Facts about Zambia Agriculture Sector

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&
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Presentation at the Provincial Outreach Workshop, Luapula, December 5, 2014
Why this Presentation?

- Highlight key facts about Zambia’s Agriculture
  - Key policy levers to achieve broad based pro-poor agricultural growth in the country
- Dialogue on how Luapula fits into the current policy framework and structure of agriculture in the country
Presentation outline

- Zambia Agricultural Development Goals
- Zambia achievements to date
- Unexploited opportunities
- Under appreciated facts about Zambia’s agriculture
- Conclusion
Zambia Ag. Development Goal

Reduce poverty through broad-based income growth for those in the agricultural sector.
To uphold Maputo declaration of allocating at least 10% of public expenditure to agriculture

To sustain 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 agricultural intra-African trade by 2025

To eliminate child under-nutrition by bringing down stunting to 10% and underweight to 5% by 2025

Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods

Malabo Declaration, 26-27 June 2014
Zambia’s Economic Achievements

- Zambia
  - Classified as low-middle income by World Bank
  - GDP growing at 6% per annum
  - Agricultural growth rate at 7% - above 6% CAADP Goal
  - Three consecutive maize bumper harvest years

BUT Persistently high rural poverty: ≈80%
Behind this backdrop

- Zambia is characterized by:
  - Rapid population growth – 13 million
  - High poverty rates ~ 80% of rural people poor
  - High food and income inequality in urban areas
  - High malnutrition rates of children under 5 years
  - Rapid urbanization and increasing demand for food
  - Stagnant agricultural production
Poverty in Zambia

- Rural poverty rates stubbornly high
- Urban poverty declining
  - rising income
  - rising demand for a variety of ag processed commodities

Source: GRZ’s Central Statistical Office and RALS 2012
National versus Luapula Province Poverty Rates

Source: GRZ’s Central Statistical Office
Zambia is in a unique position

- Abundance of fertile land
- Water
- Generally, favorable climate for agricultural production
- Growing population, rapid urbanization and rising incomes creating more opportunities for smallholder farmers
- Can easily become a ‘Breadbasket’ for the region

Are Zambia’s agricultural policies amenable to these opportunities?
## Potential market: Urban Food Consumption Patterns

### Urban Food Budget Shares For Key Products, 2007

<table>
<thead>
<tr>
<th>Food Item</th>
<th>Lusaka</th>
<th>Kitwe</th>
<th>Mansa</th>
<th>Kasama</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cereals &amp; Staples</td>
<td>24.1</td>
<td>27.4</td>
<td>28.0</td>
<td>27.2</td>
</tr>
<tr>
<td>Dairy items</td>
<td>5.2</td>
<td>3.6</td>
<td>1.7</td>
<td>2.0</td>
</tr>
<tr>
<td>Meat &amp; eggs</td>
<td>16.8</td>
<td>15.6</td>
<td>12.7</td>
<td>14.5</td>
</tr>
<tr>
<td>Fish</td>
<td>7.6</td>
<td>8.4</td>
<td>12.4</td>
<td>12.5</td>
</tr>
<tr>
<td>Vegetables</td>
<td>13.7</td>
<td>15.0</td>
<td>11.4</td>
<td>14.2</td>
</tr>
<tr>
<td>Fruits</td>
<td>3.6</td>
<td>4.0</td>
<td>3.7</td>
<td>4.0</td>
</tr>
<tr>
<td>Other Foods</td>
<td>16.4</td>
<td>17.1</td>
<td>16.9</td>
<td>18.4</td>
</tr>
<tr>
<td>Tobacco &amp; alcohol</td>
<td>5.3</td>
<td>4.6</td>
<td>6.3</td>
<td>4.0</td>
</tr>
<tr>
<td>Food away from home</td>
<td>7.3</td>
<td>4.3</td>
<td>6.9</td>
<td>3.2</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

- Combined importance of meat, eggs, fish & dairy has surpassed the role of cereals/staples.
  - For poorest, cereals still dominate
- Vegetables also important group, especially for poorest
- Poultry & eggs have become very important & dominate the meats group outside Lusaka
## Potential market: Urban Food Consumption Patterns

### Share of different staples within total expenditure on staples by urban centre

<table>
<thead>
<tr>
<th>Staple</th>
<th>Lusaka</th>
<th>Kitwe</th>
<th>Mansa</th>
<th>Kasama</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>39.8</td>
<td>45.3</td>
<td>43.6</td>
<td>45.4</td>
</tr>
<tr>
<td>Wheat</td>
<td>40.7</td>
<td>36.1</td>
<td>17.9</td>
<td>17.6</td>
</tr>
<tr>
<td>Rice</td>
<td>8.7</td>
<td>8.8</td>
<td>8.2</td>
<td>12.1</td>
</tr>
<tr>
<td>Cassava</td>
<td>0.8</td>
<td>1.8</td>
<td>20.4</td>
<td>13.6</td>
</tr>
<tr>
<td>Other staples</td>
<td>10.0</td>
<td>8.0</td>
<td>10.0</td>
<td>11.4</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

- Maize still dominates for lower income consumers, but wheat has become very important for all urban consumers.
- Cassava important in Mansa & Kasama among low expenditure consumers.
Data on Smallholder Farmers in Zambia

Nation Wide Random Surveys
CFS/PHS/SS 99/00 = 364 SEAs)
CFS 2006/07 onward = 660 SEAs)
Food crops production trends, Zambia

Maize and Cassava production

Source: CFS, various years
Food crops production trends, Zambia

Groundnuts, Sweet potato and Beans production

Source: CFS, various years
Food crops production trends, Luapula

Groundnuts, Sweet potato and Beans production

Source: CFS, various years
Negatively affecting Crop Diversification

Source: CFS, various years
Area under groundnuts and Cassava well above maize in Luapula

Maize and Cassava production

Source: CFS, various years
Persistently low maize yields

Can Zambia achieve this target under the current agricultural policies?

Sources: MAL/CSO Crop Forecast Surveys, 2006/07 - 2013/14
Average yields of key commodities compared to global average

Source: CFS datasets, various years with Global figures obtained from COMESA
Under Appreciated Facts About Zambia Agriculture
Many smallholder households are land constrained

- 25% have less than 0.5 ha of land
- 58% indicate there is no unallocated land in village
  - Luapula XX%
Farm Size For Small & Medium-Scale Farmers, 1999/2000 and 2010/2011 Ag. seasons

Source: CSO/MACO/FSRP 2001 National-Level Supplemental Rural Livelihood Survey and 2012 National-Level Rural Agricultural Livelihood Survey
Percent of smallholder that say “There is NO land available”

Luapula 51.5%
Percentage of smallholders that say “There is NO land available’ in Luapula province

<table>
<thead>
<tr>
<th>District</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chienge</td>
<td>31.7%</td>
</tr>
<tr>
<td>Kawambwa</td>
<td>44.2%</td>
</tr>
<tr>
<td>Mansa</td>
<td>58.1%</td>
</tr>
<tr>
<td>Milenge</td>
<td>70.0%</td>
</tr>
<tr>
<td>Mwense</td>
<td>39.2%</td>
</tr>
<tr>
<td>Nchelenge</td>
<td>61.7%</td>
</tr>
<tr>
<td>Samfya</td>
<td>62.5%</td>
</tr>
<tr>
<td><strong>Luapula province</strong></td>
<td><strong>51.5%</strong></td>
</tr>
</tbody>
</table>
Why are Zambia Farmers land constrained?


Considerable land is covered by water, national parks, GMA

Settlements concentrated on areas with infrastructure

Hence, the land constraints in a land-abundant country is not a paradox

Under Appreciated Fact # 2

Nearly 26% of rural farm HHs are net buyers of maize

FRA policies divorced from the reality on the ground
Under Appreciated Fact # 2

- Nearly 30% of rural farm HHs are net buyers of maize

Net Buyers Negatively affected by high maize prices

Source: RALS 2012
Under Appreciated Fact # 3

- Highly concentrated patterns of maize surplus generation
  - 2-5% of smallholder farm households account for 50% of marketed maize
  - Maize surplus generation is highly associated with area cropped and household assets
## Highly concentrated patterns of maize surplus production, Zambia

<table>
<thead>
<tr>
<th></th>
<th>2001/12</th>
<th>2012/13</th>
<th>2013/14</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Households reporting that they will sell maize (N)</strong></td>
<td>647,937</td>
<td>606,736</td>
<td>619,880</td>
</tr>
<tr>
<td><strong>Proportion of farms accounting for 50% of total expected maize sales (N and %)</strong></td>
<td>72,052 (6%)</td>
<td>64,134 (5.2%)</td>
<td>70,095 (4.8%)</td>
</tr>
<tr>
<td><strong>Households not selling maize</strong></td>
<td>46.5%</td>
<td>50.7%</td>
<td>53.1%</td>
</tr>
</tbody>
</table>

Source: MAL/CSO Crop Forecast Survey
Better off HHs account for majority of maize sold to FRA, 2011

These account for 78% of maize sold to FRA

Source: RALS 2012
Government expenditure on FISP is benefiting mostly the larger and relatively already well off HHs with very little impact on yields and poverty reduction.
## Land size, poverty and FISP in Zambia

<table>
<thead>
<tr>
<th>Total area cultivated</th>
<th>Number of farms</th>
<th>% of farms</th>
<th>Poverty Rate (%)</th>
<th>% of farmers receiving FISP fertilizer</th>
<th>kg of FISP fertilizer received per farm household</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-0.99 ha</td>
<td>596,334</td>
<td>39.6</td>
<td>81</td>
<td>14</td>
<td>24.1</td>
</tr>
<tr>
<td>1-1.99 ha</td>
<td>499,026</td>
<td>33.1</td>
<td>81</td>
<td>31</td>
<td>69.3</td>
</tr>
<tr>
<td>2-4.99 ha</td>
<td>354,116</td>
<td>23.5</td>
<td>66</td>
<td>45</td>
<td>139.7</td>
</tr>
<tr>
<td>5-9.99 ha</td>
<td>49,410</td>
<td>3.3</td>
<td>38</td>
<td>59</td>
<td>309.7</td>
</tr>
<tr>
<td>10-20 ha</td>
<td>6,999</td>
<td>0.5</td>
<td>15</td>
<td>53</td>
<td>345.6</td>
</tr>
<tr>
<td>Total</td>
<td>1,505,885</td>
<td>100</td>
<td>76</td>
<td>29</td>
<td>77.1</td>
</tr>
</tbody>
</table>

Source: RALS 2012
## Land size, poverty and FISP in Luapula

<table>
<thead>
<tr>
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<th>% of farms</th>
<th>Poverty Rate (%)</th>
<th>% of farmers receiving FISP fertilizer</th>
<th>kg of FISP fertilizer received per farm household</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-0.99 ha</td>
<td>45,430</td>
<td>31.0</td>
<td>90.0</td>
<td>10.0</td>
<td>136.8</td>
</tr>
<tr>
<td>1-1.99 ha</td>
<td>48,151</td>
<td>32.9</td>
<td>88.1</td>
<td>19.7</td>
<td>218.5</td>
</tr>
<tr>
<td>2-4.99 ha</td>
<td>41,939</td>
<td>28.7</td>
<td>84.8</td>
<td>30.5</td>
<td>244.5</td>
</tr>
<tr>
<td>5-9.99 ha</td>
<td>7,527</td>
<td>5.1</td>
<td>71.4</td>
<td>44.7</td>
<td>329.4</td>
</tr>
<tr>
<td>10-20 ha</td>
<td>3,299</td>
<td>2.3</td>
<td>60.8</td>
<td>58.1</td>
<td>690.0</td>
</tr>
<tr>
<td>Total</td>
<td>146,346</td>
<td>100.0</td>
<td>85.9</td>
<td>22.0</td>
<td>248.5</td>
</tr>
</tbody>
</table>

Source: RALS 2012
Maize productivity effects of FISP

- Mason and Tembo 2014
  - All factors constant
    - 1 kg of FISP fertilizer: 2.0-3.8 kg maize
    - 200 kg FISP packet: 401.2 to 756.6 kg
  - Uneconomical productivity response to fertilizer at commercial prices
    - Current average commercial fertilizer price ZWK 210 per 50 kg
    - FRA price ZWK 70 per 50 kg
    - Breakeven response rate (not including transactions costs)= 3 kg of maize per Kg of fertilizer
Zambia Agriculture Budget

Where is the money going?
Budgetary allocations to agriculture

Sector Allocation up by 30%
Where should the funds be invested?

- Quality expenditure of the funds is critical to achieve sustained agricultural growth.
- There is need for effective investments in the key drivers of agricultural growth:
  - agricultural R&D
  - extension services
  - livestock production and disease control
  - rural infrastructure i.e. feeder roads
  - Irrigation
### Ranking of Returns of Investment in Poverty Reduction: Evidence from Asia and Africa

<table>
<thead>
<tr>
<th>Investment Category</th>
<th>China</th>
<th>India</th>
<th>Thailand</th>
<th>Vietnam</th>
<th>Uganda</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural R&amp;D</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Roads</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Education (Agricultural Extension Services)</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

Past agricultural budgets have not placed enough emphasis on broad-based public investments whose rate of return is:

<table>
<thead>
<tr>
<th>Investments</th>
<th>Rate of return</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsidies</td>
<td>Negative to 12%</td>
</tr>
<tr>
<td>- research &amp; extension</td>
<td>35% to 70%</td>
</tr>
<tr>
<td>- roads</td>
<td>20% to 30%</td>
</tr>
<tr>
<td>- education</td>
<td>15% to 25%</td>
</tr>
<tr>
<td>- irrigation</td>
<td>10% to 15%</td>
</tr>
</tbody>
</table>

Source: IFPRI review of rate of return studies
Why Frequent Negative Returns for Subsidies Programs?

- Subsidized inputs crowd out the private sector deliveries & discourage investments in new private input dealer networks
- Misallocation and inefficiencies – leading to unsustainable fertilizer use
- Diversion and rent seeking raises incomes of some but does little to raise crop productivity
- Late delivery of inputs does not improve productivity
2015 Zambia Agriculture Budget Allocation

- FRA and FISP taking too much
- Staff receive salaries but delayed release of operational funds

<table>
<thead>
<tr>
<th>Program</th>
<th>% of others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel Emoluments</td>
<td>62</td>
</tr>
<tr>
<td>Capital Expenditure</td>
<td>21</td>
</tr>
<tr>
<td>Grants &amp; other payments</td>
<td>13</td>
</tr>
<tr>
<td>All others</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Program</th>
<th>% of PRPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>FISP</td>
<td>56</td>
</tr>
<tr>
<td>FRA</td>
<td>42</td>
</tr>
<tr>
<td>All others</td>
<td>2</td>
</tr>
<tr>
<td>Total PRP</td>
<td>100</td>
</tr>
</tbody>
</table>
Share of FISP and FRA to total Poverty Reduction Programs

Source: MAL and MoFNP actual expenditure
Areas of concern

From Past Trends

- Government expenditure through FRA/FISP benefiting larger and relatively already well off HHs
- GRZ spending through FISP/FRA has little impact on yields and poverty reduction
- FRA/FISP come as an opportunity cost to key agric growth drivers (irrigation, rural electrification, R&D, extension, etc.)
Zambian agriculture remains vulnerable to weather shocks

Need more investment into appropriate smallholder irrigation

K 206 million in 2015 Budget

Source: MAL CFS various years
Conclusion

- Zambia has:
  - potential to have broad-based economic growth;
  - potential to address the stubbornly high rural poverty rates and high malnutrition;
  - potential to be the ‘breadbasket for the region’;
  - **But**: Policies should evolve and take advantage of the many agricultural opportunities arising from the rising food demand, rising urban incomes and the changing consumption patterns.