Toyota Tsusho Fertilizer Africa – BARAKA Fertilizer
Toyota Tsusho Group / Company Profile

Corporate Profile

Corporate name: Toyota Tsusho Corporation
Head office location: Nagoya, Tokyo
Consolidated companies: 955 *As of March 2018
Global network: 90 countries and more
Global deployment: More than 150 countries
Revenue: 65 billion USD (consolidated) *As of FY2017
Number of employees: 56,827 (consolidated) *As of March 2018
Major shareholder: Toyota Motor Corporation (21.7%)

Business Divisions

- Metals
- Global Parts & Logistics
- Automotive
- Machinery, Energy & Project
- Chemicals & Electronics
- Food & Consumer Services

Established in April 2017

Africa
Bringing CFAO into Group and Building Alliance in Africa

TTC acquired CFAO (French trading firm) in 2012 toward becoming leading corporate group in Africa

Operations in: (automotive) 35 countries 53 of 54 countries 28 countries

Number of employees: 11,000 13,500 2,500

Brands carried (automotive) Covering more than 20 brands 20+ Centered on brands of the Toyota Group

New vehicle volume (2013) 78,000 101,000 23,000
Bringing CFAO into Group and Building Alliance in Africa

Business network covering almost the whole of Africa, and rich human resources

Global deployment: **53 countries**
(Business sites in 36 countries)

Number of employees: Approx. **15,500**

Group companies: **165**

Sales: Approx. **5.5 billion USD** (2017)

Sales composition of 4 major businesses (2017):

<table>
<thead>
<tr>
<th>Business Line</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobility</td>
<td>57%</td>
</tr>
<tr>
<td>Healthcare</td>
<td>34%</td>
</tr>
<tr>
<td>Consumer Goods</td>
<td>7%</td>
</tr>
<tr>
<td>Technology Energy</td>
<td>2%</td>
</tr>
</tbody>
</table>
This Memorandum of Understanding delineates the agreements between VDB and Toyota Tsusho on mutual interests in strategic collaboration towards implementation of various Vision 2030 flagship projects.

IT IS THEREFORE HEREBY AGREED as follows:

ARTICLE 1: PURPOSE & SCOPE

The purpose of this MOU is to clearly identify the roles and responsibilities of each party as they relate to five key sectors of interest and supportive of Vision 2030 flagship projects specified as below.

1) Power and Energy Infrastructure
2) Oil and Mineral Mining
3) Environmental Protection Infrastructure
4) Agricultural Industrialization
5) Taking Initiative to Enhance Investment Activities (Establishment of Regional Vehicle Logistics Center and Central Parts Depot in Kenya) to Develop EAC Regional Automotive Business
Agriculture Business Vision in Africa

**Phase 1**
- **Agricultural Mechanization**
  - CASE / Captain Franchise, 3S business
  - Finance Package
  - Training Program at TOYOTA KENYA Academy

**Phase 2**
- **Fertilizer Production & Sales**
  - Producing Balanced Fertilizer suitable for Kenyan Soils and Crops
  - Promoting Better Farming Practice

**Phase 3**
- **Agricultural VC Expansion**
  - Participating in Large Scale Farming (Zambia)
  - Post Harvest and Processing of Agricultural Products /Crops (in Study)

- Fertilizer Plant
- Silo (Post harvest storage)
Population in Eastern Africa is growing steadily and strongly.

(Source: UN)

Ethiopia, Tanzania, Kenya, Uganda, Mozambique, Madagascar, Malawi, Zambia, Zimbabwe, Somalia, South Sudan, Rwanda, Burundi, Eritrea, Mauritius, Djibouti, Réunion, Comoros, Mayotte, Seychelles
Improvement of food productivity is limited.

Cereal production, yield and land usage in South Asia and Sub-Saharan Africa, 1961-2009

**Sub-Saharan Africa (Extensification)**
- 2009 production = 359

**South Asia (Intensification)**
- 1961 production (area x yield) = 100
- 2009 production = 310

Food production per capita

(World Bank)

50 Breakthroughs
Variety of crop produced/consumed is being diversified from Maize to Maize/Rice/Potato/Vegetables.

But variety of fertilizer is still limited in East Africa.

Nutrition requirement by various crops:
Solution: Toyota Tsusho Fertilizer Africa (TTFA)

- Brand Name: BARAKA Fertilizer
- Products: Balanced Nutrition Blending NPK Fertilizer
- Installed Capacity: 50MT/HR (Max. 150KMT/YR)
- Production Start: August 2016
- Ownership: Toyota Tsusho Group 100%
- Location: Eldoret, Kenya

Agriculture Sector Facts in Kenya

- Arable Land: 5.8 Million HA - 10% of Total Land (Arable Land in Japan: 4.5 Million HA)
- 75% of Workforce Involve in Agriculture
- 25% of GDP in Kenya Generated in Agricultural Sector (Total GDP in Kenya US$69B)
- Main Export Goods for Kenya: Tea (US$1B) & Cut Flower (US$700M) (16% & 12% of Total Export)
What is Baraka Fertilizer?

**Farmer Identification**

**Soil Sampling & Analysis**

**The Best Formulation & Application Rate**

**Blending & Coating**

**Production at the State-of-Art Plant**

**Procure Quality Feedstock Globally & Locally**

- Nitrogen (Urea/AS)
- Phosphate (DAP/MAP/NPS)
- K(Potassium)(MOP/SOP)
- Ca
- Mg
- S
- B
- Zn
- Cu
- Fe

Baraka Fertilizer

“Pata Baraka Shambani”
Maize Trial Result in Bungoma, KENYA

Farmers earned **extra kshs. 33,067** per acre with **Baraka Planting fertilizer**

### Income from Maize sales (per acre)

<table>
<thead>
<tr>
<th></th>
<th>15bags</th>
<th>23bags</th>
<th>28bags</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers Practice 1</td>
<td></td>
<td></td>
<td>35,200</td>
</tr>
<tr>
<td>Farmers Practice 2</td>
<td></td>
<td>55,467</td>
<td></td>
</tr>
<tr>
<td>Baraka Fertilizer</td>
<td></td>
<td></td>
<td>68,267</td>
</tr>
</tbody>
</table>

### Fertilizer application rate (per acre)

<table>
<thead>
<tr>
<th></th>
<th>Planting Fertilizer</th>
<th>Topdressing Fertilizer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers Practice 1</td>
<td>NPK 23:23:0 75kg/acre</td>
<td>CAN 75kg/acre</td>
</tr>
<tr>
<td>Farmers Practice 2</td>
<td>Local blended NPK fertilizer 75kg/acre</td>
<td>CAN 75kg/acre</td>
</tr>
<tr>
<td>Baraka Fertilizer</td>
<td>Baraka Planting Fertilizer 75kg/acre</td>
<td>CAN 75kg/acre</td>
</tr>
</tbody>
</table>

*(Source) TTFA Internal Data / 9 farmers in Bungoma in 2016 short rain season*
Baraka Potato Fertilizer

Baraka planting fertilizer: NPK 14:28:14 +5S +0.4Zn +0.12B
Baraka topdressing fertilizer: NPK 24:0:24 +9S

**Fertilizer Application Rate per acre**

<table>
<thead>
<tr>
<th>Farmers Practice</th>
<th>Baraka Fertilizer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planting Fertilizer</td>
<td>Planting Fertilizer</td>
</tr>
<tr>
<td>DAP 200kg</td>
<td>Baraka Potato Planting 100kg</td>
</tr>
<tr>
<td>DAP</td>
<td>BARAKA POTATO Planting</td>
</tr>
<tr>
<td>DAP</td>
<td>BARAKA POTATO Planting</td>
</tr>
<tr>
<td>Baraka Potato Topdressing 100kg</td>
<td>Topdressing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Yield per acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.1MT</td>
</tr>
<tr>
<td>8.6MT</td>
</tr>
</tbody>
</table>

**Yield per acre**

- Farmers Practice: DOUBLE YIELD!!
- Baraka Fertilizer: 17.1MT

Be the Right ONE
TTFA developed the best bet rice fertilizer supported by JICA. Nowadays, Baraka Rice Fertilizer is the most popular fertilizer in Mwea, Kenya (Development History)

2015
- Discussion with Researcher of JICA
- Formulation design

2016
- 1st Trial (Feb-June)
- 2nd Trial (July-Dec)

2017
- 1st Commercial Sales
- 3rd Trial
- Formulation design for Ratoon fertilizer

2018
- Fine tuning of formulation based on 3rd trial
- 2nd Commercial Sales
Yield improvement by Baraka Rice fertilizer (2017 version)

Baraka Rice Fertilizer (2017 version) achieved yield increase by 12% despite rice farmers in Kenya has been educated well by JICA and their original farming practice is also nearly ideal!
Result of omission trial on rice (3\textsuperscript{rd} Trial in 2017)

Rice Yield in Kgs/acre during SR 2017 from Mwea Region

**Implication from the trial**

1. Cu is not necessary
2. Extra K (potash) is positive
3. ZnSO\textsubscript{4} could be better than ZnO

Fine-tuning formulation. Baraka Rice Fertilizer (2018 ver.) shall increase yield more!
TTFA strategy as Agri Input Solution Provider

TTFA will offer full-range of solution to farmers in Africa

- **Soil analysis (PH)**
  - Handy PH meter

- **Soil conditioning**
  - High quality Calcium

- **Right Fertilization**
  - Baraka Fertilizer

- **Agri-Mechanization**
  - Tractors

TTFA is a distributor of Calciprill (high quality soluble lime) produced by Omya
New agenda by Government of Kenya (GoK) “Big Four”

GoK has set “The Big Four” agenda as next 5 years development plan.

1. Manufacturing
2. Food and Nutrition Security
3. Health
4. Housing

TTFA can provide great contribution for “Food and Nutrition Security”

Local blending can contribute for “Manufacturing” as well
Potential Contribution by TTFA

Top agenda in “Food and Nutrition Security”

Increase local food production

<table>
<thead>
<tr>
<th>Food availability – maize, rice and potatoes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maize (90Kg bags annually)</strong></td>
</tr>
<tr>
<td>0M Bags</td>
</tr>
<tr>
<td>40M 46M 67M</td>
</tr>
<tr>
<td>2017 2018 2022</td>
</tr>
<tr>
<td><strong>Rice</strong></td>
</tr>
<tr>
<td>0MT 112,800MT 124,080MT 406,486MT</td>
</tr>
<tr>
<td>2018 2022</td>
</tr>
<tr>
<td><strong>Potatoes</strong></td>
</tr>
<tr>
<td>0MT 1.3M 1.55M 2.52M</td>
</tr>
<tr>
<td>2018 2018 2022</td>
</tr>
</tbody>
</table>

Source: GoK

<table>
<thead>
<tr>
<th>Crop</th>
<th>Action Item</th>
<th>Potential Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAIZE</td>
<td>Baraka Standard Fertilizer</td>
<td>+20-30%</td>
</tr>
<tr>
<td></td>
<td>Farmer Education</td>
<td>+10-20%</td>
</tr>
<tr>
<td></td>
<td>Increase application rate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>50kg =&gt;100kg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Farmer Education</td>
<td>+20%</td>
</tr>
<tr>
<td></td>
<td>Use of high quality lime</td>
<td></td>
</tr>
<tr>
<td>RICE</td>
<td>Baraka Rice Fertilizer</td>
<td>+10-20%</td>
</tr>
<tr>
<td></td>
<td>Dam construction by JICA</td>
<td>double</td>
</tr>
<tr>
<td></td>
<td>JICA RICE MAPP program</td>
<td>Positive</td>
</tr>
<tr>
<td>POTATO</td>
<td>Baraka Potato Fertilizer</td>
<td>+50-100%</td>
</tr>
<tr>
<td></td>
<td>Farmer Education</td>
<td>TBD</td>
</tr>
<tr>
<td></td>
<td>Use of high quality lime</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Farmer Education Authorised Seed potato</td>
<td>Positive</td>
</tr>
<tr>
<td></td>
<td>Mechanization Tractor + Potato harvester</td>
<td>+20%</td>
</tr>
</tbody>
</table>
Challenge in agribusiness in Africa

Challenge

Majority of small scale farmers in Africa is not affordable and too conservative to try new technology.

Conceptual Solution

(1) Education and training for farmers are primary essential tools. However, education and training alone does not solve the challenge.

(2) Self-experience and referral from neighboring farmers also plays important roles as well to accept the technology by farmers. “Seeing is believing” “Word of mouth”

How to connect Education, Self-experience and Referrals?
How can private companies play this key role with public sector?
TTFA will conduct Farmers Education Program in Lake Victoria area supported by MAFF (Ministry of Agriculture, Forestry and Fisheries).

- **Farmer Field day**
- **Sample Fertilizer**
- **Yield Data Analysis/Farmers Field day**

**Learn**

**Try**

**Understand**

**Share knowledge in Society**

**Self and Sustainable growth of Society**
With Africa, For Africa

Thank you very much