Nigeria fertilizer demand / supply outlook

AFCOME International Meeting
Avignon
10th November, 2017
Overview of the Dangote Group

Nigeria Agric landscape

New supply
Dangote Group is a pan-African conglomerate with operations across 10 countries and revenues of ~USD3bn

Existing businesses

- Cement
- Food
- Others
  - Sugar
  - Salt, Tomato Paste
  - Seasoning
  - Vegetable Oil Refining and Fractionating
  - Flour, Pasta, Noodles
  - Packaging
  - Construction
  - Truck assembly

New businesses

- Oil & Gas
  - Upstream assets
  - Sub-sea gas pipeline
  - Petroleum refinery / petrochemical
  - Fertilizer
- Agriculture
  - Rice
  - Sugar cane
  - Tomatoes
  - Dairy Products
- Infrastructure
  - Power
Additional information on some of our Existing Businesses

**Dangote Cement PLC**
- Total installed capacity of ~ 44M mtpa across eight countries (Nigeria, Ghana, Cameroon, Senegal, Ethiopia, Zambia, South Africa and Tanzania)
- Additional greenfield and brownfield capacity (~ 22M mtpa) is currently under development in several countries across SSA. Our goal is to expand total installed capacity to ~ 80M mtpa by 2020.

**Dangote Flour Mills PLC**
- Five wheat milling locations: Apapa, Ikorodu, Calabar, Ilorin, Kano with a combined installed capacity of 2.45Mtpa
- Its subsidiary Dangote Pasta produces pasta from its factory in Ikorodu (installed capacity of about 228,500 Mtpa)
- Another subsidiary, Dangote Noodles has its manufacturing operations in Ikorodu, Calabar & Kano (installed capacity of about 42,110 Mtpa)

**Dangote Sugar Refinery PLC**
- Current capacity - 1.44M mtpa
- Largest in Sub-Saharan Africa and 2nd largest in the world
- Unfortified Industrial White Sugar and Vitamin A-fortified White Sugar
- Leader in the Nigerian sugar market, ~ 65% market share
- Savannah Sugar Company (Numan) - Backward Integration

**NASCON PLC (Salt Refinery)**
- Currently has a combined installed capacity of 600,000 mtpa.
- Refines, fortifies and packages table, agricultural and industrial salts
- Controls ~ 60% Nigeria’s salt market
- Oil Palm refinery and fractionation, seasoning and tomato paste
- Plans are on the way to expand salt refining capacity by 300,000 Mtpa
The group has invested over $7bn in the last 15 years. Almost 10% of the total FDI inflows during that period...

Dangote Group investments in Nigeria vs. FDI inflows, USD bn

Most of this goes into Oil & Gas. Very little goes into Manufacturing.

1 – Dangote Flour Mills; NASCON; Osogbo Steel Mill

SOURCE: UNCTAD
…and has an investment pipeline of over $20bn for Nigeria

Investment pipeline, USD bn

<table>
<thead>
<tr>
<th>Project</th>
<th>Investment (bn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refinery</td>
<td>11.0</td>
</tr>
<tr>
<td>Fertiliser¹</td>
<td>2.2</td>
</tr>
<tr>
<td>Upstream Oil &amp; Gas²</td>
<td>1.8</td>
</tr>
<tr>
<td>Gas Pipeline (EWOGGS)</td>
<td>3.0</td>
</tr>
<tr>
<td>Rice Production</td>
<td>1.0</td>
</tr>
<tr>
<td>Sugar Backward Integration</td>
<td>1.0</td>
</tr>
<tr>
<td>Cement Projects</td>
<td>1.3</td>
</tr>
<tr>
<td>Power</td>
<td>2.0</td>
</tr>
<tr>
<td>Total</td>
<td>23.3</td>
</tr>
</tbody>
</table>

ALL projects are in various stages of progress

¹ – For Urea and NPK plants  ² – Includes acquisition cost
The group is working on cultivating ~300k Ha of land with annual fertiliser requirement of ~150k MTs.
Dangote Fertilizer Project is the largest Granulated Urea Fertilizer complex coming up in the Africa

- **Capacity** build up: 3 million Tonnes per annum
  - Ammonia Plants: 2 x 2,200 MTPD based on Haldor Topsoe technology
  - Urea Melt Plants: 2 x 4,000 MTPD based on Snamprogetti technology
  - Urea Granulation plants: 2 x 4,000 MTPD based on Uhde Technology
  - Captive Power plant: 3 x 40 MW Steam Turbine Generators
  - Auxiliary Boilers: 3 x 200 Tonnes per hour steam generation
- **Investment**: USD2bn (excluding land, land development, and other infrastructure development)
- **EPC Contractor**: Saipem, Italy and Saipem Construction Nigeria
- **PMC**: Tata Consulting Engineers, India
- **Location**: Lekki Free Trade Zone, Lagos
- **Target completion**: Q1 2018
Construction is progressing smoothly

Pictorial view of the construction site

Vacuum concentrator being transported on a barge

Urea reactor being offloaded at site

Pictorial view of the construction site
Overview of the Dangote Group

Nigeria Agric landscape

New supply
Let’s start with a quick geography lesson.

SOURCE: Google Maps
Nigeria has a relatively sizeable agricultural production

Nigeria Agricultural sector composition, (USD Bn), 2016

<table>
<thead>
<tr>
<th></th>
<th>Crop production</th>
<th>Livestock</th>
<th>Forestry</th>
<th>Fishery</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nigeria</td>
<td>49</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>55</td>
</tr>
<tr>
<td>South Africa</td>
<td>42</td>
<td>20</td>
<td></td>
<td></td>
<td>62</td>
</tr>
<tr>
<td>France</td>
<td>371</td>
<td>1.7</td>
<td></td>
<td></td>
<td>397</td>
</tr>
<tr>
<td>India</td>
<td>42</td>
<td>20</td>
<td></td>
<td></td>
<td>62</td>
</tr>
<tr>
<td>Brazil</td>
<td>371</td>
<td>1.7</td>
<td></td>
<td></td>
<td>397</td>
</tr>
<tr>
<td>Total</td>
<td>55</td>
<td>20</td>
<td>42</td>
<td>112</td>
<td></td>
</tr>
</tbody>
</table>

Agric GDP comparison (USD Bn), 2016

- Nigeria’s agricultural output is comparable to Brazil’s and twice as large as that of France
- In essence, Nigeria can be described as an agrarian economy

SOURCE: Nigeria Bureau of Statistics; World Bank; CIA World fact book
Yet, there is a lot of potential for further growth as crop yields lack world average

SOURCE: World Bank
Agricultural production could potentially double if certain gaps are closed

Projected GDP growth in Nigeria’s agricultural sector
Real value added, basic prices, 2014 $ billion

- Maize and rice yields in Nigeria are only about half that of South Africa or Thailand, and about a fifth that of the US
- Farmers lose more than 40% of harvests of certain crops to spoilage and waste
- Fisheries ($2.3 billion) and forests ($1.2 billion) constitute only 3.8% of agriculture GDP.

SOURCE: McKinsey
Low yield partially driven by bottlenecks in the Nigeria fertilizer value chain

The fertilizer value chain and its challenges

Manufacturers (Urea)

Importers (DAP, Potash)

- Port bottlenecks
- Transportation to the hinterlands
- Demand spike
- Outdated blending plants

Challenges

- Affordability
- Financing
- Late deliveries (esp. for subsidized fertilizer)

Urea

Blenders (NPK)

Distributors

Retailers

Farmers
A large portion of fertilizer is supplied through the government

How the “Presidential fertilizer initiative” works

- Manufacturers (Urea)
  - Government buys nutrients from manufacturers and traders
  - Government tolls blending capacity
  - (Government investing to improve blending capacity)

- Importers (DAP, Potash)

- Blenders (NPK)
  - Government buys nutrients from manufacturers and traders

- Distributors
  - Sells to distributors at N5,000 (~€12) per bag

- Retailers
  - Enforces retail price of N5,500 (~€13.2) per bag

- Farmers
Agenda

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New supply
By 2018, there will be about 4.9m tons production capacity in Nigeria from 3 players

- **Dangote**
  - Capacity – 3mtpa
  - Location – Lekki, Lagos state

- **Notore**
  - Capacity – 0.5mtpa
  - Location – Onne, Rivers state

- **Indorama**
  - Capacity – 1.4mtpa
  - Location - Eleme Port
  - Harcourt, Rivers state
Current Urea consumption is only a fraction of installed industry capacity but could grow significantly
Nigeria fertilizer consumption scenarios, 000MT

<table>
<thead>
<tr>
<th></th>
<th>Base scenario (2013 World Bank estimate)</th>
<th>Scenario 1 (2016 industry data)</th>
<th>Scenario 2 (Africa Accord target)</th>
<th>Scenario 3 (Optimistic)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Urea</strong></td>
<td>0.3 (50%)</td>
<td>0.4 (38%)</td>
<td>0.9 (50%)</td>
<td>1.4 (50%)</td>
</tr>
<tr>
<td><strong>Non urea</strong></td>
<td>0.6</td>
<td>1.0</td>
<td>1.7</td>
<td></td>
</tr>
</tbody>
</table>

**Fertiliser intensity**
Kg/Ha of arable land
- Base scenario: 18
- Scenario 1: 27
- Scenario 2: 50
- Scenario 3: 70

**Demand vs. Nigeria Industry Capacity**, %
- Base scenario: 6.5%
- Scenario 1: 9.9%
- Scenario 2: 18.3%
- Scenario 3: 30.8%

1. 17.8kg/ha of arable land x 34.5m Ha of arable land (37.3% of total land area)
2. Import data from customs + production data from producers – export data from customs
3. Consumption at Africa average of 70kg/ha and 20% increase in land under cultivation (feasible as current statistic of only 37% of total land being under cultivation is disputed and considered too low)

SOURCE: WorldBank; FEPSAN; Press search; Team analysis
In the interim, target will be to sell what we can in Nigeria and export the rest

<table>
<thead>
<tr>
<th>Sales mix, %</th>
<th>Key success factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global</td>
<td>55 – 65%</td>
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<tr>
<td></td>
<td>▪ Sell to global traders</td>
</tr>
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<td></td>
<td>▪ Target deliveries to the Americas given relative geographical proximity</td>
</tr>
<tr>
<td>West Africa</td>
<td>15 – 20%</td>
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<tr>
<td></td>
<td>▪ Focus on neighbouring countries and countries with existing Dangote operations</td>
</tr>
<tr>
<td>Nigeria</td>
<td>20 – 25%</td>
</tr>
<tr>
<td></td>
<td>▪ Invest to stimulate demand:</td>
</tr>
<tr>
<td></td>
<td>– Pre-build stock in the hinter-land to avoid late deliveries and demand spike</td>
</tr>
<tr>
<td></td>
<td>– Partner with government to improve subsidy programme</td>
</tr>
</tbody>
</table>
Subsequently, we aim to continue to expand into other fertiliser segments.

Ensure year round availability and value:
- Strategic depots
- Dedicated fleet
- Leverage distributor relationships
- Extension services
- Government partnerships

Expand into NPK production:
- Partner with blenders
- Local DAP/MAP production

Develop customised fertilisers:
- Customised / specialty fertilizer production
- Facilitate more extensive soil testing
- Farmer education
That's all Folks!