THE ROLE OF AGRO INDUSTRIAL CLUSTERS IN INCLUSIVE AND SUSTAINABLE DEVELOPMENT

by

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1. Introduction

2. The concept

3. Examples from around the world

4. Objectives and Goals

5. Developing Agro Industrial Clusters

6. Financing Agro Industries

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Developing agro industrial clusters in Africa is a strategic approach to inclusive and sustainable development.

To deliver effectively and efficiently in the global interest of inclusive employment and sustainable development requires **significant coordination** of efforts, resources and knowledge; and leveraging the core competences of key stakeholders namely:

- government,
- development partners,
- private sector entrepreneurs and businesses.

In Africa, government resources and capacities are limited and need to be used strategically.
AFRICA’s Growing Challenge - Population

Figure 1: Trends in Gross National Income by Region - 2014
Computed from worldbank.org/indicator/

Figure 2: Global Population trend
(Source: UN's World Population Prospects, 2014)

Figure 3: Changing urban population in some African Countries

Figure 4: Africa’s urban and rural Population, 1950 - 2050
(Source: UN Population Division)
Low agricultural productivity
Agriculture value added per worker (2013)

World average: $1,201

- Low income countries: $336
- Middle income countries: $1,060
- High income countries: $18,497
Low level value addition

In least developed countries, only 38% of products are processed

Effects:

- Lost jobs in the processing sector
- Lost income generation
- Post Harvest Losses
High Post Harvest Losses

Developed countries

~ 40%

.....waste on average 40% of its food, mainly through losses in.....

- production
- packaging
- storage
- retail
- consumption

(30 - 50% of food that has been bought in developed countries is thrown away by the purchaser)

Developing countries

~ 40%

.....lose on average 40% of its food, mainly through .......

- poor transportation
- bad infrastructure
- land degradation
- flooding and drought
- bad storage
The Concept

Industry clusters: geographic concentrations of competing, complementary, or interdependent firms and industries that do business with each other and/or have common needs for talent, technology, and infrastructure. Agro = SEZ focus on agro processing

Business/Industry clusters is framed around four groups:
1. Geographical clusters that are identified by location
2. Sectoral clusters of businesses operating together from within the same commercial sector
3. Horizontal clusters between businesses at the level of shared resources (e.g. knowledge management)
4. Vertical clusters of businesses along a supply chain.

**Agro Industrial Cluster** is a concentration of producers, agro-industries, traders and other private and public actors engaged in the same industry and interconnecting and building value networks, either formally or informally, addressing common challenges and pursuing common opportunities (Galvez-Nogales 2010).

Agro Industrial Clusters

The concept is based on the relationships between raw material suppliers and end users and the differences in design are defined by the degree of explicit coordination and power asymmetry.

Also known as:
- Agroclusters
- Agropoles
- Agro-industrial park
- Agro food parks
- Agribusiness parks
- Mega Food Parks

= Special Economic Zones and Industrial Parks
– 15000 across the world (UNIDO 2015)
Models:

Centralized processing infrastructure in a farm production zone: Agro pole, Agro Industrial zone, SCPZ/ABIR, etc

Agro Industrial Corridors
Examples from around the world
Examples from around the world

- Spanish vegetable cluster covering an area of 40,000 + hectares spread across Alicante, Mucia and Almeria regions
- Dutch horticultural cluster for entire horticulture chain with an area of 12,000 hectares in Westlands, Aalsmeer district, Netherlands
- Latin American agri clusters like
  - Michoacan, Mexico
  - Colima, Mexico
  - Ceracruz, Mexico
  - Antioquia, Colombia
  - Rio Grande Do Norte, Brazil
  - Petrolina Juazeiro, Brazil
  - North of Minas Gerais, Brazil
  - Santa Catarina, Brazil
  - Temperate Cluster, Argentina
  - O’ Higgins, Chile
  - Maule, Chile
  - Colombia and Ecuador clusters
- Western gap cluster in Thailand - 35200 hectares
- Crop processing cluster in dong lieu, Vietnam
- Fish processing clusters around lake Victoria, Kenya – Regional
- Montana food cluster
- Food processing cluster, Namibia
### Key lessons from cluster development

Several success stories can be cited for cluster development across the globe. :

| Large scale development | Economy of scale that facilitates the occupant industry to achieve the required threshold | Excellent forward and backward linkages with synergy among the occupants and suppliers | State of the art infrastructure facilities | World class operation and maintenance strategies and support | Technology innovation driven development | Private sector playing a meaningful role in the entire development cycle |
From Comparative Advantage to Competitive Advantage

Supply side constraints in Agro industrial development

Addresses challenges to Agro-Industrialization simultaneously
Stakeholders and Beneficiaries

There are, basically, *five* sets of stakeholders to be involved from the beginning of the project:

1. local investors and industry associations;
2. international investors;
3. state (or province) and local governments;
4. selected (most relevant for the project) federal ministries; and
5. development partners.

Several Beneficiaries

1. Local Farmers/Farmer Coops
2. Local & International agro industry investors
3. Service Providers
4. State (or province) and local governments;
5. Government Ministries;
6. Site/Estate/Infrastructure Investors
7. ...............etc
Development Strategy and Ownership

“Private sector led, Government enabled”

- Develop enabling environment & framework - (policies, finance, land, incentives)
- Provide connectivity to critical national public infrastructure such as land, roads, and energy
- Regulatory Framework

- Invest in modern agri-industrial processing, associated production & technology
- Invest in on-site infrastructure and services
- Provide sustainable site management communities
- Build capacity and technical expertise

- Financing and service support
- Develop market linkages to integrate smallholders, rural population, and women
- Capacity building

Local & International Private Sector Players

Federal, State, Local Govts.

Develop -ment Partners

INCLUSIVE AND SUSTAINABLE INDUSTRIAL DEVELOPMENT
A key objective is to stimulate private sector investments to drive a market-led agricultural transformation.

Agro Industrial Clusters: 

Shift agriculture from government controlled to private sector led.

Transform the agricultural financial landscape.

Channel investments in infrastructure and services.

Strengthen the policy and investment climate.

...a new agricultural investment framework.
**Goals and Objectives**

**OBJECTIVES**

- To attract private investors to set up food processing plants & improve food security
- To reduce post-harvest losses, to add value to local content of foods & reduce price volatility
- To link farmers in clusters to food manufacturing plants
- To give forward linkages for the processed produce
- To create jobs, drive rural economic growth & reduce rural urban migration

**GOALS**

- Grow an industrial base & create Wealth
- Create employment
- Promote trade and investment
- Increase food production efficiency
Private Sector Expectations

- Raw material supply side - quality and quantity
- World class infrastructure
- Upstream & downstream linkages
- Supporting infrastructure
- Reduced development cycle
- Concentration on core activity
- Specialized agri infrastructure
- Reduced cost of operations in long run
- Access to technology
- Marketing infrastructure and linkages
Developing Agro Industrial Clusters: **Key Documents**

### AIZ Policy
Provides the roadmap to guide the development, management and operation of the AIZ and will be used, alongside additional legal instruments –

- Memorandum of Understanding, Tripartite Agreements, Standard Offer Agreements to be executed, as necessary, between the Federal, State Governments and Zone Investors

### Bill
**Legislative Bill for the establishment of the AIZ Law, the AIZ Institution/Authority**

- Institutional arrangements, roles and responsibilities for the development and operation of the Agro Industrial Zone

### Master Plan
Long-term planning document that establishes the framework and key elements of a site reflecting a clear vision created and adopted in an open process, defines a realistic plan for implementation, including a business case and subsequent approvals by public agencies
# Master Plan: A Strategic Business Case

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1</td>
<td>Agro clusters</td>
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<tr>
<td>2</td>
<td>Agro &amp; allied sector potential of the country</td>
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<tr>
<td>3</td>
<td>Conceptualization and configuration of the agro industrial zone</td>
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<td>4</td>
<td>Stakeholder mapping and consultation</td>
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<tr>
<td>5</td>
<td>Vision and mission</td>
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<td>6</td>
<td>Land for the agro industrial zone</td>
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<td>7</td>
<td>Zone definition</td>
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<td>8</td>
<td>Master planning of the core processing zone and configuration</td>
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<td>9</td>
<td>Infrastructure and facilities within the core processing zone</td>
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<tr>
<td>10</td>
<td>Infrastructure gap analysis for procurement zone</td>
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<tr>
<td>11</td>
<td>Environmental and social assessment</td>
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<tr>
<td>12</td>
<td>Agribusiness analysis and arrangements</td>
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<td>Project cost</td>
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<td>14</td>
<td>Revenue drivers</td>
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<tr>
<td>15</td>
<td>Means of finance, financial and investment model analysis</td>
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<td>16</td>
<td>Development strategy, project implementation structure, legal aspects and document templates</td>
</tr>
<tr>
<td>17</td>
<td>Branding and marketing strategies</td>
</tr>
<tr>
<td>18</td>
<td>Implementation schedule and micro level action plan</td>
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<td>19</td>
<td>Risks mitigation plan</td>
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<tr>
<td>20</td>
<td>SWOT analysis</td>
</tr>
<tr>
<td>21</td>
<td>Benefits and contributions</td>
</tr>
</tbody>
</table>
### Bunkure, Kano

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Description</th>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Focus crop</td>
<td>Kano</td>
<td>Rice, tomato, sorghum</td>
</tr>
<tr>
<td>2</td>
<td>Additional crops</td>
<td></td>
<td>Beans, Cassava, Cocoyam, Maize, Cotton, Rice, Groundnut, Guinea corn, Millet, Soya beans</td>
</tr>
<tr>
<td>3</td>
<td>SCPZ location</td>
<td>Gafan</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Composite score of the site</td>
<td></td>
<td>75% out of 100%</td>
</tr>
<tr>
<td>5</td>
<td>Raw materials required for the SCPZ</td>
<td>575320 MTPA</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Growing area required</td>
<td>148465 hectares</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Land use pattern – hectares</td>
<td></td>
<td>Total area 257.24 hectares</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>1) Total processing area</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>1.1) Total industrial area</td>
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<td></td>
<td></td>
<td></td>
<td>1.2) Amenities</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>1.3) Utilities</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1.4) Road</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1.5) Greenery and open space</td>
</tr>
</tbody>
</table>

### Project cost

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCPZ Phase I development</td>
<td>₦ 4462.72 million</td>
</tr>
<tr>
<td>SCPZ all phases</td>
<td>₦ 7861.51 million</td>
</tr>
<tr>
<td>Specialized agri infrastructure cost within ABIR</td>
<td>₦ 11440.22 million</td>
</tr>
<tr>
<td>External connectivity and offsite infrastructure cost - SCPZ</td>
<td>₦ 4882.50 million</td>
</tr>
<tr>
<td>Grand total cost for integrated ABIR and SCPZ</td>
<td>₦ 24184.23 million</td>
</tr>
<tr>
<td>Investment by GoN and state government</td>
<td>₦ 9000 million</td>
</tr>
<tr>
<td>Investment by SCPZ by PPP</td>
<td>₦ 7861.51 million</td>
</tr>
<tr>
<td>Investment by SCPZ PPP or separate SPV or GoN and state government</td>
<td>₦ 7322.72 million</td>
</tr>
</tbody>
</table>

### Revenue drivers

- Total revenue – during 1st, 2nd, 3rd, 4th and 5th year of operation
  - ₦ 4550.39 million
  - ₦ 2992.06 million
  - ₦ 2321.23 million
  - ₦ 2382.68 million
  - ₦ 2432.15 million

### Means of finance

- The project shall be funded through equity, term loan in the initial phase and in the subsequent phases through the internal accrual

- **Equity**
  - ₦ 1785.09 million

- **Term loan**
  - ₦ 2677.63 million
**Steps in Developing Agro Industrial Parks**

**Demand / Supply Analysis**
- Strategy development
- Policy and Regulations
- Pre feasibility Assessments
  - Production Capacity
  - Market Analysis
  - Environment
  - Infrastructure
  - Institutional Aspects
  - Socio economic aspects
  - Land availability/access

**Planning and Design**
- Project Definition & Conceptual design
- Master Plan and Feasibility studies
- Institutional framework /Development
- Relationship with local authorities
- Environmental Impact Assessment
- Infrastructure gap analysis
- Resource Planning
- Planning, Operation and maintenance
- Functional Program/implementation plan
- Procurement planning
- Financial, Organizational and Legal support

**Procurement & Marketing**
- Authorities
- Pre-qualifications
- Design specifications
- Requests for bidding
- Bidding Evaluations
- Contract Award
- Contract management
- Subcontracting
- Project management & Supervision
- Investment marketing, facilitation of Zone/park

**Bank can finance**
- Prefeasibility assessments, strategy development (Grants)
- Master Plan/ Feasibility Study, Other Studies (Grants)
- Transactions Adviser or Investment Promotion/Marketing

**Operations**
- Operations and maintenance
- Performance monitoring and control
- Data collection and analysis

**Commissioning**
- Construction
- Testing and sampling
- Start up
- Staff Training programmes
- Organizational Development
- Operation and maintenance plans

- Support Private sector investments through third party national Banks @ single interest rates and relevant tenure

**1 Preliminaries, 2 Development, 3 Implementation**
Infrastructure is Key

# 1. ENERGY

Two turbines of 200 kW each in Kakara, Highland Tea factory
1. Internal Infrastructure

Basic infrastructure:
- Power
- Roads
- Sewerage
- Water supply
- Gas
- Drainage
- Telecom
- Street lighting
- Fire fighting
- ETP
- STP
- Waste management

Social infrastructure:
- Housing
- Recreation
- Health care
- Shopping

Support infrastructure:
- FPO lab
- Quality control
- Training centre
- R&D centre
- Centre of excellence
- Procurement centre
- Auction centre
- Information centre
- Terminal markets
- Cargo complex

Specialized infrastructure:
- Pre-cooling
- Cold storages
- Quarantine
- Reefer vans
- Grading / sorting
- Warehousing
- Preservation / processing
- Infrastructure
- Controlled atmospheric storage
- Modified atmospheric storage

Infrastructure support:
- Packaging & Labeling
- Branding and marketing support
- Transportation & logistics

Infrastructure elements:
- Large industrial units
- Sector 1
- Sector 2
- Sector 3
- Sector 4
- Sector 5
- Sector 6

Technical infrastructure:
- Chiller
- Compressed air
- Steam
- Water supply & distribution
- Water sources

Specialized infrastructure elements:
- Pre-cooling
- Cold storages
- Quarantine
- Reefer vans
- Grading / sorting
- Warehousing
- Preservation / processing
- Infrastructure
- Controlled atmospheric storage
- Modified atmospheric storage

Energy and sustainable development:
- Inclusive and sustainable development

Poverty Reduction through Energy and Sustainable Trade Industry, Building, Energy, and Environment
2 - Agri Infrastructure

Network of collection centers, storage halls, pre cooling, cold storage, primary processing hubs, mobile processing units, high humidity cold storage, deep freezers, controlled atmospheric storage, modified atmospheric storage, grading & packing halls, pack houses, refrigerated transport, warehouses etc.
Regional Office Nigeria 2015 Retreat

External infrastructure connects the AIZ with the outside world providing forward and backward linkages necessary for the operations. Responsibility of Government

3 - External Infrastructure to the AIZ

- Road connectivity
- Highway strengthening
- Rail connectivity
- Air & Sea Port connectivity
- External water supply source linkages
- External power linkages
### Funding Agro Industrial Zones

<table>
<thead>
<tr>
<th>SCPZ/ABIR Nigeria</th>
<th>Main crops</th>
<th>SCPZ cost phase I (US$ million)</th>
<th>SCPZ cost total</th>
<th>Agri-infrastructure cost (feeder roads, rural power, etc)</th>
<th>Connectivity infrastructure cost (SCPZ road, power lines)</th>
<th>Total cost (US$ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Badeggi, Niger</td>
<td>Rice</td>
<td>23.4</td>
<td>51.6</td>
<td>115.1</td>
<td>14.7</td>
<td>181.4</td>
</tr>
<tr>
<td>Gafan, Kano</td>
<td>Rice, tomato, sorghum</td>
<td>27.9</td>
<td>49.1</td>
<td>71.5</td>
<td>30.5</td>
<td>151.1</td>
</tr>
<tr>
<td>Omor, Anambra</td>
<td>Rice</td>
<td>30.2</td>
<td>53.2</td>
<td>77.3</td>
<td>56.1</td>
<td>186.6</td>
</tr>
<tr>
<td>Okorolo, Rivers</td>
<td>Fish</td>
<td>11</td>
<td>14.9</td>
<td>58.4</td>
<td>6.3</td>
<td>79.6</td>
</tr>
<tr>
<td>Agbadu, Alape cluster, Kogi</td>
<td>Cassava</td>
<td>30.4</td>
<td>52.2</td>
<td>137.9</td>
<td>124.6</td>
<td>314.7</td>
</tr>
<tr>
<td>Adani, Enugu</td>
<td>Rice</td>
<td>31.5</td>
<td>53.9</td>
<td>67.4</td>
<td>28.4</td>
<td>149.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>154.4</strong></td>
<td><strong>274.9</strong></td>
<td><strong>527.6</strong></td>
<td><strong>260.6</strong></td>
<td><strong>1,063.1</strong></td>
</tr>
</tbody>
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### Source of Funding

- **Private Sector** (Site Developer; Occupant Industry)
- **PPP/Development Partners/Donors/Service Providers**
- **Government – Public Sector/Donor (Loans)**
Key Investors

1. Site/Estate/Infrastructure Investors
2. Industrialist/Agro Processors
3. Farmer Coops/Companies
4. Service Providers
5. Government (Federal, State, LG)
6. Development Partners

* Require different financial products and mechanisms
Risks: Coordination and Continuity

Providing infrastructure involves the services under the scope of several Ministries (e.g., energy, transportation, communication, environment, science and technology etc.) and a very close inter ministerial coordination is required

- **In project management coordination**, there are, basically, *two* main problems to be avoided:
  - (1) *inter-governmental agency rivalry*, which is a result of lack of coordination and even opposition between government agencies; and
  - (2) *inefficient decision-making processes*, which is due to the fact that multiple reporting structures and reporting layers are expected to lead to inefficiencies and delays in the process of project implementation.

(3). Support at the highest level of Government ..........& the Bank
Areas of possible technical support from UNIDO

- Technical support in Master plan design of Agro Industrial Zones
- Technical support to conduct feasibility studies (COMFAR) to establish the potential/profiles of the constituting agribusiness units (agro-processing/value-addition)
- Policy development and institutional strengthening to support Agro Industrial Park concept
- Technical support to development of strategies for agricultural commercialisation / agro-industrial development & management capacity
- Capacity building and integration of value chain development strategies
- Capacity building in quality infrastructure, packaging, food safety and hygiene control  Good Manufacturing Practices (GMP)
- Capacity building in Investment and Technology promotion
Thank You