TO BE OR NOT TO BE – PERSPECTIVES ON FOOD SELF-SUFFICIENCY IN SUB SAHARAN AFRICA

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#IAPRI2014    #AntonyChapoto
A never ending Government struggle!!!
POLITICS VS. GROWTH

Government Policy

Supply of public goods
✓ Long-term productive investments: R&D, infrastructure, education, etc.
✓ Private agribusinesses manage market transactions

Public management of agricultural inputs and output markets
✓ Input subsidy programs
✓ Marketing board price supports

High social payoffs
But payoffs come 5-20 years later
Critical for sustained poverty reduction

Immediate political payoffs;
Visible support to constituencies
Contribution to sustained growth / poverty reduction is unclear

Which way to go?
The resurgence of self-sufficiency policies triggered by the 2007/08 food crises that reinforced the general perception that staple food prices are far too strategically and politically important to leave to the market forces and trade.

The availability, access and affordability of food (in particular staple cereals—maize, rice and wheat) is at the center of most of the sub-Saharan African countries’ food security policies and political economy.
To uphold Maputo declaration of allocating at least 10% of public expenditure to agriculture

To sustain an annual agricultural GDP growth of at least 6%

To end hunger and cut poverty in half by 2025

To accelerate agricultural growth by doubling current agricultural productivity levels by 2025

To halve post-harvest losses by the year 2025

To triple intra-African agricultural trade by 2025

To eliminate child under-nutrition by bringing down stunting to 10% and underweight to 5% by 2025
MOST VALUE CHAINS ARE STILL CRAWLING!!!! BUT HAVE LOTS OF POTENTIAL

Hinderances to change and growth:
- Inconsistent agricultural policies
- Low productivity
- Price Volatility
- Trade barriers
- etc.
OPPOSING FORCES

Food self-sufficiency, is it possible?

Skeptics

Supporters
SELF-SUFFICIENCY RATIO
(CEREALS & TUBERS)

FAOSTAT, 2017
HIGH CONCENTRATION OF EXPORTS: TOP 5 EXPORTERS

**RICE**
- 95% (paddy)
  - United States - 90.4%
  - Paraguay - 1.4%
  - France - 1.2%
  - China - 1.1%
  - Brazil - 0.9%

- 85% (milled)
  - Thailand - 36.4%
  - Vietnam - 19.9%
  - Pakistan - 10.9%
  - India - 10.4%
  - United States - 7.2%

**MAIZE**
- 84%
  - United States - 53.0%
  - Argentina - 15.1%
  - Brazil - 6.3%
  - France - 6.0%
  - India - 3.5%

**WHEAT**
- 63%
  - United States - 22.9%
  - France - 12.4%
  - Canada - 12.0%
  - Russian Federation - 8.9%
  - Argentina - 6.7%

TOO DISTANT!!!!
FOOD PRICES INCREASE WITHOUT CLIMATE CHANGE; EVEN HIGHER WITH CLIMATE CHANGE

Cereals

Roots/tubers

Source: IFPRI IMPACT 3.2 Projections.
LAND AVAILABILITY IN AFRICA

Nine countries contain at least 90% of Africa’s unutilized arable land.
SUPPORTERS OF FSS

- Most countries have FSS goals
- Huge input and output subsidies for staple grains
- Trade restrictions (impose import and export bans)

Trade might fail (2007/08 crises) – may be held hostage by large exporting countries

Food security: relying on imports is politically risky

Africa is too far from exporting countries

Need trade restrictions to create temporary excess demand that then stimulates supply response by local farmers
SSA TOTAL FOOD IMPORTS FROM 7 TO 40 BILLION USD (2001-2015)
(INTRA SSA TRADE FROM 1 TO 10 BILLION USD)
NET CEREAL EXPORTS, SUB-SAHARAN AFRICA

Sub-Saharan Africa

Source: FAOSTAT, 2016
HEAVY TOLL ON RAINFED MAIZE WITH CLIMATE CHANGE

Global yields projected **30% lower** in 2050 compared to no climate change

(HadGEM2, RCP 8.5)
SKEPTICS OF FOOD SELF-SUFFICIENCY

Myopic view of food self-sufficiency (focusing more on staple cereals). Grain is 50% of calories, with less attention to overall FSS on other commodities such as meat, fruits and vegetables.

Consumption patterns changing hence, so FSS in most SSA is limiting, inefficient, not maximizing income.

Food security more broad (a visit to the supermarkets suggest otherwise).

Trade restrictions hurt mostly the poor - risk of insufficient supply response of local farmers.

May not be achievable without big gains in productivity and radical agriculture policy changes that take into account changing consumption patterns.
Nigeria: rice imports are but 6% of grain consumption, but fiscally sensitive

Senegal: rice imports are a third of grains, and 80% of rice consumption: politically & fiscally sensitive

Zambia: Past 5 years country has been self-sufficient in maize and requires less than 10% of wheat: politically & fiscally sensitive

Zimbabwe: Implementing ‘command agriculture’ to become self-sufficient in maize, soya beans and wheat: politically & fiscally sensitive
Rapid population growth

Rising land scarcity

Labor force exit from farming

Rapid growth in food demand and diet change, and diversification (protein diet)

Rise of ‘investor farmers’ / changing farm sizes

Large-scale capital intensive investments

Agrifood system transformation (supermarkets, processing etc.)

MEGA TRENDS

- Share of purchased food in rural diets increasing averages 60%
- Share of cereals in urban & rural diets averages 35% (fruit, veg, meat, fish, dairy, oil, 65%)

Creates opportunities as well as challenges for smallholder farmers

Tom Reardon, 2018 (Breakthrough dialogue, California)
SMALLHOLDER FARMERS IN SSA

- Millions of small family households cultivate less than 2ha
  - Not a homogenous group but cultivate small parcels, majority remain poor, malnourished and less educated
  - +90% grow maize

Source: Zambia, RALS 2015
MORE THAN 30% OF RURAL FARM HHs ARE NET BUYERS OF MAIZE (ZAMBIA)

- Nearly 39% of rural farm HHs are net buyers of maize
  - More than 50% of rural farmers do not sell maize

Source: RALS 2015
2-5% OF SMALLHOLDER FARM HOUSEHOLDS ACCOUNT FOR 50% OF MARKETED MAIZE (ZAMBIA)
A REVOLUTIONARY CHANGE IN FARMLAND OWNERSHIP

African governments’ past policy attention to “land grabs” by international investors. Diverting attention away from two other processes that may be affecting Africa’s economic development trajectory.

- The pace of land acquisitions by medium-scale African investors, who now control more land than large-scale foreign investors.
- The overall impact of land transactions on the viability of smallholder-led agricultural development strategies.
FARM SIZES ARE CHANGING WITH THE RISE OF EMERGENT / MEDIUM-SCALE FARMERS

Seeing more medium scale farms of between five and 100 hectares.

- Mostly educated, average age 40, acquire farms using non-farm jobs (roughly 60%)
- Not at the centre of most government agricultural policies (at times classified as small-scale)
- Account for 20 percent of farms in Kenya, about a third of farms in Ghana and Tanzania, and half the farms in Zambia.
- Home Grown Indigenous Farmers with farm sizes 5-100 (at least)
## CHANGES IN FARM STRUCTURE IN ZAMBIA (2001-2012)

<table>
<thead>
<tr>
<th>Farm size category</th>
<th>Number of farms</th>
<th>% growth in number of farms</th>
<th>% of total cultivated area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2001</td>
<td>2012</td>
<td>2001</td>
</tr>
<tr>
<td>0 – 2 ha</td>
<td>638,118</td>
<td>748,771</td>
<td>17.3</td>
</tr>
<tr>
<td>2 – 5 ha</td>
<td>159,039</td>
<td>418,544</td>
<td>163.2</td>
</tr>
<tr>
<td>5 – 10 ha</td>
<td>20,832</td>
<td>165,129</td>
<td>692.6</td>
</tr>
<tr>
<td>10 – 20 ha</td>
<td>2,352</td>
<td>53,454</td>
<td>2272.7</td>
</tr>
<tr>
<td>20 – 100 ha</td>
<td>--</td>
<td>13,839</td>
<td>na</td>
</tr>
<tr>
<td>Total</td>
<td>820,341</td>
<td>1,399,737</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Zambia MAL Crop Forecast Surveys, 2001 and 2012
## Changes in Farm Structure in Tanzania (2008-2012)

<table>
<thead>
<tr>
<th>Farm size category</th>
<th>Number of farms</th>
<th>% growth in number of farms</th>
<th>% of total cultivated area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2008</td>
<td>2012</td>
<td>2008</td>
</tr>
<tr>
<td>0 – 5 ha</td>
<td>5,454,961</td>
<td>6,151,035</td>
<td>12.8</td>
</tr>
<tr>
<td>5 – 10 ha</td>
<td>300,511</td>
<td>406,947</td>
<td>35.4</td>
</tr>
<tr>
<td>10 – 20 ha</td>
<td>77,668</td>
<td>109,960</td>
<td>41.6</td>
</tr>
<tr>
<td>20 – 100 ha</td>
<td>45,700</td>
<td>64,588</td>
<td>41.3</td>
</tr>
<tr>
<td>Total</td>
<td>5,878,840)</td>
<td>6,732,530</td>
<td>14.5</td>
</tr>
</tbody>
</table>

LSMS/National Panel Surveys, 2008 and 2012
## Changes in Farm Structure in Ghana (1992-2013)

<table>
<thead>
<tr>
<th>Ghana</th>
<th>Number of Farms</th>
<th>% Growth in Number of Farms</th>
<th>% of Total Cultivated Area</th>
<th>1992</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1992</td>
<td>2013</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-2 ha</td>
<td>1,458,540</td>
<td>1,582,034</td>
<td>8.5</td>
<td>25.1</td>
<td>14.2</td>
</tr>
<tr>
<td>2-5 ha</td>
<td>578,890</td>
<td>998,651</td>
<td>72.5</td>
<td>35.6</td>
<td>31.3</td>
</tr>
<tr>
<td>5-10 ha</td>
<td>116,800</td>
<td>320,411</td>
<td>174.3</td>
<td>17.2</td>
<td>22.8</td>
</tr>
<tr>
<td>10-20 ha</td>
<td>38,690</td>
<td>117,722</td>
<td>204.3</td>
<td>11.0</td>
<td>16.1</td>
</tr>
<tr>
<td>20-100 ha</td>
<td>18,980</td>
<td>37,421</td>
<td>97.2</td>
<td>11.1</td>
<td>12.2</td>
</tr>
<tr>
<td>&gt;100 ha</td>
<td>--</td>
<td>1,740</td>
<td>-</td>
<td>--</td>
<td>3.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,211,900</strong></td>
<td><strong>3,057,978</strong></td>
<td><strong>38.3</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Ghana GLSS Surveys, 1992, 2013
RISE OF THE MEDIUM-SCALE FARMERS

Three sub-categories of medium scale farmers

Estimates from three countries (Zambia, Kenya and Southern Ghana)

<table>
<thead>
<tr>
<th>Category</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Elite urban based&quot;</td>
<td>60</td>
</tr>
<tr>
<td>&quot;Elite rural based&quot;</td>
<td>35</td>
</tr>
<tr>
<td>Successful smallholder farmers via farm expansion</td>
<td>5</td>
</tr>
</tbody>
</table>
ELITE FARMERS

They farming for commercial purposes

They are using and adopting new and improved technologies which make them more productive and efficient

More sophisticated than an average farmer

Produce for the market

• On average (over countries) only “the top” 20% of farms supply the food for the 75-80% of demand not met by own-farming
• The 20-30% are the “elite farmers” on which an average country must depend for SS (in grains & non-grains!)
E.g. Zambia, farmers climbed value ladder from maize to horticulture

- farmers earn much more from non-food grains
- FSS (staple grains) may be hindered because more successful farmers target more lucrative, high-value markets

For households cultivating 2 hectares or less, horticulture increases income by 164% compared to 26% for the same type of farmers growing maize (RALS 2012)
Trace the trajectories of successful commercial smallholders operating under differing sets of market institutions.

| Maize receives intensive government input and marketing support. | Cotton relies primarily on private contract farming schemes | Horticulture enjoys no large-scale institutional support from either the public or private sectors. |

### TOP TIER COMMERCIAL PRODUCERS

<table>
<thead>
<tr>
<th></th>
<th>Maize</th>
<th>Cotton</th>
<th>Horticulture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top tier commercial producers</td>
<td>3%</td>
<td>20%</td>
<td>1%</td>
</tr>
<tr>
<td>Bottom half of sales</td>
<td>36%</td>
<td>80%</td>
<td>46%</td>
</tr>
<tr>
<td>Growers with no sales</td>
<td>62%</td>
<td>0%</td>
<td>53%</td>
</tr>
</tbody>
</table>

Smallholder farmers
## Productivity Differences Across Seller Groups in Zambia

<table>
<thead>
<tr>
<th>Seller category</th>
<th>Area Planted (ha/crop)</th>
<th>Yield (kg/ha)</th>
<th>Value (US$/ha)</th>
<th>Fertilizer (kg/ha)</th>
<th>Hybrid seed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maize</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Top half of sales</td>
<td>4.8</td>
<td>3,393</td>
<td>571</td>
<td>247</td>
<td>97%</td>
</tr>
<tr>
<td>Bottom half of sales</td>
<td>1.1</td>
<td>2,074</td>
<td>413</td>
<td>175</td>
<td>56%</td>
</tr>
<tr>
<td>Growers with no sales</td>
<td>0.8</td>
<td>1.161</td>
<td>197</td>
<td>64</td>
<td>31%</td>
</tr>
<tr>
<td><strong>Cotton</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Top half of sales</td>
<td>1.5</td>
<td>1,581</td>
<td>481</td>
<td>2</td>
<td>n.a</td>
</tr>
<tr>
<td>Bottom half of sales</td>
<td>0.8</td>
<td>822</td>
<td>179</td>
<td>0</td>
<td>n.a</td>
</tr>
<tr>
<td>Growers with no sales</td>
<td>0.9</td>
<td>975</td>
<td>240</td>
<td>0</td>
<td>n.a</td>
</tr>
<tr>
<td><strong>Horticulture</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Top half of sales</td>
<td>0.6</td>
<td>n.a</td>
<td>6,979</td>
<td>0</td>
<td>n.a</td>
</tr>
<tr>
<td>Bottom half of sales</td>
<td>0.2</td>
<td>n.a</td>
<td>683</td>
<td>0</td>
<td>n.a</td>
</tr>
<tr>
<td>Growers with no sales</td>
<td>0.0</td>
<td>n.a</td>
<td>79</td>
<td>0</td>
<td>n.a</td>
</tr>
</tbody>
</table>
WHAT COUNTRIES IN SSA NEED TO DO TO MOVE TOWARDS SELF-SUFFICIENCY?
SHORT TO MEDIUM-TERM POLICIES

Embrace Market-Based Hedging Strategies for coping with excessive volatility

Invest in targeted cash transfers (conditional or unconditional) for the most vulnerable groups

Invest in effective measures to increase productivity, sustainability and resilience of agriculture

Create conditions for the farmers and supply chain actors to want to and be able to meet the complex local demands

• farmers earn much more from non-food grains
• FSS (staple grains) may be hindered because more successful farmers target more lucrative, high-value markets
Medium and long term policies

Pro-trade policies:

• Improve availability of food products (quantity) at low prices and quality.
• Use redistributive policies and safety nets to deal with winners and losers of trade openness.

Implement policies to increase agricultural productivity and resilience

• Input subsidies – Transitory, smart and well targeted input subsidies
• Increase competition in the input industry
• Investment in R&D and Extension
• Investment in infrastructure – irrigation and roads
• Implement policies to reduce post-harvest losses, including improved handling of harvests and storage practices, information systems and rural roads
Two sets of institutions are crucial for stimulating agricultural growth

- those that affect farm productivity
- those that govern market development.

One component without the other will not suffice

Productivity gains without markets lead to temporary production surges and price collapses.

Markets without increased farm productivity remain moribund, with farm households unable to generate surpluses for sale at competitive prices.
We should not expect food self sufficiency in sub-Saharan Africa ……without also making progress on:

- Measures to increase productivity, sustainability and resilience of agriculture
- Increasing public funding on agriculture key drivers including agricultural research and development, rural infrastructure, irrigation and extension
- Improving midstream policies of supply chain infrastructure development to develop the “Hidden Middle”
- Policy stability – to attract private sector investment. Government funds alone are not enough to meet the rising demand
- Openness to trade in food and investments led by the private sector (especially food staples)
THANK YOU
ABOUT IAPRI

Indaba Agricultural Policy Research Institute

Incorporated on 5 October 2011 under the Companies Act of Laws of Zambia as a private company limited by guarantee with a local Board of Directors drawn from Public and Private Sector.

• Indigenous Agricultural Policy Think-tank
• Serves both Public and Private Sector

A Zambia free of hunger, malnutrition and poverty through sustainable agricultural transformation

To provide evidence-based policy solutions through high quality research and outreach services for the transformation of Zambia’s agricultural sector to achieve sustainable broad-based pro-poor growth

Our Vision

Our Mission

Our Values

Integrity: in how the Institute conducts itself
Dedication: to achieving the Vision and Mission
Excellence: In the quality of work
Accountability in the actions and results delivered
Sensitivity: to the needs of the poor in the agricultural sector

Indaba Agricultural Policy Research Institute

IAPRI
CORE OPERATIONAL ACTIVITIES

To generate and integrate research findings into national, regional, and international policy strategies to promote sustainable agricultural growth as a means to cut hunger and poverty in Zambia;

To conduct, encourage, and support evidence-based policy dialogue in Zambia or elsewhere into all aspects of agriculture;

To support the development and strengthening of capacity for policy research, analysis and outreach of public and private institutions in Zambia.
IAPRI THEMATIC AREAS

1. Agricultural Markets and Trade
2. Agricultural Diversification
3. Agriculture, Food Security and Nutrition
4. Climate Change and Natural Resources Management
5. Gender and Youth in Agriculture

2.1 Public Policy and Spending
2.2 Technology and Smallholder Productivity
Great appreciation to the Embassy of Sweden and USAID/Zambia mission for long-term financial support to IAPRI