is headquartered in Lusaka and supplied Government Fertiliser Input Support Program and the Zambian sugar industry. Meridian operates in Zimbabwe through FSG Limited. It blends and distributes Superfert Fertiliser countrywide through third party agri-dealers. Meridian also derived some turnover from the sale of fertiliser in Mauritius and Seychelles.

In its analysis of the transaction, the Commission identified the relevant markets as supply of phosphate at global level at the upstream level; and distribution of phosphate containing fertilisers in the Common Market at the downstream level. It was noted that the acquirer was the market leader in the supply of phosphate fertilisers in Kenya. The target firm was the market leader in the supply of fertilisers at national level in Malawi, and Zimbabwe, with market shares above 40 per cent. The acquirer and the target undertakings commanded significant market shares in the relevant markets, however their activities did not overlap at national level and even at a global level. Thus, the transaction was construed not to result in a material change in the market structure and market concentration in any of the identified relevant markets. The transaction was deemed unlikely to lead to the creation or strengthening of a dominant position of the merged entity. Possibilities of input and customer foreclosure were considered and dismissed on the basis that the wholesale market for phosphate fertiliser was global and competitive. While the fertiliser industry generally exhibited characteristics that could facilitate collusion (high concentration, homogeneity of the products, relatively inelastic demand), the Commission found that the merger was unlikely to lead to coordinated effects. The merger was unconditionally approved on 30 July 2019.

### **iii. Borealis AG and OMV Aktiengesellschaft<sup>46</sup> 21<sup>st</sup> April 2020**

OMV Aktiengesellschaft ("OMV"), acquired Borealis AG ("Borealis") in 2020. OMV, is a public limited company incorporated under the laws of Austria and operates vertically integrated petrochemical businesses involved in the upstream market in exploration, development and production of oil and gas in Central and Eastern Europe, the North Sea, Russia, the Middle East, Africa (Libya and Tunisia) and Asia-Pacific. In the downstream the firm operated refineries in Austria (Schwechat), Germany (Burghausen) and Romania (Petrobrazi), which produce and sell LPG, jet fuel, naphtha, gasoline, diesel, light fuel oil, heavy fuel oil, sulphur, and calcined coke. The downstream gas business focuses on gas trade and sales, as well as owning a pipeline network and gas storage facilities in Austria. Notably, the OMV Group does not have

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<sup>46</sup> CCC/MER/4/12/2020

downstream activities in the Common Market. Borealis, is active in 3 markets viz Polyolefins<sup>47</sup>, Base chemicals<sup>48</sup> and Fertilisers<sup>49</sup> in 15<sup>50</sup> Member States.

The relevant product markets were defined as the supply of low-density polyethylene; supply of high-density polyethylene; supply of polypropylene; supply of N-fertiliser; supply of K-fertilisers; and supply of P- fertilisers. The relevant geographic markets were global market for fertiliser. The transaction was construed not to result in market structure change due to absence of horizontal overlap in the activities of the parties. It was therefore concluded that the transaction would not lead to any increase in market concentration or substantially prevent or lessen competition in the relevant markets. The transaction was unconditionally approved.

#### **iv. Solevo Holding B.V. and its Subsidiaries and Development Partners International LLP<sup>51</sup> On 13 December 2022**

Development Partners International (DPI) indirectly acquired control over Solevo Group (Solevo) through its two investment funds, African Development Partners III L.P. (“ADP III”) and African Development Partners III Mauritius L.P. DPI is a specialist investment group in Africa whose investment portfolio consists of companies active in: financial services, mobile solutions for financial services (fintech), pharmaceuticals, agro-processing, food services, facilities management services, education, logistics, bedding, packaging, consumer goods sales on credit, irrigation systems and solutions, and building materials.

Solevo is a private limited company registered in the Netherlands. It distributed chemicals and inputs for specific agricultural segments in Africa, operating mainly in Angola, Ivory Coast, Cameroon, Burkina Faso, Mali, Senegal, and Madagascar. In the Common Market, Solevo only generated turnover and held assets in Madagascar. Solevo distributed straight and combination fertilisers i.e. (nitrogen, phosphorous and potassium) and (NPK composed of a mix of nitrogen, phosphorous and potassium) respectively, crop protection products (CCPs), (herbicides, fungicides, and insecticides) seeds, and variety of chemical products.

Madagascar’s fertilisers are mainly imported from China or Vietnam. There was no local fertilisers production in Madagascar, aside from Ammonium Sulphate. Solevo imported compound NPK fertilisers for rice, vegetables, potatoes, and barley from Vietnam and distributed in Madagascar through distributors and has very limited direct sales through tenders.

In its analysis of the transaction, the CCC identified the relevant market among others as the global market for the distribution of nitrogen, phosphate, and potassium-based fertilisers. The Commission noted that the proposed transaction was not resulting in a change in the market

<sup>47</sup> Polyolefin products are used in a wide range of applications such as energy, automotive, consumer products, healthcare, advanced packaging, fibre, pipes and fittings, polypropylene (PP) polyethylene (PE) materials.

<sup>48</sup> Includes base chemicals such as melamine, phenol, acetone, ethylene, and propylene.

<sup>49</sup> Which includes N (nitrogen), NP (nitrogen- phosphorous) and NPK (nitrogen-phosphorous-potassium) fertilisers, and a range of other technical nitrogen products, which include ammonia, ammonium nitrates, nitric acid, and urea solutions.

<sup>50</sup> Comoros, Djibouti, Egypt, Ethiopia, Kenya, Libya, Madagascar, Malawi, Mauritius, Rwanda, Somalia, Sudan, Tunisia, Uganda, Zambia, and Zimbabwe

<sup>51</sup> CCC/MER/11/49/2022

structure as the parties involved were not offering competing products. Hence there was no accretion of market shares because of the transaction. The transaction was not likely to lead to competition concerns resulting from an increase in the market shares of the parties in the relevant markets. The transaction would not have removed any effective competitor from the relevant markets which would not create transparency on the market, conferring an ability on the existing players to engage into successful collusion. The transaction was unconditionally approved.

**v. SABIC Agri-Nutrients Company and ETG Inputs Holdco Limited<sup>52</sup> 10 February 2023**

SABIC Agri-Nutrients Company (SABIC AN) acquired 49 per cent of the issued share capital of ETG Inputs Holdco Limited (EIHL). SABIC AN was controlled by Saudi Basic Industries Corporation (“SABIC”), which is in turn controlled by Saudi Arabian Oil Company (“Saudi Aramco”). Saudi Aramco, was primarily engaged in prospecting, exploring, drilling, and extracting hydrocarbon substances and processing, manufacturing, refining, and marketing these substances. SABIC is active in various sectors including petroleum and natural gas, raw material inputs for agricultural fertilisers (through SABIC AN), commodity chemicals, metals, and specialties. SABIC AN is a global fertiliser producer. Its portfolio included urea, ammonia, phosphate, and specialised products. In the Common Market, the acquiring group is active in 15 Member States<sup>53</sup>. EIHL is registered in United Arab Emirates is part of the ETG group (see above) and is involved in the import, blending, and distribution of fertiliser commodities and agrochemicals. In the Common Market, the target is active in 12 Member States<sup>54</sup>. EIHL owns more than 350 distribution centres across Sub-Saharan Africa through a network of agents and agronomists.

The relevant markets were defined as Global upstream supply of urea for fertiliser; and downstream supply of nitrogen containing fertilisers. The transaction was construed not to result in market share accretion given that the target operates in the downstream market for supply of fertilisers. The analysis showed that, the global urea market is highly fragmented and highly competitive with no single competitor holding a market share more than 10 per cent.<sup>55</sup>

In its analysis, the CCC considered whether the transaction presented horizontal overlap in the downstream market for supply of fertilisers (including blending activities). Based on the information provided by the merging parties and confirmed by some National Competition Authorities the Commission concluded that there was no overlap in the downstream market as SABIC AN did not directly distribute into COMESA. SABIC AN produced nearly all its urea in Saudi Arabia and sells it to large international wholesalers (such as EIHL) in the Jubail port in Saudi Arabia. These sales occurred on a “freight on board basis”, i.e., the title to SABIC AN’s urea

<sup>52</sup> CCC/MER/8/38/2022

<sup>53</sup> DRC, Djibouti, Egypt, Ethiopia, Kenya, Libya, Madagascar, Malawi, Mauritius, Rwanda, Sudan, Tunisia, Uganda, Zambia, and Zimbabwe

<sup>54</sup> Burundi, DRC, Djibouti, Ethiopia, Kenya, Madagascar, Malawi, Rwanda, Seychelles, Uganda, Zambia, and Zimbabwe

<sup>55</sup> SABIC AN’s estimated market share in the upstream market for the supply of urea globally was less than 5 per cent. Other competitors identified include Yara International ASA, Indian Farmers Fertiliser Cooperative Ltd, PT Pupuk Kaltim, Qatar Fertiliser Company, National Fertilisers Ltd, Engro Corporation Limited, CF Industries Holdings, Inc., and Nutrien Ltd.

transfers to the purchaser (wholesaler) at the moment when the urea is loaded onto the vessel at the Jubail port, with the sea-freight being typically arranged and paid for by the purchaser. It was submitted that all the urea produced by SABIC AN that is ultimately consumed in African jurisdictions therefore ended in the markets via third-party wholesalers.

The parties confirmed that SABIC AN, in turn, did not have local sales offices on the African continent and, since the SABIC Restructured, it relied on third-party wholesalers for the export and local marketing of the urea it produces to African jurisdictions. CCC was satisfied that there were no horizontal overlaps in the Common Market in the downstream market for supply of nitrogen containing fertilisers. Further, there were no indications that the acquiring group was a strong supplier of fertilisers within the Common Market, other than the urea it already supplied to the target entity pre-merger.

CCC further argued that the markets comprised strong national and international competitors which would exert competitive pressures on the merged entity post-merger. Also, the transaction was envisaged not to materially change the market structure of the relevant markets hence, it was unlikely to lead to the creation or strengthening of a dominant position of the merged entity.

Fears of input foreclosure were considered but subsequently dismissed noting that from information provided by the parties and the National Competition Authorities in Ethiopia, Kenya, Malawi, Rwanda, Zambia and Zimbabwe, EIHL was SABIC AN's sole customer. Accordingly, the downstream competitors of EIHL in these jurisdictions could not be foreclosed from accessing Urea post-merger as pre-merger, they had access to other sources as they were not supplied by SABIC AN. Whilst the CCC's assessment identified another customer of SABIC in Uganda, which also competed with ETG in the downstream market, the information available to the it did not point to a strong concern of input foreclosure in Uganda. On customer foreclosure, across the Common Market, SABIC AN then account for a significant amount of EIHL's urea requirements. If EIHL sources entirely all its supplies from SABIC AN post-transaction, there would still be a significant customer base available for SABIC AN's competitors, most of which are multinational players. Based on information provided by the merged entity CCC concluded that SABIC was unable to successfully engage in both input and customer foreclosure in the Common Market.

The merger was understood not to substantially prevent or lessen competition in the relevant markets in the Common Market. Accordingly, it was unconditionally approved. The parties were however fined for failure to notify the transaction within the prescribed period under the Regulations. The fine was 0.05 per cent of the parties combined turnover in the Common Market.

COMESA approved the merger based on information submitted by the parties and the national competition authorities.

**vi. Zambia CCPC merger review of Neria's Investments Limited's acquisition of Grain Storage Solutions Limited (GSS) in 2021**

During the period under consideration CCPC examined one local merger in the fertiliser sector. It involved Neria's Investments Limited's acquisition of Grain Storage Solutions Limited (GSS) in 2021. Neria was a private agro commodity trading company whose core business is the supply of fertiliser and raw materials as well as stocking of bulk commodities and inputs such as seeds for maize, soyabeans, groundnuts and sunflower. GSS has as its core business the provision of grain, agriculture input and other commodities storage services and handling of bulk commodity services. The identified market included the distribution of Fertiliser in Zambia. After considering all the factors CCPC decided that the transaction did not raise any competition concerns that may lead to the substantial lessening of competition or abuse of dominant position in the economy of Zambia. Hence the transaction was granted unconditional authorisation.

**vii. Zimbabwe CTC review of Kali-Union Verwaltungsgesellschaft mbH ("Kali-Union") acquisition of Fertiva Proprietary Limited ("Fertiva"), February 2023**

The Zimbabwe CTC also examined a single transaction during the period under review. The merger involved Kali-Union Verwaltungsgesellschaft mbH ("Kali-Union") acquisition of 75 per cent of shares in Fertiva Proprietary Limited ("Fertiva"). It was notified in February 2023.

Fertiva is a private limited company, registered under the laws of South Africa. It is a wholly owned subsidiary of Industrial Commodities Holdings ("ICH"/ "Seller"). ICH<sup>56</sup> is a private limited company, incorporated under the laws of South Africa. Kali-Union is a German company and a wholly owned subsidiary of K+S Minerals and Agriculture GmbH Kessel ("K+S MinAG") who in turn, is a 100 per cent owned subsidiary of K+S Atkiengensellschaft ("K+S AG"). Fertiva is the primary target<sup>57</sup> whereas Kali-Union and K+S AG are the primary and ultimate acquirer, respectively. ICH is active in the supply of commodities ranging from fertiliser raw materials, chemicals, sulphur, food grade products, and packaging material in Africa. K+S AG is a minerals company active in agriculture, industry, and consumer segments. Neither of the parties to the proposed transaction have local presence in Zimbabwe. K+S AG is active in Zimbabwe through the supply of fertiliser raw materials through its agency relationship with ICH.

The product market was defined as: the (i) manufacturing and (ii) distribution of fertiliser raw materials in the whole of Zimbabwe. Fertiva and Kali-Union have a customer-supplier relationship. Consequently, the merger is classified as a vertical merger. Examination of foreclosure theories indicates that the proposed merger was unlikely to result in substantial lessening of competition in the manufacturing and distribution of fertiliser raw materials in Zimbabwe, and therefore was not contrary to public interest. The merger was approved without conditions.

<sup>56</sup> ICH's shareholders: Sanjika Investments (19%), Mainstreet 1634 (18%), Jamrich (18.61%), Lloyd Vest (9.57%), Zylcorp (8.5%), Woodvest (7.11%), Anmar Invest (6.67%), IC Invest 2012 (6.5%), and G Fell (5.4%).

<sup>57</sup> In accordance with international best practices



## Assessment

The paper draws cross-cutting insights here and assess the implications for merger review in more detail in section 4.4 below.

A closer look at the five transactions assessed by CCC reveals a trend of integration through vertical mergers which may have horizontal dimensions that have not been apparent in the merger filings. Upstream firms (Yara, SABIC, and SAMC) involved in the extraction of fertiliser inputs and manufacturing of fertilizers have merged with downstream firms (Greenbelt, EIH and Meridian) involved in the blending, packaging, and distribution of fertiliser in the common market. Vertical mergers present both pro and anti-competitive effects. All the transactions were unconditionally approved both at national and regional level as the likely anti-competitive effects were not deemed to be substantial.

The possibilities of input or market foreclosure were dismissed for reasons including that the global fertilizer market is highly competitive and the upstream producers were not active in the common market. In the downstream it was also observed that the markets are competitive with many players and big buyers with countervailing power. This is counter to the evidence on concentration and on the pricing power of the major suppliers.

In many cases the geographic markets were defined such that the firms were not found to be direct competitors. However, it appears that the upstream producers are in fact actual or potential competitors with the firms they acquired in regional markets. Yara and Greenbelt, and SABIC and ETG do appear to have been supplying in the same regions. SABIC-AN presented their position as only supplying on an fob basis at the export port and not distributing 'directly' into COMESA member states or having sales offices, however, there have been sales to customers in the region and SABIC does have marketing offices, which include marketing fertilizer products, in Nairobi and Johannesburg for the countries across the region. Customers have arranged imports from SABIC through the SABIC Office in Nairobi. Such facts if they had been known during the investigation could have led to different conclusion. In the 2019 merger of Ma'aden and Meridian, Ma'aden was observed to be the market leader in the supply of phosphate fertilisers in Kenya<sup>58</sup> while Meridian was the market leader in the supply of fertilisers at national level in Malawi, and Zimbabwe. This points to Middle East manufacturers supplying into the common market and suggests the two companies could have competed head-to-head but were not doing so at the time of the merger.

The assessment of coordinated effects would require more in-depth assessment of the factors facilitating coordination and the extent to which the mergers impact on this. There are also cross-shareholdings between SABIC and Ma'aden. It was held by the CCC that as these are not controlling shareholdings it would not affect the incentive or ability to coordination, such as to facilitate the exchange of information between competitors. However, it is axiomatic that such shareholdings change the incentives to coordinate rather than compete. In addition, Ma'aden

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<sup>58</sup> This is also consistent with manufacturers supplying into the region, which was not taken account in the SABIC/ETG merger.

was a competitor in Kenya in 2019, where ETG is one of the major suppliers and merged with SABIC. After 2019 Ma'aden was not a major competitor in Kenya.

The consolidation through mergers may pose challenges for the nature and level of competition in the common market, especially in the context of possible coordinated effects. Yara, SABIC AN/ETG and Ma'aden/Meridian are now all fully integrated through the fertiliser value chain, which may support efficiencies, however, also raises barriers to entry by a disruptor into the markets. The shareholdings by SABIC and SAMC in MPC and MWSPC, along with common shareholdings in SABIC and SAMC themselves, means incentives can be aligned through the supply chains which now extends to distribution in the ESA region by Meridian and ETG.

### 3.4. Country assessments: East Africa

Based on the main ports and supply routes, this section considers the countries in two main clusters - in Eastern and in Southern Africa (while the DRC straddles both areas we include it in Southern Africa). Note that some trade flows are indicated as coming from countries such as Mauritius and Switzerland which are not fertiliser producers or exporters and instead likely reflect the registration of the company importing and a book transaction.<sup>59</sup>

In East Africa, the largest two companies - Yara and ETG/SABIC – each plan imports for the whole region, share shiploads, and have bagging terminals at the ports in Mombasa and Dar es Salaam. These companies account for around 70-80% of total fertiliser supplied in East Africa, including through sales to other smaller traders (their local 'competitors') as well as to each other.<sup>60</sup> Of the inland countries we cover here, Uganda is mainly supplied from imports through Mombasa and by the Kenya-located operations of the traders. Rwanda is more commonly supplied from imports through Dar es Salaam.

With the merger of ETG and SABIC, the two main companies are vertically integrated from the primary production of the main nitrogenous fertilisers through to the distribution across East Africa. Morocco's OCP, which produces phosphate fertiliser, has entered and grown its share.<sup>61</sup>

The main companies import for the EAC as a whole, to meet an estimated demand of around 1.3mn Mt in 2022. Of this ETG/SABIC is around 550<sup>th</sup> with the share having fluctuated around 40%. Yara is similar in size. Kenya and Tanzania have the largest demand, with Kenyan imports fluctuating between 500-800<sup>th</sup> Mt (Figure 4). Uganda and Rwanda have each had demand around 80-100<sup>th</sup> Mt.

Estimated country volumes for 2022 and shares of the main companies from interviews are as follows (noting that some inland country volumes are trans-shipped from Kenya and Tanzania and may be counted twice):

- Kenya: 500<sup>th</sup> (ETG/SABIC is 250<sup>th</sup>, 40-50%; Yara 40%; OCP)

<sup>59</sup> Where this is in a low tax jurisdiction it could be for tax purposes.

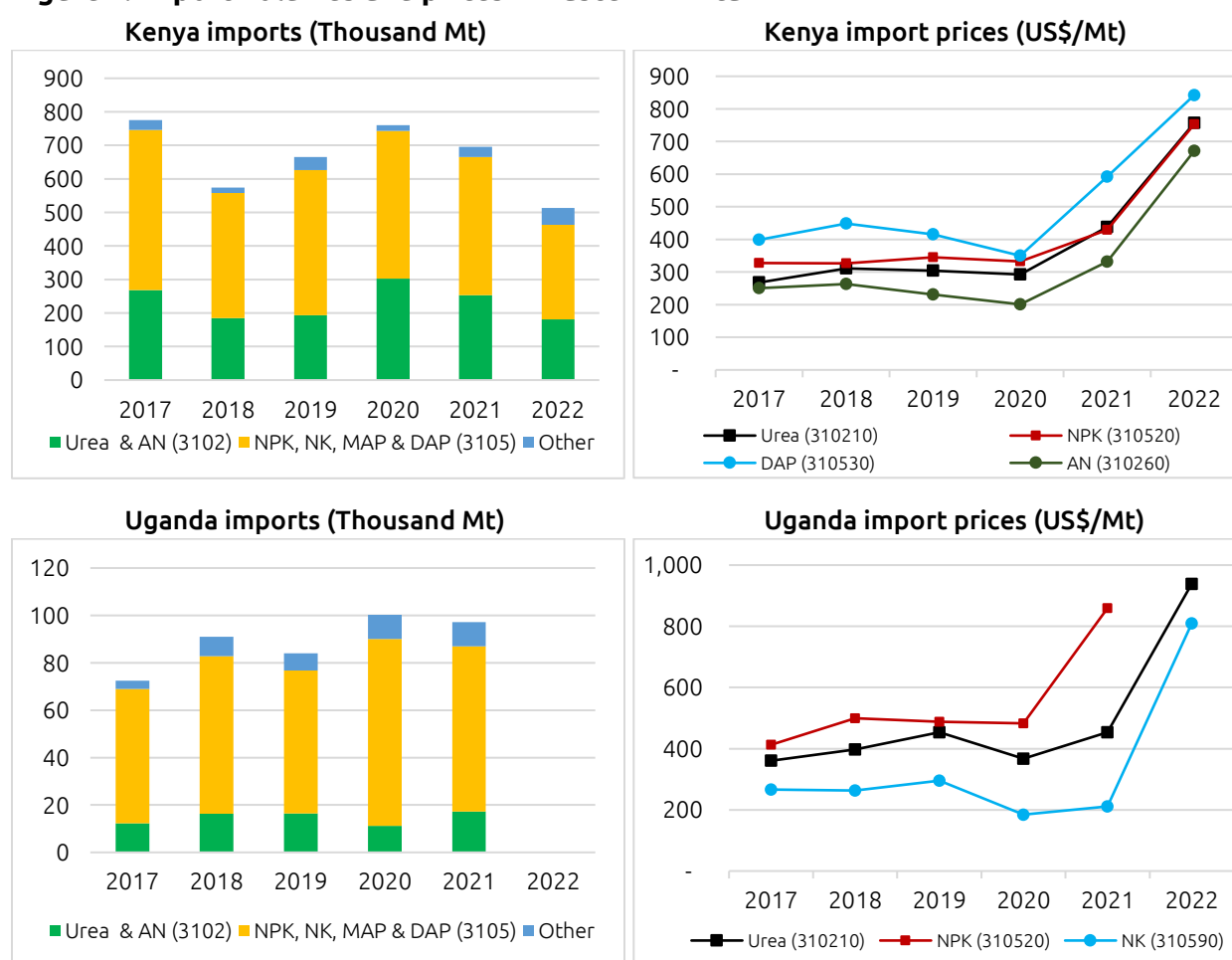
<sup>60</sup> Interviews with major companies.

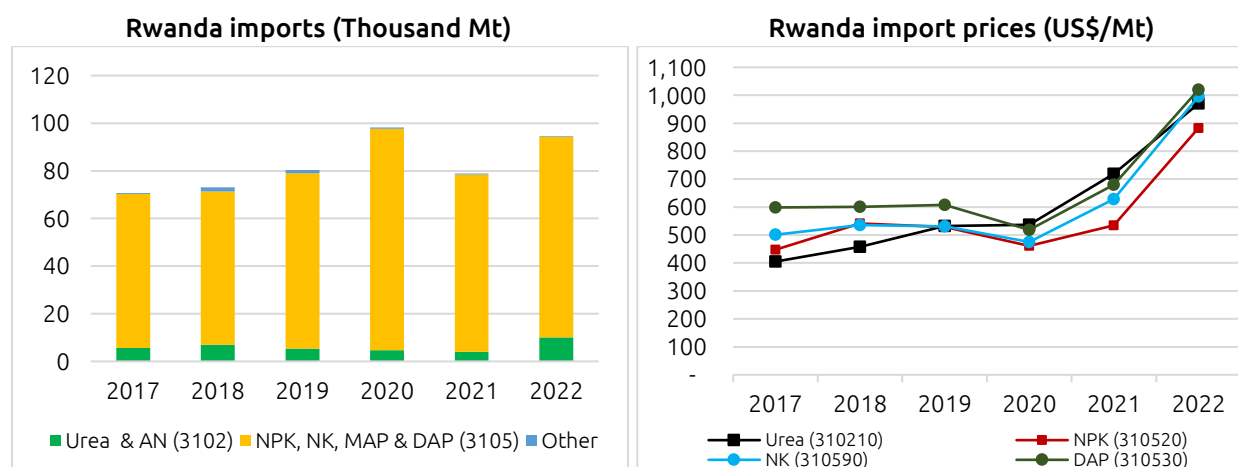
<sup>61</sup> Although it has faced some obstacles such as stock being found not to meet standards in Kenya.

- Uganda: 100<sup>th</sup> (ETG/SABIC 19-25<sup>th</sup>; Yara 20<sup>th</sup>; additional volumes through other smaller suppliers trans-shipping, mainly from Kenya)
- Tanzania: 600<sup>th</sup> (ETG/SABIC 250<sup>th</sup>, 40%; Yara 40%; OCP 15-20%)
- Rwanda: 60-90<sup>th</sup> (ETG/SABIC around 30<sup>th</sup> via traders; similar volumes by Yara, and by OCP/RFC)
- Burundi: small, around 40-50<sup>th</sup> total, mainly trans-shipped from neighbouring countries.

Inland customers in Uganda and Burundi are mainly supplied by bagged fertiliser in containers, although customers can also collect containers themselves from Mombasa port. Other local traders bring fertiliser purchased from large importer-traders into their own warehouses, such as in Eldoret in Kenya, and then sell on into Uganda.

**Figure 4. Import volumes and prices in Eastern Africa**





Source: Authors calculations, using data obtained from Trade Map

### 3.4.1. Kenya

#### i. Market overview

Kenya has an annual demand for fertiliser of between 500 and 800<sup>th</sup> Mt per annum, with the main products being urea, AN, NPK, DAP, and these are mostly imported from the Russian Federation, Norway, Romania, and the Middle East through the Mombasa port.<sup>62</sup> The import prices in 2022 were US\$842/t for DAP, US\$753/t for Urea and NPK and US\$727/t Ammonium Nitrate, more than double that of 2020. However, prices at agro-dealers were much higher again, at around \$1200/t in 2022 for urea, and remaining above \$800/t in May 2023 even while international prices had fallen to \$330 (see Figure 6 below).

The fertiliser is mainly supplied to farmers by the private sector as the government fertiliser subsidy regime has not been working well. Volumes dropped substantially in 2022 at the same time as international prices increased substantially.

Imports are mainly in bulk form which are then bagged close to the port, while some imports are already bagged and imported in containers, although these tends to be more expensive. Yara has its own bagging facility at Mombasa, while the Kenyan Ports Authority also provides bagging services (Nduati, 2015). Bagging services have cost around \$5 to \$10 per tonne.<sup>63</sup> Yara East Africa is headquartered in Kenya and has three distribution centres in the country in Nairobi, Mombasa, and Eldoret.

There are different tiers of companies trading and supplying fertiliser. Large importers can arrange to source internationally and land in bulk with their own bagging facilities at the port. The two leaders, Yara and ETG, are estimated to have around a 40% market share each, with a third company OCP having around 20%. These companies import for Kenya as part of their planning to supply the whole of East Africa. The imports mainly come from the Middle East and

<sup>62</sup> Around 100 thousand tonnes are sold onto Uganda each year which may not be fully captured in trade statistics. Consistent with suppliers estimating Kenyan demand around 650<sup>th</sup> tpa with maize accounting for the majority.

<sup>63</sup> This is in line with estimates of Yara Kenya of overall port charges including bagging of 10% of fob, and ETG in Zimbabwe (at Beira or Durban) and Yara Kenya

Norway, reflecting ETG links with SABIC,<sup>64</sup> and Yara's production, as well as being imported from Russia.<sup>65</sup>

In the second tier of medium-sized companies there are around four to six of substantial scale who could arrange imports themselves,<sup>66</sup> however, this requires sourcing and shipping internationally and the substantial financial commitment this entails. These companies instead buy from the tier one importers, mainly from the port in bagged form, and sell through networks of agro-dealers across the country. They are therefore not well positioned to effectively compete as they are dependent on the major importers for bulk supplies.

The Fertiliser Association of Kenya (FAK) was established in 2009 and in 2023 had 13 members, including all the major suppliers and companies in related activities such as consulting services.<sup>67</sup> According to FAK, there are seven blending plants, one granulation plant (Mea), and one plant manufacturing single superphosphate.<sup>68</sup> We understand that Yara has two blending plants, and ETG, Toyota Tyusho (CFAO) and Mea each have one.<sup>69</sup> Minjingu Mines Tanzania mines phosphate and produces phosphate fertilisers and has a Kenyan business Minjingu Mines and Fertiliser Kenya Ltd.

## ii. Policy Framework

There is an extensive history of the government of Kenya providing subsidised agricultural inputs, and fertiliser in particular, in the agricultural sector (see Argwings-Kodhek and Mbatia, 2010; Ariga and Jayne, 2009). The broad objectives of the government's fertiliser subsidy as captured in the Kenya Agricultural Sector Development Strategy (KASDS) (2010-2020) have been to: stimulate agricultural production in targeted crops; ensure self-sufficiency in food production and food security; and make inputs affordable to farmers.

The two main programmes in the provision of fertiliser over the past 15 years have been the National Accelerated Agricultural Inputs Access Programme (NAAIAP), launched in 2007, and the fertiliser subsidy programme introduced by the government in 2009. In the most recent year beginning in March 2022, the government targeted subsidy for around 300<sup>th</sup> tonnes (6 million bags) or close to half of the total fertiliser requirement, with the government subsidising around 40-60 per cent of the cost and the farmers paying the other portion.<sup>70</sup> This is implemented through a parastatal, the Kenyan National Trading Corporation (KNTC).<sup>71</sup> The

<sup>64</sup> Also including imports of DAP from the Middle East coming from Ma'aden (interview with Mea).

<sup>65</sup> Italy has also been recorded as a source in some years. Yara is also reported to source from Qatar in the Middle East.

<sup>66</sup> Chemagro interview: Elgon; Interagro; CF Agro; Supplies and services; Afri Ventures; One Acre Fund.

<sup>67</sup> Yara, ETG, Elgon, Interagro, CFAO, Supplies and Services, OCP, Chiromo Fertilisers, Maisha Fertilisers, KGL Chemicals, MEA Limited, Minjingu Phosphate and Mines, Chemagro. Note some such as Chemagro provide consulting services and sell on behalf of other suppliers; Elgon is very small, just around 20<sup>th</sup> t, with imports from Yara International (Urea and CAN), and of DAP from Saudi Arabia (likely from SABIC).

<sup>68</sup> FAK ppt 2022

<sup>69</sup> Although the Mea plant in Nakuru is not operating in 2022/23 because did not get contract for subsidized fertiliser supply.

<sup>70</sup> Reported that 242nd Mt were contracted (Mea interview)

<sup>71</sup> Working with the Kenya Cereals and Produce Board. There is also an IFAD programme which subsidises 90 per cent of the cost to targeted small-farmers.

Kenya Tea Development Agency (KTDA) also tenders separately for its smallholder tea growers.<sup>72</sup>

The government subsidy programme fixed the price at Ksh3500 per 50kg bag (around \$510/Mt) for 2021/2022 season for fertilisers targeted at maize farmers (and excluding DAP). The KNTC procures the fertiliser from private sector blenders in the country, with two (ETG and Yara) of the around nine possible companies being contracted, based on the prices offered.<sup>73</sup> Farmers can buy the subsidised fertiliser using an e-voucher system. Private sector competition determines supplies for the additional market requirements.

### iii. Market developments

The supply of fertiliser into Kenya is highly concentrated with the two largest suppliers, Yara and ETG collectively accounting for 70-80% with each having similar shares. Yara has maintained a share of around 35-40% with a strong position in nitrogen fertiliser supply based on its global operations and bagging and port operations. ETG has a similar share at around 35-40%.<sup>74</sup> The position of the two leading suppliers has also been reinforced by being the only firms contracted under the fertiliser subsidy programme to supply large volumes. In addition, there are substantial barriers to being an effective supplier related to being able to source large volumes in shiploads and organize the finance and logistics to offload in Mombasa and bag for supplying onto agro-dealers.<sup>75</sup>

There have been two major changes in the past decade or so. First, ETG has replaced Mea as the second major supplier alongside Yara. Second, OCP which entered in 2018 has grown its supplies of phosphate fertilisers.<sup>76</sup>

ETG's joint venture with Saudia Arabia's SABIC was approved in early 2023, although the companies have been working closely together for some time. SABIC calculates their share in Kenya (in joint venture with ETG) as around 35%, and in the EAC region as a whole as around 35-40%. They have the ability to supply to smaller traders and to large individual customers across East Africa and have supplied also to Zambia from East Africa at times, depending on availability via South Africa where they also have an office. If the merger had not gone ahead with ETG then SABIC indicated that they would have independently grown their operations in East Africa.

From the perspective of geographic sources of supply, SABIC is able to ship from the Middle East in 12-20 days, while lead times from Morocco are more than 30 days and from Russia at around 45 days. China also produces but had export restrictions in 2022.

<sup>72</sup> KTDA is a private company owned by small-holder farmers.

<sup>73</sup> It is reported that Yara then subcontracted to another company Mashambane (which caused controversy).

<sup>74</sup> Interview with market participants.

<sup>75</sup> Interviews with main importers.

<sup>76</sup> According to Mea, OCP has faced challenges after importing 150 000 tons of DAP to meet Kenyan demand at the request of the Kenyan government who then found their quality is not up to par – and so OCP is now sitting with the large volume of unsold fertiliser.

The large companies appear to work closely together, sharing shiploads at times and appear to prepare monthly cost build-ups using standard costs from benchmarks.<sup>77</sup> The companies are able to track market shares quite closely, appearing to reflect high levels of information exchange in this concentrated market. The companies have referred to information by country on supply quantities provided by the IFDC (International Fertiliser Development Centre) but the publicly available information on the IFDC site does not provide the level of detail which the companies appear to share.

The market outcomes reflect prices which have not reduced in line with international prices and increased mark-ups to Kenyan buyers. A similar trend was observed in 2012 (Nduati et al. 2015).

### 3.4.2. Rwanda

#### i. Market overview

Rwanda imports have been around 80-100 thousand Mt, with NPK, DAP and NK being the main products. Prices in 2022 were US\$883/t NPK, US\$996/t NK, US\$1,019/t DAP, and US\$970/t Urea, substantially higher than in 2020 and 2021 (Figure 4). Prices were at \$1200 in the first half of 2023. Most Rwanda imports come from the Middle East, Russia, Finland, and Morocco. Rwanda can source imported fertiliser through either Mombasa or Dar es Salaam ports with similar distances of around 1500km, although coming from Mombasa means an additional border crossing.<sup>78</sup>

Rwanda has two main seasons, with season A peak fertiliser demand between July and September and season B peak in February and March (season A is around 60 per cent of demand).

The fertiliser markets in Rwanda work quite differently from others in the region as the government is the main buyer and the supplies to farmers across the country are done mainly through a single company contracted to perform this role, APTC (which is state-owned, by the Rwanda Defence Force). The government sets the subsidized fertiliser price to farmers, which is managed through this system. The prices are determined for six-month periods.<sup>79</sup>

The government negotiates for the bulk supply with a small number of major traders. These are led by Yara, ETG, One Acre Fund (OAF) and the Rwanda Fertiliser Company. OAF is a non-profit which itself sources from international suppliers, for smaller farmers. Large commercial farmers, including tea and coffee farmers can do their own sourcing, mainly from one fertiliser supplier.<sup>80</sup>

The high prices of fertiliser have meant high costs for the Rwanda government in attempting to cushion the impact on smaller farmers through increasing the subsidy.

<sup>77</sup> An example of a monthly cost build-up was provided although the sources used for the line items was omitted. Interviews confirmed that the benchmarks used are not the suppliers actual lower costs.

<sup>78</sup> This has led some suppliers to indicate that it is easiest to import for Rwanda via Dar es Salaam (see for example, interview with SABIC, Nairobi office)

<sup>79</sup> In 2022, the period moved to being February to July, then August to January 2023.

<sup>80</sup> Tea and coffee are around 10<sup>th</sup> Mt and mainly source from Yara.

## ii. Policy Framework

The Rwanda Agricultural Board (RAB) plays the role of supply chain coordination, facilitating farmer access to inputs through the Government subsidy programme. The Government subsidy programme works through the issuing of tenders for suppliers (local and international) with Terms of Reference. To bid companies must be able to commit a minimum quantity, around 60 per cent of projected demand.<sup>81</sup> The tender is awarded based on the lowest prices and best terms being offered, with government negotiating with the suppliers following their bids with indicative prices, on a one-to-one basis to ensure supplies. RAB is informed in the negotiations by its own market intelligence and interactions with organisations tracking fertiliser prices. This includes assessing sea and land freight costs. The negotiations involve agreeing on all the cost build-up and the supplier margin. The negotiations used to be on an annual price, however, as of July 2020, given price volatility, the prices were set on a seasonal basis (for six months at a time). The average local distribution cost is factored into the price which is set across the country.

RAB coordinates distribution and hence know individual companies' volumes. OAF has been the largest supplier to the tender with around half of the supply in Rwanda to smaller farmers. OAF purchases NPK fertiliser at the international level from Yara, DAP from OCP and urea from ETG. This means that its share is effectively split between these three companies. OAF is also subject to risk based on price movements in international markets relatively to its commitments to purchase and supply.

The subsidy proportion changed from 2020 as fertiliser prices increased. The subsidy was increased to 35 per cent of the price from around 20-25 per cent of the price. The farmer therefore pays 65 per cent on purchase of the fertiliser and the supplier claims the remaining 35 per cent of the price from the government. The subsidy works through an electronic system based on the record of the title deed of the land, the total area of the land, and the crop being grown, with the subsidy based on the fertilisers stipulated for specified crops.<sup>82</sup> There have, however, been issues with the subsidy portion being delayed with one supplier reporting that around 5-10 per cent of invoices from 2020 were paid very late.

## iii. Market developments

The market shares for total supplies into Rwanda, as estimated by market participants, indicate that Yara and ETG having approximately the same shares around 40-45 per cent when their supplies via One Acre Fund are allocated between them, while the Rwanda Fertiliser Company (a joint venture with OCP, hereafter RFC/OCP) has the remaining share of around 15-20 per cent.<sup>83</sup> This indicates that the market is highly concentrated, especially as the interviews suggested that RFC/OCP is focused on phosphate fertilisers such as DAP. When RFC/OCP establishes a local fertiliser blending plant this should expand their range of products.

<sup>81</sup> Excluding commercial farmer demand.

<sup>82</sup> For example, sorghum is not part of the subsidy while maize is.

<sup>83</sup> ETG estimated its share including sales to One Acre Fund at around 40-50%, with One Acre separated out at around 30-35%, and Yara similar. Yara estimated its own share at between 36-48%.



The Government as buyer has experienced limited options for bulk supply and information is very important in seeking to negotiate reasonable terms with the main suppliers. The sustained high prices are a further indication of the concentration and price-setting ability of the main suppliers to Rwanda.

### **3.4.3. Uganda**

#### **i. Market overview**

Fertiliser supplies in Uganda are a combination of recorded imports by the major companies led by Yara and ETG, alongside trans-shipments by smaller traders mainly located in Kenya, not all of which are recorded. The estimated annual demand for fertiliser has fluctuated – ranging from 70,000Mt to 100,000Mt. The main fertiliser products consumed in Uganda are NPK, NK, MAP and DAP, with most fertiliser imported from the Middle East, Russia, China, and Kenya.

Data collected by African Fertiliser and Agribusiness Partnership (AFAP) indicate usage in Uganda in 2022 at a higher level of 192,000Mt due to unrecorded trans-shipments from Kenya, including by smaller traders (this also implies that Kenya's usage is lower). The differences are also consistent with reports of greater volumes of urea being consumed in Uganda than reflected in the recorded trade data. According to ETG, urea is 40% of the fertiliser in Uganda, with NPK blends and DAP each around 25%, while the official trade data reflects negligible imports of urea.

The smaller traders who trans-ship from Kenya buy in Kenya from the largest companies. The strong links with Kenya are also reflected in ETG Uganda operating through ETG Kenya and the SABIC office in Nairobi, while Yara Uganda is run through Yara East Africa (in Nairobi), with bagging done in Yara's Mombasa facility.

Prices in Uganda appear to be around \$100-\$150 higher than in Kenya even while the major companies transport from Mombasa through to warehouses in Uganda before onward distribution within the country. The smaller companies buy from Yara or ETG, from Mombasa or from warehouses such as in Eldoret and Nakuru in Kenya, and then organise transport into Uganda. These include the One Acre Fund (which also sources from Dar es Salaam).

#### **ii. Policy Framework**

Uganda had a fertiliser subsidy programme from 2019 that was funded by the government and used e-vouchers for farmers identified by the government. The subsidy amounted to more than half of the price, however, suppliers including ETG opted out as there were many errors in the system and companies did not receive the portion due from the government after having delivered to the farmer at the much lower price.<sup>84</sup> In effect, the subsidy was not operating in 2022.

With the spike in global fertiliser prices in 2022 a donor-funded subsidy scheme ran for a season from August 2022 to February 2023 managed by the African Fertiliser and Agribusiness Partnership (AFAP) with funding from Rabobank and the Bill and Melinda Gates Foundation.

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<sup>84</sup> Interviewees reported that suppliers on the platform lost around US\$10mn.

Only ETG and Yara were involved, to supply 20,000 Mt.<sup>85</sup> The farmer paid 70% and the subsidy portion amounted to 30%, for farmers pre-profiled through the Ministry of Agriculture.

### iii. Market developments

Uganda has huge agricultural potential; however, its production is far below this potential. Fertiliser usage is very low, and prices are extremely high, with only a very small supply of subsidised fertiliser. Fertiliser supplies in Uganda are effectively integrated with Kenya in terms of supply infrastructure and the main companies, along with the high levels of concentration and similar shares of the largest companies at the bulk supply level. This is the case, even while there appear to be large quantities of informal trade in the distribution of small volumes which is not declared to the Uganda Revenue Authority.

ETG has two main warehousing facilities in Uganda, including a warehouse with capacity to hold more than 50<sup>th</sup> tonnes in Tororo, to which it can transport direct from Mombasa port. Yara does not have the same infrastructure in Uganda and uses distributors (with around 65 distributors in 2023). Yara also has a warehouse in Eldoret in Kenya (150km from Uganda) from which traders can purchase, or they can buy directly from Mombasa (as do some very large commercial farmers). OCP also supplies into Uganda. Other companies based mainly in Kenya, such as Elgon and Supply & Services, supply into Uganda from their Kenyan core operations.

## 3.5. Country assessments: Southern Africa

The main routes for imports by Malawi, Zambia and Zimbabwe are through Mozambique from Beira and Nacala ports and from South Africa, from producers there and through Durban port. The DRC imports into the south of the country from Zambia, while the west and centre of the DRC sources separately through the port on the Atlantic coast, and the east obtains volumes from neighbouring countries.

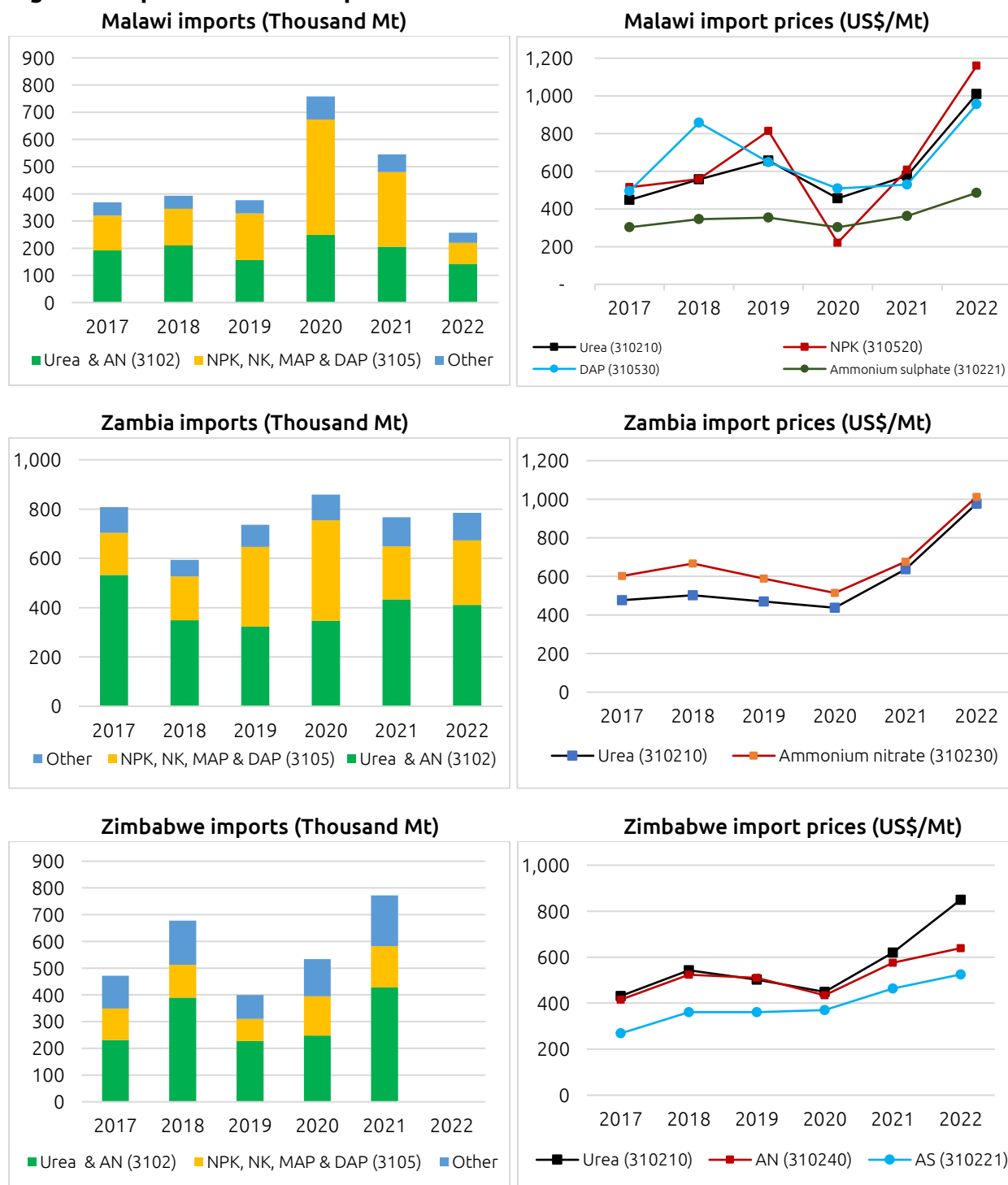
The Southern Africa region has been affected by the increased fertiliser prices in 2022 which led to reductions in volumes. The region presents some of the best areas in the world to expand agriculture production – in Zambia and the DRC. The DRC has an estimated 80 million hectares of available arable land with only 10% of this land being used currently while Zambia uses only around 10% of its 40 million hectares of arable land.

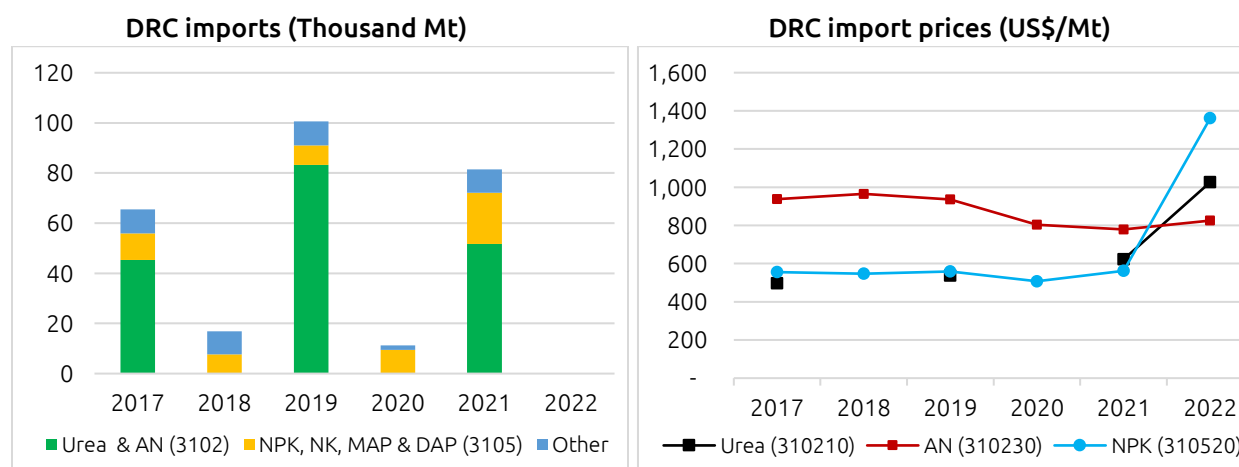
The fertiliser market in Southern Africa is oligopolistic in nature with three to four major suppliers. ETG and Meridian /Ma'aden supply across the region, including through Meridian subsidiaries such as FSG. These firms are vertically integrated from importing fertiliser, all the way to blending and distribution of fertiliser – at some levels of the supply chain they compete with their customers. For example, One Acre Fund sources their fertiliser inputs from ETG in Malawi and they all compete for the same farmers at the distribution level. Yara and Omnia are only present in some countries.

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<sup>85</sup> ETG supplied 8000 tonnes and Yara supplied 12 000 tonnes.

**Figure 5. Import volumes and prices in Southern Africa**





Source: Authors calculations, using data obtained from Trade Map.

### 3.5.1. Malawi

#### i. Market overview

Malawi demand for fertiliser has been fluctuating over time, ranging from around 250,000Mt to above 700,000Mt – with the highest recorded imports over the observed period being in 2020. All the fertiliser supplied in the country is imported by the private sector and government. Imports are from the Middle East, Eastern Europe, North Africa, China and sometimes India. The main fertiliser products are NPK, NK, MAP and DAP, as well as Urea. The import prices for the products in 2022 were US\$1,160/t for NPK, US\$1,010/t for Urea, and US\$955/t for DAP, reflecting very large increases from 2021.

The main fertiliser companies trading in Malawi are ETG, Meridian/FSG (which recently acquired Optichem) and One Acre Fund (which does not import on its own but sources fertiliser from ETG). There are two blenders in Malawi both of which are now owned by Meridian. These are Malawi Fertiliser Company (MFC) and Optichem. The Meridian MFC operation has a capacity of 150,000Mt and blends NPK in bulk at the plant in Liwonde, sold under its Superfert brand.<sup>86</sup> The plant is situated on the railway from Nacala port. The urea imported by MFC comes in bulk and is bagged at the ports of Nacala and Beira in Mozambique with Beira (by road) used more than Nacala.<sup>87</sup> Farmer's World is the distribution network with over 130 outlets across Malawi.

Optichem's blending and granulation plant in Chichiri, Blantyre and is the only manufacturer of granular fertiliser in Malawi with a capacity to supply 100 000Mt of fertiliser per annum of granular and blended NPK fertiliser. Optichem has warehouses in Blantyre and Lilongwe, and they supply fertilisers for all crops such maize, tobacco, tea, rice, cotton, and groundnuts and more. Optichem is also building a plant in Liwonde where MFC already has a plant in Liwonde.

One Acre Fund (OAF) Malawi provides 'loans' of fertiliser and other inputs to farmers through 20 outlets in 12 districts in Malawi including Zomba, Blantyre, Chilanzulu and Mulanje. They

<sup>86</sup> Other estimates put the installed capacity at 120Mt per hour, with full capacity to blend 360 000Mt per year (Mizimbe, 2022 and [https://fertiliserassociationmw.com/assets/docs/Fertiliser\\_Association\\_Magazine\\_-\\_June\\_2022.pdf](https://fertiliserassociationmw.com/assets/docs/Fertiliser_Association_Magazine_-_June_2022.pdf))

<sup>87</sup> The split is roughly 70% Beira, 30% Nacala.

work with farmers who have up to two-acres of land. For example, a farmer with one-acre can get a loan of 50Kg fertiliser and 10Kg bag of seed. In 2023 OAF is working with 95 000 farmers – an increase from 62 000 in 2022 and from a start of 71 farmers in 2013. OAF source their fertiliser requirements from ETG (through Mozambique). OAF previously imported their own fertiliser until they stopped this in 2018 due to the higher costs of importing on their own.

The challenges in the Malawi include counterfeit fertiliser and fertiliser that is mixed with sand or terrazzo (Mdlala, 2022; Kantchentche-Donga, 2022). This fake fertiliser is sold in packaging of well-known brands.

## ii. Policy framework

To import fertiliser into Malawi it is necessary to have a business certificate, import license, and tax certificate for tax collection purposes. The process of obtaining an import license for fertiliser requires approvals from the Ministry of Agriculture and Ministry of Trade, along with testing by the Malawi Bureau of Standards (MBS).

The government has played an extensive role in fertiliser supply through subsidy programmes first implemented in 2005/06 to enhance food security in the country, with donor support. The programme concentrates on fertiliser for maize, cereal seed, and legumes. It has had different forms. In 2018/19<sup>88</sup> the programme targeted one million smallholder farmers with a total of 100 000Mt (50 000Mt NPK and 50 000Mt Urea). Beneficiaries received a coupon of 15,000 Mwk (around US\$20) and had to pay the difference of the coupon value and prevailing market price.

In 2020, the Malawian government introduced the Affordable Inputs Programme (AIP) in place of the FISP – this programme allowed Malawian subsistence farmers to buy farm inputs at a subsidised price with the government covering over 70 per cent<sup>89</sup> of the cost (Kateta, 2022). The goals of the AIP were like those of the FISP; however, the budget of the AIP was more than four times that of the FISP. The quantity of fertiliser imported in 2020 more than doubled from the previous year. The 2019 fertiliser subsidy programme made available 90 000Mt of fertiliser (45 000Mt urea and 45 000Mt NPK). In 2020 the subsidy programme targeted 3.4 million people, a huge increase in beneficiaries from the 900 000 in 2019 (Mwale et al., 2021).

Since the programme's inception, it has faced a number of challenges including shortage of supply at selling points, selling of underweight fertiliser, corruption allegations and lack of support from suppliers. The effectiveness of the programme has also been under question. The AIP budget is over 45 per cent of Malawi's agriculture budget, while maize production increased by 300 000Mt between 2020 and 2021.

Over the years, the government contracted importers of fertiliser to make fertiliser available for the programme but in 2023, the government will import fertiliser and supply the inputs directly to the beneficiaries – making the government the sole supplier on the AIP for the 2022 and 2023 planting seasons. Prior to this, the government would put out a tender notice and all interested companies would bid for the tender to provide the government with fertiliser for the

<sup>88</sup> Please see <https://www.agriculture.gov.mw/docs/FISP%20IMPLEMENTATION%20GUIDELINES.pdf>

<sup>89</sup> Please see <https://www.devex.com/news/can-malawi-s-agricultural-inputs-program-improve-food-security-102499>

subsidy. The government would also provide some fertiliser through the Smallholder Farmers Fertiliser Revolving Fund (SFFRFM). In 2021, for example, the government provided between 20-25 per cent of fertiliser for the subsidy programme and the rest was provided by the private sector. Starting from 2022, the government procured all fertiliser requirements on its own through SFFRFM.

Similarly, to the previous periods, each beneficiary will receive two 50kg bags of fertiliser – 50KG Urea and 50KG NPK; and 5KG bag seed. In the first year of the AIP 2020, beneficiaries made 8,810 MK (US\$12) contribution for 2 bags of fertiliser.<sup>90</sup> In the second year 2021 they contributed 15,000MK (US\$19) for 2 bags and in 2022 contributed 30,000MK (US\$32) for 2 bags.

### iii. Market developments

Prices in Malawi are substantially higher than world prices and have generally been the highest of all the countries considered here. In 2023 price remained at elevated levels even while world prices have declined meaning that over the past year, Malawi prices of urea have been more than triple the world prices. These price differences outweigh the amounts of the subsidy which accounts for a large proportion of the agriculture budget. The very high prices are in the context of highly concentrated markets where the main suppliers are integrated with manufacturers of fertiliser in the Middle East and elsewhere and have logistics operations at the import ports and overland transport. Concentrated at the blending level has further increased through mergers and acquisitions.

## 3.5.2. Zambia

### i. Market overview

Zambia relies on fertiliser imports coming mainly through Beira and Nacala (in Mozambique), South African producers and through Durban (in South Africa). Zambia imports fertiliser as raw materials for blending as well as a final product. Zambia's demand for fertiliser has been ranging from around 600,000Mt per year to over 800,000Mt per year. The main products imported are Urea, followed by NPK, NK, MAP and DAP. The main import sources are recorded as South Africa, the Middle East, Switzerland (in the trade data although likely not the physical trade origin), and China. This includes large volumes of urea recorded to be coming from South Africa, even while South Africa does not produce urea so this likely reflects trans-shipment such as by Yara given its Durban operations. The prices of imported fertiliser in 2022 were US\$977/t Urea and US\$1,012/t for AN.

In 2022, 43% of the fertiliser requirements was provided by the government through Zambia's Farmer Input Support Program (FISP) and the rest was provided by the private sector players in the fertiliser market.

The Zambian fertiliser market is oligopolistic in nature with four (now five) large suppliers, namely ETG, which has an estimated market share of around 40%, Meridian/FSG, also with estimated to have around 40%, Yara and Omnia. There is also a recent entrant, United Capital

<sup>90</sup> Insights from interviews conducted in Malawi in March 2023.

Fertiliser (UCF). ETG is also the major supplier to government for the subsidy programme – they supply about 70% worth of fertiliser to the subsidy programme.<sup>91</sup>

These companies have blending facilities from imported NPK products. Blending allows for flexibility in terms of soil differences – different regions have different soil requirements and blending makes it possible to cater to different soil requirements. In 2017, Zambia Fertiliser (a blending plant under ETG) commissioned the construction of a state-of-the-art blending facility. The purpose of this plant was to increase the company’s capacity to blend fertiliser to meet increasing demand – increase production from 80Mt a day in ETG’s old plant to 350Mt<sup>92</sup> a day. The plant produces blended fertiliser, which is then distributed to Luapula, Western, Central and Copperbelt provinces. In 2021, the plant was confirmed to have delivered over 60% of fertiliser to these provinces (Mwansa, 2021).

Yara started out as a blender in Zambia, however, they have since moved their blending facilities to supply Zambia to Durban – this enhances the quality of their fertiliser and reduces the number of times the raw materials are handled and moved between countries which reduces costs. Yara has also licenced a blending plant in Beira having previously closed the Greenbelt blending plants in Beira and Zambia (de Vletter, 2020). Omnia manufactures fertiliser in South Africa.

ETG and Omnia have integrated into the retail side of the market with many outlets throughout the country to sell imported fertiliser directly to their customers. Yara, on the other hand, is more into wholesale with very few retail outlets. Yara also partners with selected medium and large agrodealers as distributors.

UCF is a recent entrant (see 3.2 above) which is importing and blending fertiliser while constructing its plant to manufacture. It indicates it has the capacity to supply up to 300,000 metric tons per year of Urea, DAP, NPK and other customised blended fertilisers. UCF sells their products directly to local customers, government (through FISP) and smallholders and commercial farmers. It aims to make Zambia ‘self-sufficient’ in terms of fertiliser by building a fertiliser plant where they will produce fertiliser with imported and locally sourced raw materials.<sup>93</sup> The first phase of the UCF plant was the construction of a D-Compound factory and blending with imported fertilisers which became operational in September 2022, supplying some volumes to the government under the FISP.<sup>94</sup> The second phase of the project, a urea and ammonia plant which is planned for commissioning by end 2025,<sup>95</sup> will produce 300 000Mt of urea and 180 000Mt of ammonia.

## ii. Policy framework

All importers must register to get import certification before they can import any product into Zambia. This involves registering with Zambia Environmental Management Agency (ZEMA) and Zambia Agricultural Research Institute (ZARI). The process with ZEMA is supposed to take a

<sup>91</sup> Insights from interviews

<sup>92</sup> Please see <https://zambianbusinesstimes.com/over-60-of-targeted-fertiliser-distribution-achieved-etg/>

<sup>93</sup> Please see <https://www.znbc.co.zm/news/smallholder-farmers-welcome-united-capital-fertiliser/>

<sup>94</sup> Please see <http://www.daily-mail.co.zm/zambia-set-for-sufficient-fertiliser-production/>

<sup>95</sup> Within 30 months from May 2023 according to newspaper reports.

maximum of three months, however, with the backlog at the offices it ends up taking over a year. The process with ZARI means the prospective importer has to send a sample of fertiliser to test if it complies with local standards, which takes up to six weeks.<sup>96</sup>

Zambia has a Farmer Input Support Programme (FISP), earlier named the Fertiliser Support Programme (FSP).<sup>97</sup> The FISP provides beneficiaries with six 50kg bags of subsidised fertiliser; one 10kg bag of maize seed, and either a 25kg bag of soya bean seed or 20kg bag of groundnut seed. An individual beneficiary of the FISP is required to pay K400 (US\$20) as a farmer contribution to the pack.

In the 2022/23 farming season, the total fertiliser tonnage provided under the subsidy was 307,300Mt, provided to over one million beneficiaries. ETG and United Capital Fertiliser are two of the main importers that supply fertiliser for the subsidy – with United Capital supplying over 39,000 Mt of D-Compound and almost 25 000 Mt of urea to the subsidy programme, while ETG supplied over 10 000Mt of both D-Compound and urea. United Capital supplies fertiliser to the Western, Muchinga and Luapula provinces; ETG supplies the Northwestern Province.

The impact of the fertiliser subsidy programme at its inception was an increase in the level of production of maize from 1.8 million MT in the 2008/2009 agricultural season to 2.7 million MT in the 2009/2010 season. It was the first time in the history of the country that maize production surpassed 2 million Mt. However, since this time maize production has not increased substantially.

### **iii. Market developments**

Extremely high international and local fertiliser prices coincided with declines in imports by Zambia in 2021 from the previous year. As with other countries, the prices in Zambia have remained at historic high levels even while there have been sharp declines in international prices, meaning prices of benchmark product in Zambia some three times those in international markets in the first half of 2023. The expansion of UCF's production has not had the expected impact on prices, apparently as it continues to rely on imports.

## **3.5.3. Zimbabwe**

### **i. Market Overview**

Zimbabwe is largely dependent on imports; however, it has some domestic production. The annual demand for fertiliser is estimated at around 600,000 to over 850,000Mt per year. Zimbabwe imports most of its fertiliser from South Africa, Mauritius (likely due to where companies are registered), Russia and the Middle East, via Mozambique. Zimbabwe has sourced most of the nitrogen fertilisers from Russia and Belarus, phosphate from OCP in Morocco, and potassium from South America and Russia. Around 40% of imported fertiliser is processed (blended) locally and the rest is imported as final products. The main fertiliser product imported in Zimbabwe is urea, with an import price of US\$ 850/t in 2022.

<sup>96</sup> Interviewees indicated that the entire process of registering for an import certification takes up to three months if one pays a 'facilitation fee'.

<sup>97</sup> Please see Ministerial Statement on the Farmer Input Support Programme Status of the 2022/23 Farming Season.



There are five main importers of fertiliser in Zimbabwe, Meridian/FSG with a 30% market share, ETG, ZFC Limited with a 20% market share, Windmill with an estimated 18-19% market share, and Sable Chemicals. ZFC Limited and Windmill are the two main granulators in Zimbabwe, and there are blenders which include ZFC, Windmill, ZimPhos, ETG, Meridian/FSG and FertMap.

ZFC Limited was established in the 1960s – it was a result of a merger between two major companies that formed Rhodea Fertiliser Company which was renamed ZFC Limited and is 50% owned by the government of Zimbabwe, through a parastatal.<sup>98</sup> ZFC is involved in importing as well and blending, granulation and distribution of fertiliser. ZFC is also involved in the manufacturing of fertiliser, with phosphates locally sourced (from Zimphos) and imported from Morocco. ZFC has an annual capacity of 200-300<sup>th</sup> Mt of fertiliser with almost all supplies for the local market (95%).

Zimbabwe Phosphate Industries (ZimPhos) is also government-owned<sup>99</sup> and produces super phosphates, aluminium sulphate, silicate solutions, ammonia solutions and packed anhydrous ammonia, from phosphate rock coming from Dorowa mine. They are the sole producer of phosphate in Zimbabwe. It has 225,000Mt of single super phosphate (SSP) capacity per annum and is in the process of opening-up tri-super phosphate (TSP) operations. These super phosphates are supplied to local granulators (ZFC and Windmill) for use primarily in the local manufacture of granular NPK compound fertilisers. Zimphos has de-commissioned their phosphoric and sulphuric acid operations and import sulphuric acid from South Africa. It is, however, establishing its own blending and granulation plants.

Windmill is one of the biggest importers of fertiliser in Zimbabwe and is 100% locally owned. It supplies mainly in Zimbabwe, with 60-65% of its fertiliser volumes going into the government subsidy programme. It has some exports to Zambia and Malawi, as well as Mozambique, DRC and Angola. It has a blending plant and a distribution network with 26 shops in Zimbabwe.

Sable Chemicals is Zimbabwe's sole manufacturer of ammonium nitrate fertiliser and also produced ammonia in its own plant commissioned in 1972 until this was closed in 2015 due to the electricity crisis. Ammonia gas has subsequently been imported in rail tankers owned by Sable through the Richards Bay terminal (owned by AECI, Sasol, Omnia and Foskor) to Kwekwe in Zimbabwe at an overland transport cost of US\$200/t. Sable also produces and sells gaseous oxygen, liquid oxygen, anhydrous ammonia, and nitric acid. Sable's capacity is 240,000Mt ammonium nitrate, with 120,000Mt of imported ammonia. They can also import an additional 40,000-80,000Mt of Ammonia Nitrate from South Africa (where Omnia and Sasol manufacture). With additional tankers being received in 2023, Sable will double its ammonia import capacity to 240,000Mt in 2024 and, when at full capacity, Sable will be able to meet the majority of the ammonium nitrate demand in Zimbabwe.

At the distribution level, in addition the main importers, producers and blenders there are other smaller firms supplying to farmers.

<sup>98</sup> Through Chemplex Ltd owned by the Industrial Development Corporation. The other owner is publicly listed TA Holdings.

<sup>99</sup> Through Chemplex which also owns ZFC.

## ii. Policy Framework

Zimbabwe has two subsidy programmes, the Presidential Inputs Programme, and the Commercial Farmer Scheme. The Presidential Inputs Programme was introduced in 2011 in Zimbabwe, targeted at subsistence farmers, poverty stricken and food insecure households. In 2017, the programme distributed seeds and fertilisers to about 1.4 million smallholder rural farms for grain and soya bean production. In 2023 the scheme is targeting three million households and demanding at least 300,000Mt of fertiliser. The Commercial Farmer Scheme has two sub-schemes through different entities both of which work through farmers reimbursing the government for the support and contributing to the national crop reserves. The government sources the fertiliser for the schemes from the local importers of fertiliser.

## iii. Market developments

Zimbabwe had a well-developed fertiliser industry which meant the country was self-sufficient until 1990. Since then, it has been reliant on imports with prices determined by competition by cross-border suppliers, as in the region as a whole. It has been impacted by substantial price increases, although it is notable that ammonium nitrate which is used for maize among other crops and can be an alternative to urea was considerably cheaper in Zimbabwe in 2022 than in other countries. Ammonium nitrate is produced by Sable in Zimbabwe and by companies in South Africa. However, while the 2022 import price of ammonium nitrate was US\$639, prices to farmers were reported to be US\$94 per 50kg bag of AN fertiliser at the end of June 2022 (US\$1,880/Mt)<sup>100</sup> suggesting huge mark-ups in local distribution.<sup>101</sup> It was not possible to obtain other data on fertiliser prices to enable more rigorous analysis.

### 3.5.4. DRC

#### i. Market Overview

DRC has the lowest demand for fertiliser out of all the countries in the region, with fertiliser imports ranging from 10,000Mt to 100,000Mt but mostly at an average of 50 thousand Mt a year. DRC mainly imports urea and Ammonia Nitrate; and DAP, NPK, MAP and NK. The majority of DRC fertiliser imports are sourced from South Africa, the Russian Federation, Zambia, and China. The imports effectively come into three separate regions of the DRC in different transport routes: Kinshasa and the west of the DRC; the east (including Goma and Bukavu) and southern part including Lubumbashi. The trade data are an aggregation of volumes and pricing into all of these areas.

DRC has a great potential to expand production – with 80 million<sup>102</sup> hectares of arable land, less than 10% of which is currently being farmed. With extremely low fertiliser consumption the production from the land being farmed is also low.

The lack of market data limits the analysis of market developments in the DRC.

<sup>100</sup> Please see <https://www.newzimbabwe.com/local-fertiliser-prices-go-up-by-over-70/>

<sup>101</sup> We note that there are also large exchange rate fluctuations and different exchange rates used.

<sup>102</sup> Please see <https://www.trade.gov/country-commercial-guides/democratic-republic-congo-agriculture>

## ii. Policy Framework

The DRC does have a subsidy programme; however, it was not possible to obtain detailed information on how it works. Based on information obtained from the interviews, the subsidy programme is targeted in certain provinces, however, it has not operated on a consistent basis.

## 4. Competition Assessment: pricing, costs and possible effects

### 4.1. Introduction: concentration, market structure and main companies

The fertiliser markets in East and Southern Africa are oligopolistic in nature, with just two to five large suppliers able to source internationally in bulk with bagging and warehousing facilities at the main ports. These suppliers are vertically integrated from international production through to distribution across the region. However, some companies (notably OCP) are focused on a sub-set of fertiliser products meaning that concentration may be higher in the main fertiliser product groupings.

There is a much larger number of local and regional distributors, however, these companies have to source fertiliser from international producers meaning they typically purchase from one of the larger suppliers with whom they may also compete at the distribution level.

Across the Eastern African countries that have been analysed there are 3 large importers and bulk suppliers of fertiliser – Yara, ETG/SABIC and OCP. They have maintained relatively similar market shares in recent years of around 35-40%, 35-40% and 15-20%, respectively, across the region as a whole, with some much smaller suppliers including those limited to specific products. These three main suppliers plan their imports for the whole of East Africa through the two main ports of Mombasa and Dar es Salaam, further indicating that a regional and cross-border view of concentration and competition is essential as can be taken by the COMESA Competition Commission. The Herfindahl-Hirschman Index (HHI) summary measure of concentration is around 3600 for East Africa based on these shares.<sup>103</sup> This is extremely concentrated - a market with an HHI of less than 1,500 is considered a competitive marketplace, an HHI of 1,500 to 2,500 is moderately concentrated, and an HHI of 2,500 or greater is highly concentrated. As OCP is mainly focused on phosphate fertilisers, concentration is likely to be even higher if considered by the main fertiliser product groupings.

There are other international producers of fertilisers who could supply in bulk to East Africa. These include major north American producers such as CF Industries, Mosaic and Nutrien, Russian and Belarus producers Uralkali, Belaruskali and Phosagro, and Israel Chemical Limited. The fact they have largely chosen not to do so points to barriers to entry in supplying given the logistics required and relative to the small size of the demand, as well as possible coordination at an international level, as reflected in export cartels (Jenny, 2006; 2012). One of the large global producers of fertiliser, SABIC, had entered the region to supply fertiliser in bulk, with

<sup>103</sup> HHI calculated by summing the squares of the shares of the individual suppliers. It is widely referred to by competition authorities as part of making an initial screen of concentration.

sales offices in Nairobi and Johannesburg, however, it entered into a close relationship and then merger with ETG.

In Southern Africa, the market set-up is similar to that exhibited in East Africa, although somewhat less concentrated given additional suppliers. ETG is present in many countries, with Meridian (owned by Saudi Arabia's Ma'aden, and including FSG and Optichem) also supplying several countries including Malawi, Zambia and Zimbabwe. Yara supplies Zambia but does not appear to be present in Malawi and Zimbabwe (notwithstanding operating a blending plant in Beira – the closest port to these countries).<sup>104</sup> In Zambia, Omnia is also a supplier, as is the relatively new entrant United Capital Fertiliser. In Zimbabwe, ZFC, Windmill and Sable are also suppliers meaning that this is likely to be the least concentrated at the national level. The shares of supply are less clear than in East Africa. In Zimbabwe, Meridian (FSG) has an estimated 30% market share, while ZFC, Windmill and Sable appear to have similar shares around 20%. This suggests an HHI around 2100. We have not been able to estimate shares for Zambia, Malawi and the DRC.

### **Barriers to entry**

In most countries, the barriers to large volume supply are the barriers to cost-effective importing. This means being able to source from international producers and ship in bulk, offload, store and bag, for distribution through logistics networks across the region, in order to compete effectively as a tier 1 supplier. For example, the One Acre Fund which supplies fertiliser in countries including Malawi and Rwanda has attempted to import itself in the past but moved to source from ETG and Yara due to the challenges it faced.

The substantial mark-ups of prices over reasonable transport costs (Table 5 below) points both to the regional market being defined separately from the international market and the barriers to entering into tier 1 supply to bring in bulk volumes to supply the regional market. Yara is a global fertiliser producer and supplier with a strong regional footprint of logistics and distribution. ETG is a major international trader with extensive capabilities and has had a growing relationship with SABIC with which it is now in a joint venture. Meridian has managed to build substantial scale including port facilities in Beira, storage and logistics, and has made a series of acquisitions in different countries such as Optichem to further bolster its capabilities. It is also vertically integrated to primary producers through the acquisition by Ma-aden. OCP has grown supplies into the region based on its strong phosphate production and a joint venture in RFC in Rwanda, however, it has faced regulatory obstacles in some countries such as Kenya. In southern Africa Omnia has a very long track record of large-scale industrial production in South Africa combined with regional supply and distribution, however, it also has to rely on imported ammonia.

To enter primary fertiliser production requires substantial industrial investments that take considerable time from initiation to coming onstream which exceed the one-to-two years normally considered for markets to be contestable. UCF (part of a bigger Chinese group) is investing in fertiliser production in Zambia, with the ammonia and urea production taking

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<sup>104</sup> The rail line from Nacala port means that it is also used for supplying to Malawi by other importers.

another two and half years to come into production after the initial investments have been made into the blending of imported fertiliser. Older established manufacturers such as Sable and ZFC in Zimbabwe have to rely on imported ammonia for nitrogenous fertiliser, as well as some other key constituents. Phosphate rock deposits provide an opportunity for manufacture of phosphate fertiliser products, as Zimphos is doing in Zimbabwe and UCF in Zambia, however, these are complements rather than substitutes for nitrogenous fertiliser, and compound nitrogen and phosphate products such as DAP require ammonia for their production.

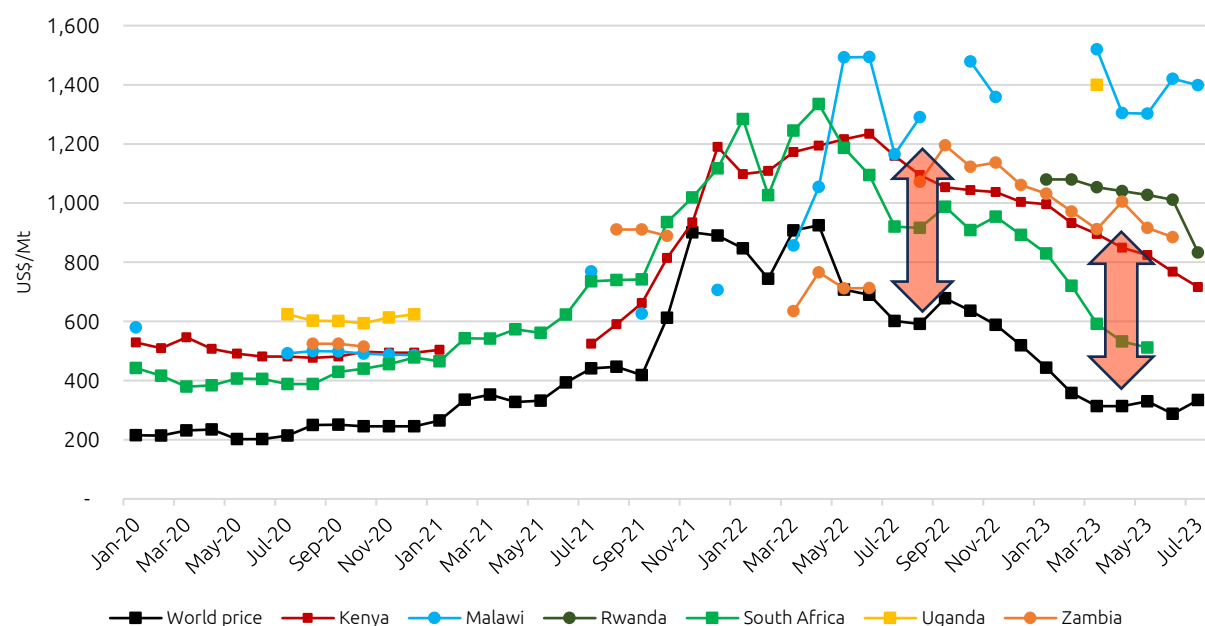
The paper analyses the market outcomes in terms of pricing, noting that data is poor for some products and countries, and consider prices relative to international benchmarks and costs of supply (including transport costs). The paper then considers the implications for possible coordination in section 4.3 given the oligopolistic market structure and in light of market outcomes, drawing from the literature and initial evidence. This includes considering evidence on multi-market contact and cross-ownership, along with Information exchange, benchmarks utilised in pricing, and focal points. The implications of the market structure and market outcomes for merger review are considered in section 4.4.

## **4.2.Pricing of fertiliser relative to benchmarks and costs**

High fertiliser prices have had a direct impact on the record-high food prices in 2021 to 2023. People in low- and middle-income countries bear the harshest burden of soaring food prices as they spend a larger portion of their incomes on food than people in high-income countries. Fertiliser prices increased sharply in 2021, particularly between September and November, when world prices for urea more than doubled from US\$420/t to US\$890/t (Figure 6), largely due to high natural gas prices. Natural gas is important for nitrogen-based fertiliser and compounds through its use to produce ammonia and urea. While international prices declined over 2022, as did those in South Africa as a comparison, the prices in our focus countries stayed at much higher levels, declining more slowly. The urea prices in some countries were above US\$900/Mt or more than treble the world prices from early to mid-2023.



**Figure 6. Fertiliser prices, urea**

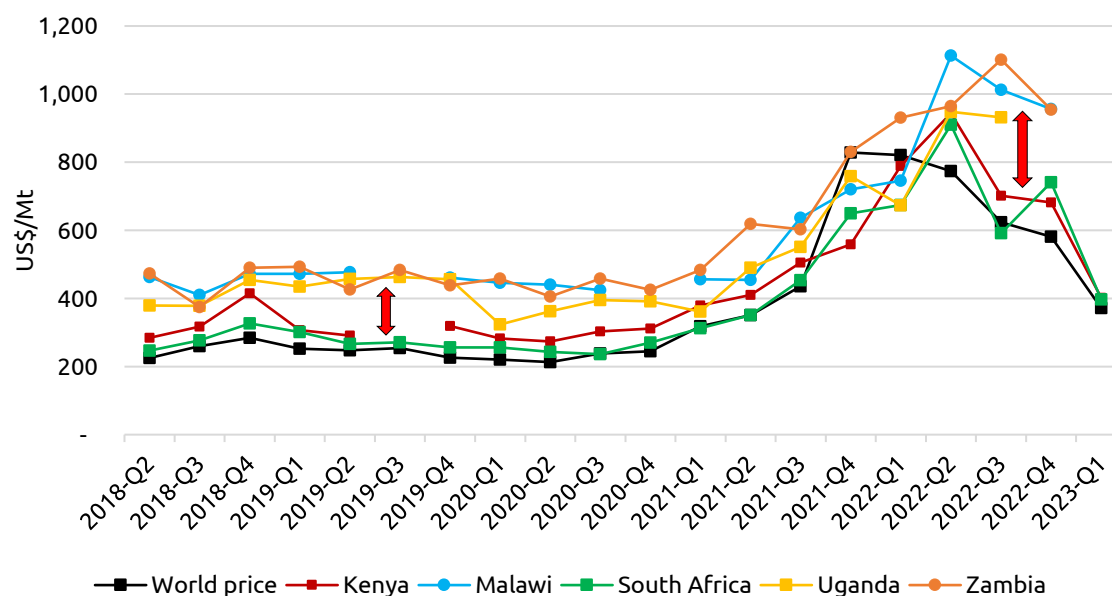


Source: IFDC, World Bank, and AMO price tracker

Notes: Malawi prices in 2021 and Zambia prices in early 2022 are the subsidised prices. South African prices are for mainly inland areas.

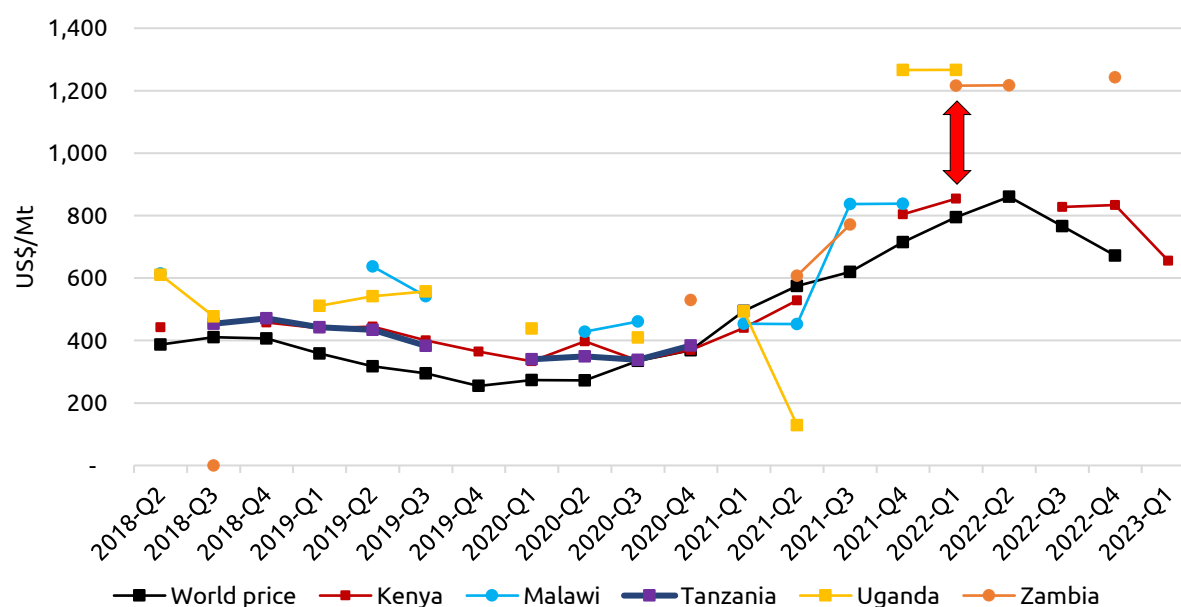
Prices in Kenya, Rwanda and Zambia ranged between US\$800-1100/t, while in Malawi they were even higher at around US\$1400/t. The prices of imported product accounts for only a small proportion of this margin. Import prices calculated from trade data indicate that in countries with ports, such as Kenya, urea import prices have been just around US\$60-100/t above world prices (Figure 7). This indicates that international freight and logistics costs are not the cause of high regional prices (as do the South African import prices). Inland countries such as Malawi, Zambia and Uganda have recorded much higher imported prices, in later 2022 at US\$300-400/t above world prices (and US\$300/t above imports to Kenya). This margin *within* the region is also reflected earlier period. Taken together, the prices point to major issues within the regional relating to competition in cross-border markets for the large-scale supply of fertiliser.

**Figure 7. Import prices vs world prices, Urea (per quarter)**



Source: Authors' calculations based on UN Comtrade data sourced from Trade Map, and World Bank data for world price

The paucity of data on products other than urea hampers the analysis over time and points to the value which could come from a regional market inquiry. Trade data on the prices of imports of DAP including cost, insurance and freight is consistent with the data for urea in indicating that international freight cost account for only a very small proportion of the price margin in the countries examined (Figure 8). The exceptions are for Uganda in quarter 4 of 2021 and for Zambia for 2022 when DAP import prices were more than \$400/t above world prices, and a similar margin above the import prices into Kenya.

**Figure 8. Fertiliser Import prices, DAP**

Source: Authors' calculations based on UN Comtrade data sourced from Trade Map, and World Bank data for world price

## Prices and costs

From the available price data and the primary information collated through interviews we are able to breakdown the prices against the cost build-ups for the main products. This has involved comparing information from different sources, within and across the countries.

The assessment indicates very large margins increasing the prices in the African countries studied to levels far above those justified by costs which points to major concerns about the state of competition in fertiliser markets. These are in line with concerns identified internationally and in earlier studies of these markets (Hernandez and Torero, 2013; Jenny 2012; Ncube et al, 2015; CAK, 2015; Vilakazi and Roberts, 2019).

Explanations provided by market participants for the high prices are a combination of international prices and the various costs involved in the supply chain. We assess these, considering the range of information provided and assessing what would be expected from reasonably efficient costs for a large-scale supplier able to source in bulk and with appropriate logistics facilities and capabilities.

The studies notes that at least some of the major suppliers prepare an industry monthly cost build-up, using benchmarks to give the free-on-truck price for bagged fertilizer at the warehouse close to the port of entry. These benchmarks are not the actual costs incurred by the individual suppliers but instead reflect a (higher) notional cost build-up for a third-party importer having to contract for all the services and enable a 'formula' to be used for pricing to customers for imports. These costs and prices are reflected for May 2023 for imports into East Africa (Table 5).



The costs reflect a sea-freight cost of US\$45.55, although the freight cost at the time indicated in interviews was US\$35/Mt. During covid-19 freight costs had increased significantly, for general bulk freight to a high of US\$60/Mt for this importer. Wharfage, clearing, inspection charges and various levies, which are set by government and regulators, add another US\$35.03. Bagging costs were given as US\$20, however, other interviewees confirmed costs are around \$10/Mt including the cost of the bags for those with access to facilities.<sup>105</sup> Finance charges assumes 180 days at 7.02% interest in addition to the letter of credit cost, which is both a high interest rate and for a much longer period than required by a large supplier, especially one which is vertically integrated. Similarly warehousing (including handling charges in and out) appears to assume rental required for eight months for the typical tonne of fertiliser stored. These total US\$148/Mt.

Alternative estimates were given of around US\$90-100/Mt for all of these costs, from free-on-board (or fob) basis at the port of export, to landed ready for on-sale by firms with their own logistics facilities and integrated supply.<sup>106</sup> The lower estimates are more consistent with the differences between international prices of urea and the imported prices to Kenya on a cif (cost, insurance, freight) basis which ranged from US\$30/Mt in Q1 2023 to US\$80-100/Mt in the second half of 2022 (Figure 7).

**Table 5. Freight, transport and related costs, March-May 2023**

	Nairobi	Uganda	Rwanda	Zambia	Malawi	Zimbabwe
Freight & insurance	45.55 <sup>a</sup>	45.55 <sup>a</sup>	45.55 <sup>a</sup>	40 <sup>d</sup>		40 <sup>d</sup>
Port (wharfage, clearing, inspection)	35.03 <sup>a</sup>	35.03 <sup>a</sup>	35.03 <sup>a</sup>	51-64 <sup>e</sup> 35+20=55 <sup>d</sup>		40 <sup>d</sup>
Bagging	20.30 <sup>a</sup>	20.30 <sup>a</sup>	20.30 <sup>a</sup>			10 <sup>d</sup>
Finance	29.18 <sup>a</sup>	29.18 <sup>a</sup>	29.18 <sup>a</sup>			
Warehousing	17.90 <sup>a</sup>	17.90 <sup>a</sup>	17.90 <sup>a</sup>			
Subtotal	148 <sup>a</sup> [100 <sup>b</sup> ]	148 <sup>a</sup>	148 <sup>a</sup>	95	95	90
Overland freight	22 <sup>c</sup>	80 <sup>d</sup> 150 <sup>e</sup>	125-150 <sup>d</sup>	100-150 <sup>de</sup>		55 <sup>d</sup>
Overland freight (at \$0.04/km)	19	46	60	42	41	23
Urea price, May 2023	330	330	330	330	330	330
Ex port, free-on-truck	478	478	478	425	425	420
<i>With efficient costs</i>	430	430	430	425		420

<sup>105</sup> This includes in interviews with smaller 3<sup>rd</sup> parties such as Elgon.

<sup>106</sup> Free-on-board means that the seller delivers the goods to a ship at a port previously agreed to by the seller and loads and the buyer takes ownership and risk once on board the ship. This is sometimes also referred to as freight-on-board in international commerce terms (or 'Incoterms').

Bulk delivered fair price.						
- mid-pt for freight	500	558	570	545		475
- efficient freight	449	476	490	472	466	443
Agro-dealer fair price, including margins @20%	600	670	684	655	655	571
	539	571	539	566	559	532
Prices quoted at agro-dealer	824	1000-1100 <sup>d</sup>	1200	?900	1300	700-800
Excess % mark-up over fair price	37%	57%	75%	37%	98%	31%
	53%	84%	123%	59%	133%	41%

<sup>a</sup> SABIC, Mombasa, May 2023. Note, these are not the actual costs incurred by SABIC, but the industry benchmark costs agreed by the fertiliser suppliers. For example, finance and storage is around 3% of fob, or around US\$15 compared to US\$47 given here, bagging is \$10 rather than \$20. Together with actual seafreight and other costs it yields a subtotal of around US\$95 for importing.

<sup>b</sup> Yara: estimated at 20% of fob, amount calculated taking average fob in early 2023 of \$500; from Yara Kenya: port charges (incl customs, bagging) = 10% of fob; seafreight costs = 7% of fob; storage & financing = 3% of fob.

<sup>c</sup> Mea

<sup>d</sup> ETG, Mombasa to Torero warehouse for Uganda; for Zambia, bagging at 20, port charges 35, seafreight at 40.

<sup>e</sup> Yara, to Kampala; for Kigali Yara indicates 140-150 from Dar es Salaam

<sup>f</sup> For Kigali, One Acre Fund indicates \$134/t freight from Dar es Salaam and bagging charge of \$4.20/t, however, One Acre itself buys from ETG, Yara and OCP.

Malawi uses the data for Beira in Zambia interviews.

The main traders and importers include those which are vertically integrated with the largest global producers, and which are able to arrange shipments with lead times of less than three weeks. They also have their own bagging facilities or good access to facilities close to the main ports. While there were major disruptions in world shipping in 2021 these were resolved, and shipping costs returned to long term averages from mid-2022. Overland trucking costs had also increased in 2021/22 by around 50% but returned to normal levels in late 2022.

For overland trucking costs the study uses a combination of estimates from transporters with very detailed breakdowns of costs for borders, duties, and documentation. For the route from Beira to Lilongwe this gives a cost of US\$0.017 per tonne per kilometre for a return load. Assuming no return load this would be higher. Other estimates yield US\$0.04/t/km as a conservative cost. The traders provide higher estimates for routes, including their own margins. For overland freight we provide both the estimates given by traders for different routes and a cost based on US\$0.04/t/km. The latter do not include the trader margins and are much lower. Trader margins have been indicated in interviews at around 10-15%, or around \$50-75/t, which if added to the trucking costs does bring the estimates into line. The trader and local agro-dealer margins are calculated as a separate step. We therefore use two estimates of the fair road-freight cost: a conservative mid-point between the interview estimates and the transport costs, and the transport costs (so as not to double count the trader margin).

Based on indications of the trader margins of 10-15% and agro-dealer margins of 5-10%, we use a combined margin of 20% (the sum of mid-points of 12.5% and 7.5%. We note that this is conservative compared to other estimates such as Nduati et al (2015) which found importer-

trader margins of 5%. The fair prices at efficient costs are in-line with those prices recorded for inland South Africa fertilizer sales.

The excess mark-ups being made over the fair prices at efficient costs (reflecting the efficient transport of the large traders) are very substantial, ranging between 42% and 133%. Where we allow for somewhat higher overland freight costs the excess mark-ups range from 31% to 98%. The highest mark-ups are in Malawi and East African countries while the lowest are in Zimbabwe.

### **4.3. Analysis of conduct: structural and behavioural screens for coordination**

#### **Market structures and barriers to entry**

As a matter of economics, high levels of concentration with few firms means collusion is relatively more likely (Beth and Gannon, 2022; Motta, 2004). The tight oligopoly in fertiliser markets, with very few large firms with multi-market contact, implies a high likelihood for collusive conduct. This is also consistent with cartels having been identified in the past in Zambia and South Africa (which included conduct operating across neighbouring countries in the case of South Africa), as well as in other jurisdictions around the world as reflected in the international cartel data set (Connor, 2020).

The high levels of concentration in the markets are further supported by high entry barriers which limits participation from potential competitors when it comes to bulk supply and manufacturing. There are high capital costs involved in manufacture. To be an effective bulk importer requires being able to procure and ship at scale, and access to the necessary logistics facilities. In addition, getting an import certificate can be a lengthy process. The process of obtaining an importing license takes anywhere between 60 and 90 days in most countries but the process ends up taking over a year in Zambia. OCP has also had challenges with registration of products in Kenya.

The main fertiliser products are homogenous in nature – all the countries in the region heavily use urea and other nitrogenous fertilisers, as well as combined with phosphate such as in DAP. There are also standard blends (such as NPK 17:17:17). Specialty fertilisers account for a small proportion of overall sales.

As well as multi-market contacts between the large firms, there are also cross-ownership relationships between ETG/SABIC and Meridian/Ma'aden, following recent mergers. In addition, the firms buy and sell to each other from time-to-time, share ship loads for bulk importation and some have bagging terminals in the same ports. This implies a high degree of transparency and that there could be information sharing between competitors (as appears to be the case).

#### **Behavioural screening**

Behavioural screening involves considering whether market outcomes and firms' decisions are in line with what would be expected under competition or raise red flags as to possible coordinated conduct (see section 3 above). The main market outcomes are in terms of market shares and prices. In-depth assessment of the market outcomes over time requires access to information which is likely to only be available from an inquiry or investigation. The interviews

have, however, provided a snapshot as to the situation in early 2023 as well as providing insights into participants perceived market trends.

Apparent stability in market shares is indicative of a lack of competition as it suggests that firms are not looking to attract customers and increase sales through offering better pricing and other terms. If firms align on a target market share this means that there is, by definition, no price competition. There is no incentive to reduce prices to attract customers as this would alter market shares. And, when the market leaders increase prices, the other firms are incentivised to follow suit as they will not be looking to attract customers by sticking to prices which would now be lower than their rivals.

While the study has not been able to obtain data on market shares over time and for each country and region, in interviews it was indicated that shares have been quite stable in the East African grouping of countries and there are very similar shares of 35-40% between the two largest suppliers, being Yara and ETG/SABIC, while OCP/RFC, which is more oriented to phosphate fertilisers has a smaller share.

In the grouping of southern African countries, Meridian/Ma'aden is much more significant, including with supplies through Mozambique alongside ETG/SABIC. There are developments such as the entry of UCF in Zambia together with supply by Omnia from South Africa, and supply by ZFC and Sable in Zimbabwe.

In terms of pricing, there have been extremely high mark-ups over international prices, which are the base costs for the main sources of supply. Onto the international prices we have to add transport and related costs, as well as reasonable profit margins for traders at different levels. A detailed cost build-up (section 4.2 and Table 5 above) indicates that pricing has been substantially above cost-reflective levels, based on the costs of large efficient and integrated traders. Prices have also been very considerably in excess of those in the inland areas of South Africa which can provide a competitive benchmark given the enforcement undertaken by the South African Competition Commission. In some countries, the agro-dealer prices may reflect excess mark-ups also in local distribution and sale, however, the interviewees largely confirmed that the recorded prices are in-line with sales in the main centres (and prices may well be even higher when distributed across the country).

The main suppliers appear to share monthly benchmarks of price and cost build-ups which do not reflect the actual costs of the companies themselves but use international sources to set price points for fertiliser landed at the main ports for onward transport, packaged in bagged form. This practice would facilitate coordination on price, while maintaining market shares would undermine price competition within the region.

In addition, while international prices increased at the end of 2021 in line with higher gas prices given the impending Russia-Ukraine war (Figure 6; and Jenkins, 2022), prices in the focus African countries increased far above international prices. Prices have then not reduced in line with falling international prices over 2022 and 2023 and supplier profit margins have increased even more indicating a lack of effective competitive rivalry. The justifications provided appear inconsistent with effective competition. Respondents pointed to product having been landed at the prior higher prices as a reason for maintaining prices at elevated levels notwithstanding the

fact that most suppliers did not source from Russia-Ukraine, had access to much lower cost product, and from much closer sources (such as the Middle East and South Africa) at short lead times meaning they could compete from these advantages to offer substantially cheaper fertiliser.

#### **4.4. Implications for merger review**

The study provides an opportunity to undertake an initial merger review (which could be built-on through a more detailed inquiry into specific transactions). It is well recognized that such reviews are an important part of the development of competition authorities through providing insights on how guidelines, information gathering, and assessment are working in practice. The reviews can lay the basis for revised guidelines and point to where more in-depth information will be sought from parties. The challenges of assessing the cross-border effects of mergers, with the CCC working together with national authorities, means that ex post reviews to improve guidelines and review processes can be particularly important. We consider the implications under the main headings of market definition, assessment of likely effects on competition and the evidence required. We give examples from selected key mergers.

##### **Market definition**

The different fertiliser products provide different plant nutrients which need to be taken into account and the main international firms have been identified in terms of their orientation to groups of products such as nitrogenous fertilizers (in the case of SABIC) or phosphate fertilizers in the case of OCP.<sup>107</sup> To supply in bulk they need a set of capabilities to source, transport and distribute effectively which are relevant for the definition of the products and services. Some national producers which are coming onstream in recent years, such as UCF, are also specialized in particular products.

The transport routes within the region are highly relevant for geographic market definition and it is essential to make a regional assessment, as inland countries transport from and through countries with ports. If prices increase, consistent with a SSNIP, in Uganda or Rwanda, then customers can turn to alternative sources of supply brought in from neighbouring countries with importing ports, in this case Kenya within COMESA and Tanzania. Note that the converse is not true. Price increases in Kenya would not lead to customers turning to Rwanda or Uganda. Zambia is likely in the same market as Malawi and Zimbabwe, with fertiliser mainly being transported through Mozambique or from South Africa. As production comes onstream in Zambia and Zimbabwe it means that customers in Malawi can look to these sources, increasing the regional nature of competition. The DRC as a country is clearly not in one geographic market. In the east of the DRC, fertiliser is sourced through neighbours including Rwanda and Uganda. The south of the DRC is supplied from Zambia, while the west is supplied by imports through the port of Matadi.

Data on transport costs and routes, relative prices between locations within and across borders, and trade flows are central for analysing geographic markets. This can be obtained from customers who look to alternatives for their supply, and from the market participants

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<sup>107</sup> Noting that DAP contains nitrogen and phosphate.

themselves. It is important to bear in mind that trade flows and prices may be shaped by already existing anti-competitive conduct such as market division, which means that transport and related costs must be analysed together with relative prices.

### **Assessment of likely SLC**

The analysis of possible unilateral and coordinated effects on competition from a merger requires consideration relative to the appropriate counterfactual. Normally this is the situation before the merger, however, if the parties had plans to expand in the absence of the merger into new markets which could increase competitive rivalry, then the analysis needs to consider potential competition which may be undermined by the merger.<sup>108</sup>

To assess possible coordinated effects the merger evaluation needs to consider the factors which affect the likelihood of collusion (as in section 4.3 above) and whether the merger strengthens this likelihood. This involves considering existing coordination which may be reinforced, as well as possible coordination in future following the merger. Cross-shareholdings which impact on information flows and incentives are important considerations. If there is existing coordination, then parties may not appear to be competing *because* they have divided markets, and the merger could simply be reinforcing the anti-competitive outcome. The merger assessment needs to consider the likelihood that the markets have been shaped by coordination and that the appropriate counterfactual is competition rather than the current coordination.

### **Evidence necessary for assessment of possible SLC in line with Theories of Harm to competition**

The market analysis of fertilizer in the region sets out high levels of concentration and concerning market outcomes. It implies careful assessment of mergers in this industry through obtaining detailed price and quantity data from the companies, by different product specifications in different geographic areas, along with the discounts, rebates and applicable terms of sale. Costs to supply different market segments are also relevant – both for market definition and for possible effects on competition. Typically, this is monthly data over three to five years, which firms collate as a matter of course for their own decision-making. It is also necessary to assess customers' alternatives.

Alongside the detailed market data, it is appropriate to obtain the internal marketing and strategy documents produced by the firm on a regular basis, such as monthly and quarterly reports, as well as related email communications. These reflect the firms' evaluation of different market segments and the considerations in supply, setting prices, targeting different customer segments (such as sugar farmers) and adjusting to changes in factors such as costs, demand, and competitors' decisions. It is not only what firms have decided on, but the other options which they have considered, which are relevant.

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<sup>108</sup> This also applies to acquisitions of smaller potential rivals. Ex post reviews of mergers involving digital platforms have highlighted where high acquisition prices have been paid for companies which could otherwise grow to be a competitive threat to one of the large incumbents (so-called 'killer acquisitions').

The networks of cross-shareholdings and relationships between firms are also highly relevant for an assessment of competition and possible merger effects. This includes sales made between the main firms; circumstances where they shared in import shipments and in other facilities such as bagging; and information exchange between firms, including through third parties and associations.

### **Lessons from ETG/SABIC merger**

The most important aspect of this merger decision was that the merger was adjudicated as a purely vertical merger based on the information submitted by the merging parties.

As stated in para 40 of the CID decision:

*The parties submitted that SABIC AN produce nearly all of its urea in KSA [Kingdom of Saudi Arabia] and sells it to large international wholesalers (such as [redacted]) in the Jubail port in KSA. These sales occur on a “freight on board basis”, i.e., the title to SABIC AN’s urea transfers to the purchaser (wholesaler) at the moment when the urea is loaded onto the vessel at the Jubail port, which is typically arranged and paid for by the purchaser. It was submitted that all of the urea produced by SABIC AN that is ultimately consumed in African jurisdictions therefore ends up in these markets via third-party wholesalers. SABIC AN has no direct local sales or local staff on the ground to distribute its products.*

This appears inconsistent with this research which indicated that not only has SABIC marketed fertilizer to customers in East and Southern Africa with sales offices in Nairobi and Johannesburg, in the absence of the merger it was indicated that SABIC would have expanded their operations. Given that the merger filing was very substantially delayed and the CCC effectively found there had been prior implementation, the current situation reflected in the merger filing when it was made comes after extensive interactions between the companies and should not be taken to reflect the counterfactual in the absence of the merger. It may also be the case that sales are made through entities other than SABIC AN.

There are a number of questions regarding the information provided by the parties, including (where SABIC and ETG are taken to refer to the companies and all their subsidiaries, sales offices, and related entities):

- What is the counterfactual? The merger was effectively agreed in early 2022 if not before. The actual supply arrangements had already been shaped by the decision to merge and the appropriate counterfactual, being the situation absent the merger, needed to consider what the companies were independently planning if they had not merged. This means examining the companies’ marketing and strategy documents from the years before the merger, and information from major customers who had looked to the companies as potential alternatives. SABIC has a sales office in Nairobi and our research indicated that it would have continued to expand its operations absent the merger.
- What have been the prices charged and margins being made on the sales to customers across the region from products sourced from SABIC and supplied by ETG over at least

the past three years prior to the merger? What are the supply terms between the merging parties and the information shared between them? What supply arrangements, including pricing and terms, had pertained between SABIC and other traders and end-customers in the region?

- What information has been shared between suppliers in the region, including indirectly through third parties? What pricing benchmarks have been used to set prices, and what have been the benchmark costs used for pricing, and the actual costs of supply, for the three years prior to the merger (ideally on a monthly basis)?
- While the companies indicated that sales were mainly made at the time of the merger by SABIC-AN on a freight-on-board basis at the port in the Kingdom of Saudi Arabia it is not clear what had been the practice over the previous years, what SABIC and related entities have been involved in, and what arrangements were made for shipping, including shiploads being shared between other customers for supply in East and Southern Africa. It is also not clear what volumes, if any, were supplied to customers serving COMESA countries by SABIC through the South Africa office including those which were priced on a fob basis from Saudi Arabia destined to be shipped through ports including Durban, Beira and Nacala, as well as Mombasa and Dar es Salaam.
- What were the marketing plans and options that SABIC was considering before the merger? This means obtaining the market analyses and data which has been collated and considered by SABIC and its associated companies.
- What products have been sourced from plants or other operations which SABIC has an interest with Ma'aden and its associated companies for fertilizer products and the components? What products have been by Ma'aden to the same customers supplied by SABIC? What products has SABIC supplied to Ma'aden, Meridian and related companies, and on what terms?

The research points to the importance of assessing issues in more detail and more effective collaboration with National Competition Authorities especially in mergers involving multinational companies. It may also be important to consider the use of legal advice to complement economic assessment.

## 5. Conclusions

The regional reach of the companies and the interaction between trade and competition demonstrates the importance of building strong regional competition authorities. It is difficult for national authorities to properly investigate conduct with a regional scope. A national viewpoint will likely miss the nature of the arrangements, and any investigation which is initiated may not be appropriately directed.

In this study, we have analysed market structure and market outcomes in fertiliser supply across East and Southern Africa. The markets are regional, associated with trade along major transport and logistics routes from the ports to distribution networks, agro-dealers and major customers. While there are several major global producers who supply around the world, there are only



very few large-scale suppliers into East and Southern Africa, which we term tier 1. The ability to be an effective competitor into the region depends on operations at the main ports and accessing storage, bagging and logistics. There is a larger number of national distributors at the tier 2 level, along with the vertically integrated operations of the tier 1 suppliers. The tier 2 suppliers have to obtain fertilizer volumes from the tier 1 suppliers and so their ability to compete is hampered by the prices and terms which prevail.

Given the concentration, the assessment points to several major competition concerns. These include mergers which have contributed to high levels of concentration and vertical integration. In such cases additional information is likely to be required to fully assess possible effects on competition. Merging parties may also not report all relevant details without follow up requests. In the markets examined in this paper, competition issues have been identified which require further assessment.

Effective regional competition authorities and regimes need to screen for cartel activity, taking account of trade flows which are inconsistent with competitive regional markets as one of the red flags for possible coordinated activity by companies (Harrington, 2007; Kovacic et al., 2011). They can also consider the regional extent of companies' operations and networks of relationships.

## **Recommendations**

- Ongoing tracking of fertiliser prices in the region with the national competition authorities to assist with advocacy and building a longer-term time series for these important products.
- Advocacy to advise national authorities and governments of the concerns, the impact on costs of fertiliser subsidies, and alert them to reducing barriers to entry; negotiating more robustly where they are a buyer; procuring from outside rivals; supporting production.
- Further assessment of the fertiliser market could be considered to systematically obtain and analyse pricing, and supplier arrangements along with information sharing, ownership relationships and market shares over time, along with information sharing, ownership relationships and common shipping and sharing of logistics.

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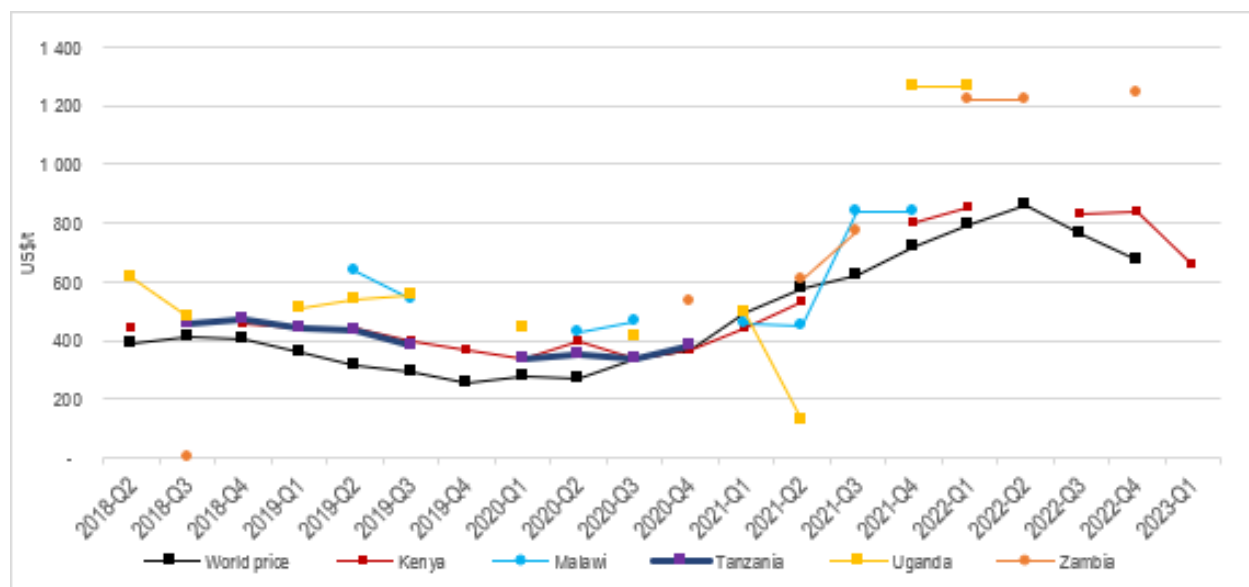
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## Appendix A: Figures and tables

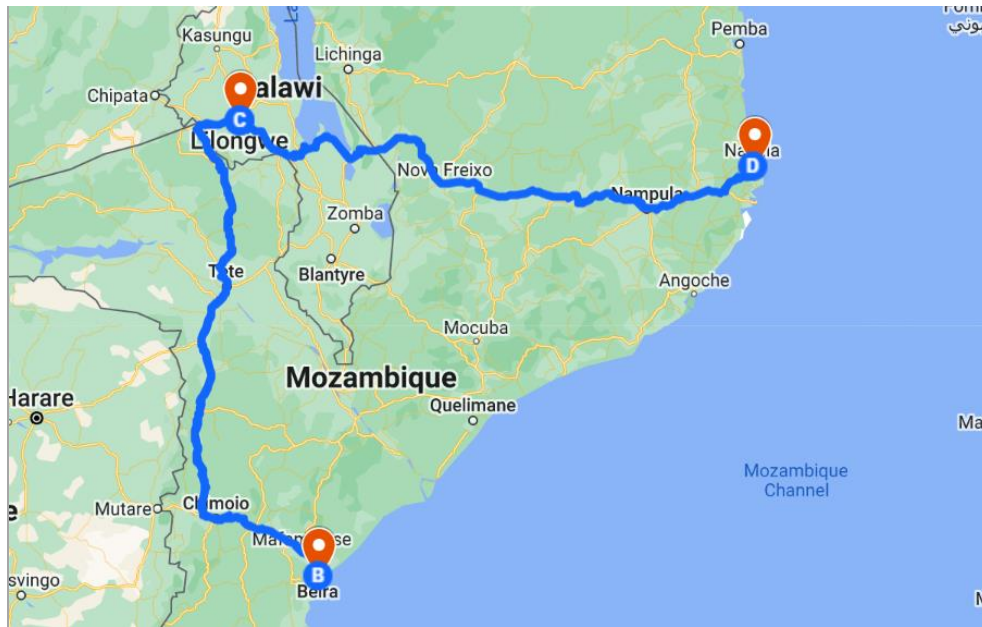


### DAP Import prices per Quarter, 2018Q1 - 2023Q1

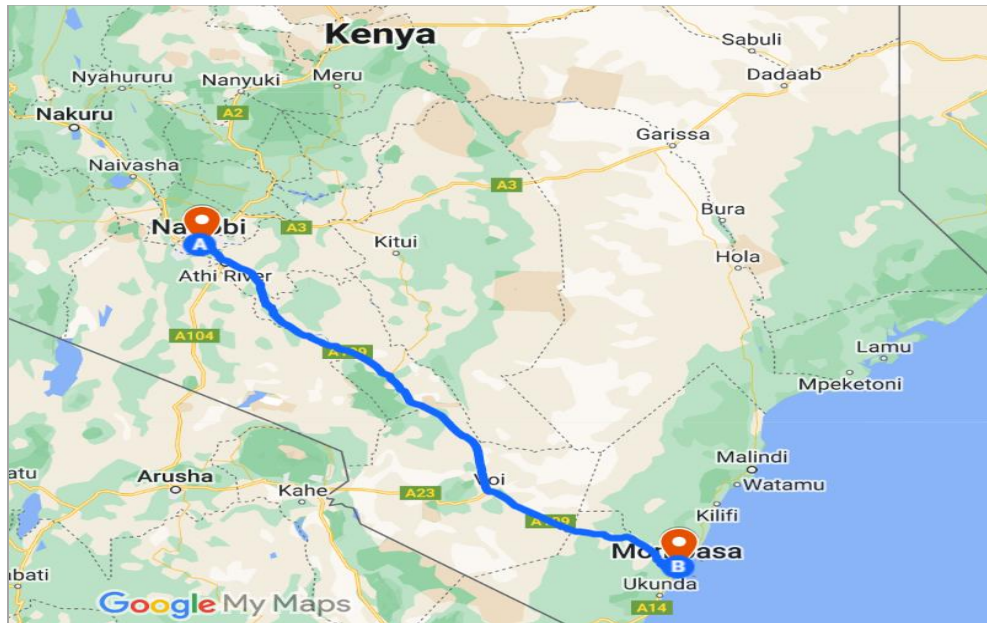
Source: Authors' calculations based on Trade Map data

## Appendix B: Maps

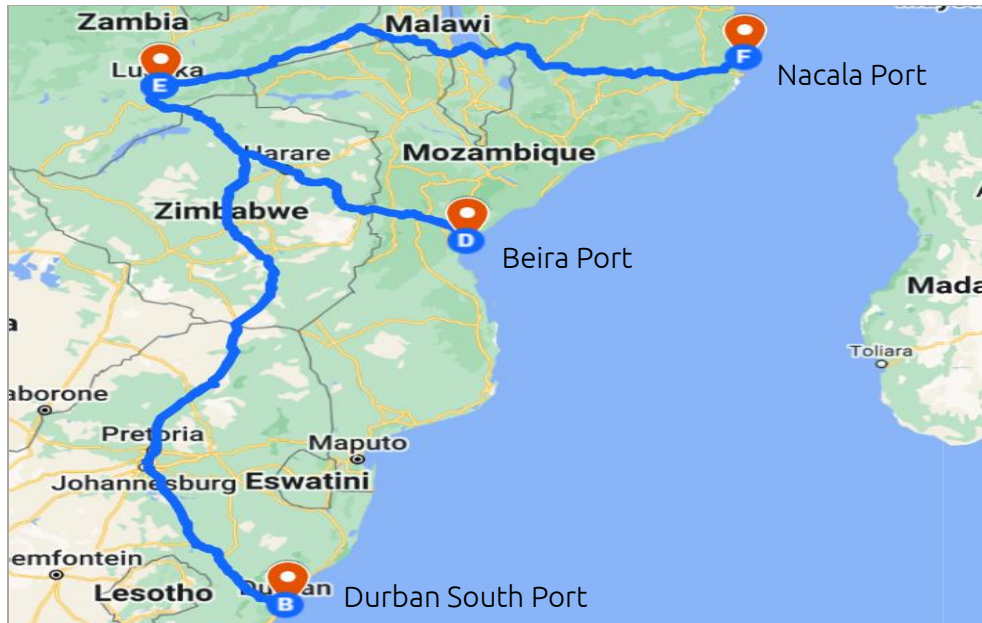
### B1. Malawi



### B2. Kenya



### B3. Zambia



### B4. Zimbabwe

