Seminar on Increasing Productivity in the Agricultural Sector to Contribute to the On-Going Macroeconomic Modeling Process
MoFNP - Tecla Lodge, Wed, 6th August, 2008

Information and Analysis to Improve Agricultural Productivity & Reduce Rural Poverty in Zambia

*Presentation by the Food Security Research Project (FSRP)*
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Research and Outreach Supported By:

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**FSRP – Various Topics Being Covered**

**Special Research/Outreach Targets for 2008**

- With CSO/MACO. Improve CFS/PHS data utilization
- 3rd round PHS/Supplemental Rural Livelihood Survey (May-June 2008 field work) & (Aug-Sept data prep)
- Utilize CFS and PHS/SS Data & Analysis to Inform Discussions of Options To Respond to the Food & Input Price Challenges in 2008, 2009 and Beyond.
- Consolidate & Utilize data (Aug 2007) & (Feb 2008) rounds of the urban food consumption survey
- Continue research & outreach on factors associated with agricultural productivity growth in Zambia
**Source: Empirical Data on Smallholders in Zambia – Nation Wide Random Surveys**

(CFS/PHS/SS 99/00 = 364 SEAs)
(CFS 2006/07 onward = 660 SEAs)

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**Map of Central Statistical Office Statistical Enumeration Areas (SEAs) Sampled in the CSO/MACO/FSRP Post Harvest and Supplemental Surveys in 2001 and 2004 (and to be completed in 2008) by Zambia’s Agro-Ecological Zones**

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**History: Growth rates (% pa) in Crop Output in Zambia, 1990/91 - 2005/06**

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<thead>
<tr>
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<tbody>
<tr>
<td>Maize</td>
<td>-0.50</td>
<td>0.66</td>
<td>1.62</td>
<td>0.49</td>
<td>4.84</td>
</tr>
<tr>
<td>Cassava</td>
<td>3.30</td>
<td>11.86</td>
<td>3.60</td>
<td>4.33</td>
<td>5.54</td>
</tr>
<tr>
<td>Groundnuts</td>
<td>-5.70</td>
<td>1.77</td>
<td>-0.53</td>
<td>2.96</td>
<td>5.35</td>
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<tr>
<td>Cotton</td>
<td>-8.17</td>
<td>-3.88</td>
<td>3.65</td>
<td>3.40</td>
<td>9.37</td>
</tr>
<tr>
<td>Total crop value</td>
<td>-3.25</td>
<td>1.91</td>
<td>1.31</td>
<td>1.09</td>
<td>6.09</td>
</tr>
</tbody>
</table>
History: Crop Productivity Growth Rates (% pa) in Zambia, 1990/91 - 2005/06

<table>
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<tbody>
<tr>
<td>Output per ha</td>
<td>-2.95</td>
<td>-0.75</td>
<td>1.42</td>
<td>-0.06</td>
</tr>
<tr>
<td>Output per HH</td>
<td>-4.76</td>
<td>0.27</td>
<td>0.77</td>
<td>-0.42</td>
</tr>
<tr>
<td>Area planted per HH</td>
<td>-1.81</td>
<td>1.02</td>
<td>-0.65</td>
<td>-0.36</td>
</tr>
</tbody>
</table>

Summary

- Real value sluggish and increasing at lower rate than rural population growth (1.1% p.a).
  - Investments in technologies, institutions, information and people needed
- Output trends have visible turbulence – natural & institutional
  - Stable trading arrangements and irrigation investment programs needed
- Productivity levels are falling
  - output growth explained by increase in area and labor with no technical progress
Wide Agreement: Key Investments to Drive Productivity Growth in Agriculture

• Technology (research on crops/livestock, management practices, extension, processing improvements)
• Markets (property rights, standards, contract law, adjudication, market facilities, market price and supply information, marketing extension)
• Infrastructure (roads, irrigation, rural electrical power, ports, communications)

How to Increase Agriculture Productivity in Zambia?

• Increasing the amount of resources deployed in agriculture
  – progress in achieving MAPUTO declaration
• Seek efficient use the existing resource envelope
  – Impact of spending depends on composition
  – Reduce spending on subsidies for “private goods”
  – Prioritize investment spending in drivers of productivity across sub-sectors, functions, economic uses, regions and administrative boundaries
Real Public Agricultural Expenditure (PAE) levels, 2000 – 2008

Year

ZMK billion

GRZ spending

Donor Spending

Total Public Spending

Public Resource Allocation for the Agricultural Sector, 2007

Infrastructure in Farm Blocks 9%

Capital Expenditure 1%

Other Poverty Reduction Programmes 5%

Strategic Food Reserves 28%

Personnel Emoluments 15%

Recurrent Departmental charges 20%

Grants and other payments 1%

Fertilizer Support Programme 21%
Prioritization of Public Agricultural Spending in Zambia, 2000 - 2008

<table>
<thead>
<tr>
<th>Average spending</th>
<th>(ZMK' billion)</th>
<th>Growth (%/yr)</th>
<th>FNDP Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>(%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-term investments</td>
<td>3.4</td>
<td>16.0</td>
<td>8.3</td>
</tr>
<tr>
<td>Subsidies</td>
<td>52.8</td>
<td>245.2</td>
<td>6.5</td>
</tr>
<tr>
<td>Research &amp; Development</td>
<td>18.1</td>
<td>83.9</td>
<td>8.6</td>
</tr>
<tr>
<td>Administration</td>
<td>5.4</td>
<td>24.9</td>
<td>-2.5</td>
</tr>
<tr>
<td>Personnel Emoluments</td>
<td>20.3</td>
<td>94.3</td>
<td>2.9</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>464.3</td>
<td>5.6</td>
</tr>
</tbody>
</table>

Other Countries - Summary: Returns to Alternate Forms of Ag. Spending

![B/C ratio chart](chart.png)
Summary

- Investment Level & Composition Critical:
  - Allocation increasingly focuses on low return spending on private goods (financing maize and fertilizer)
  - At the expense of high return investments in productive public goods (research, management insights, agricultural extension, roads, communications, timely information, irrigation)

Conclusions (1)

- Generation and transmission of managerial and technical information skills to farmers
  - Extension needed to increase farmer’s ability to manage input use
  - Extension to emphasize input efficiency instead of use levels e.g., precise timing of input application
  - Adequate research and extension linkages
- Public/private investment in breeding research for replacement of old varieties
  - Need to capture genetic gains in productivity in order to manage drought stress and disease susceptibility
- Public/private investment in resource augmenting practices
  - Conservation farming may reduce risks and enhance intertemporal productivity
  - Subsidies for learning may encourage intensification but overuse may degrade the environment
- Public generation and transmission of market information
  - Crucial in establishing location and season specific input application recommendations
Conclusions (2)

• Public involvement in marketing should be backed by disclosures of:
  – Funds available and volumes to be handled
  – Location of operation
  – A plan of phasing out

• Create a conducive environment for further private sector investment
  – Stabilize macroeconomic environment, interest and exchange rates
  – Stabilize expectations on competing public spending & market opportunities – domestic and regional
  – Monitor pricing and encourage competitive practices
  – Develop communication systems and reduce energy tariffs