Diversifying agri-food value chains in Southern Malawi
What are policy implications?
Andre van Rooyen and colleagues from ILRI, ICRISAT and SSLLP

CLIM² Project

CLIM² Policy Dialogue Meeting, 23-24 July, 2019, Serendip Suites, Blantyre, Malawi
FIDP II objectives and results

Overall objective:
Improve the livelihoods of rural households through increased and diversified production and better market access

Results:
1. Smallholder agriculture production increased and diversified
2. Viable agri-business processing opportunities identified, developed and implemented
3. Farmer group management capacity enhanced and developed
4. Group social dynamics developed and enhanced
**Nutrition as outcome of agri-food value chains and markets**

<table>
<thead>
<tr>
<th>Malawi HDI on place 128 out of 138 countries</th>
<th>Agriculture provides 35% of GDP and 80% employment</th>
<th>Agricultural land &lt; 0.5ha per farm household</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall 37% of under-5 years old children are stunted (&gt;30% = very high). Among the poor half the children are stunted.</td>
<td>63% of children under-5 and 33% of women in reproductive age have anaemia.</td>
<td>Only 8% of children aged 6-23 months received minimum acceptable diet. A quarter of the total population does not reach daily recommended food intake.</td>
</tr>
</tbody>
</table>
CLIM² approach and methodology of implementation

Knowledge of the system
- Household surveys
- Focus group discussions
- Literature surveys
- Value chain Analysis
- Governance & Policy

Perceived Challenges
- Problem identification
- Root cause analysis
- Network analysis

Goals of the system
- Visioning
- Subsistence to Market orientation

Interventions
- Markets SME
- Incr. crop production
- Incr. livestock Production
- Imp. Integration

Outcomes
- Sustainable Intensification
  - Food & nutritional security
  - Market oriented production
  - Resilience
  - Local level organization

Policy implication
Baseline situation: Crops (1/2)

Traditional focus: Maize for food security

What next?

<table>
<thead>
<tr>
<th></th>
<th>Maize</th>
<th>Sorghum</th>
<th>Groundnuts</th>
<th>Pigeon pea</th>
<th>Cowpea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers producing (%)</td>
<td>100.0</td>
<td>31.1</td>
<td>17.4</td>
<td>75.2</td>
<td>17.2</td>
</tr>
<tr>
<td>Area (acre)</td>
<td>1.1</td>
<td>0.4</td>
<td>0.4</td>
<td>0.7</td>
<td>0.5</td>
</tr>
<tr>
<td>Yield (kg per acre)</td>
<td>501</td>
<td>311</td>
<td>314</td>
<td>174</td>
<td>191</td>
</tr>
<tr>
<td>Price (MK per kg)</td>
<td>110</td>
<td>81</td>
<td>158</td>
<td>95</td>
<td>136</td>
</tr>
<tr>
<td>Revenue (MK/farm)</td>
<td>42,032</td>
<td>6,351</td>
<td>13,546</td>
<td>6,443</td>
<td>8,998</td>
</tr>
<tr>
<td>Costs (MK/farm)</td>
<td>15,232</td>
<td>209</td>
<td>831</td>
<td>1,015</td>
<td>1,617</td>
</tr>
<tr>
<td>Netreturns (MK/farm)</td>
<td>28,172</td>
<td>6,273</td>
<td>12,921</td>
<td>5,796</td>
<td>7,692</td>
</tr>
<tr>
<td>Netreturns (MK/acre)</td>
<td>39,682</td>
<td>25,820</td>
<td>47,115</td>
<td>14,896</td>
<td>19,005</td>
</tr>
<tr>
<td>Cost / Revenue</td>
<td>0.4</td>
<td>0.0</td>
<td>0.1</td>
<td>0.2</td>
<td>0.2</td>
</tr>
</tbody>
</table>
Baseline situation: Crops (2/2)

Average prices for crops sold at rural growth points

**Maize prices (per kg, MK, 2016-2018)**

**Groundnut prices (per kg, MK, 2016-2018)**
### Baseline situation: Livestock (1/2)

**Underinvested:** Livestock for income and nutrition

- More income from livestock
  - more money spent on livestock based foods?
  - re-investing into the farming system?
  - better nutrition?

<table>
<thead>
<tr>
<th></th>
<th>Poultry</th>
<th>Goats</th>
<th>Dairy cattle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers producing (%)</td>
<td>46.8</td>
<td>34.0</td>
<td>4.8</td>
</tr>
<tr>
<td>Flock size (n)</td>
<td>10.2</td>
<td>3.5</td>
<td>3.8</td>
</tr>
<tr>
<td>Losses (%)</td>
<td>170.3</td>
<td>41.1</td>
<td>27.8</td>
</tr>
<tr>
<td>Offtake (%)</td>
<td>79.4</td>
<td>32.8</td>
<td>13.1</td>
</tr>
<tr>
<td>Price (MK per n)</td>
<td>2,170.4</td>
<td>14,000.0</td>
<td>133,577.6</td>
</tr>
<tr>
<td>Price (MK per l)</td>
<td></td>
<td></td>
<td>157.9</td>
</tr>
<tr>
<td>Revenue (MK)</td>
<td>12,217</td>
<td>19,345</td>
<td>240,519</td>
</tr>
<tr>
<td>Costs (MK)</td>
<td>1,455</td>
<td>2,896</td>
<td>17,454</td>
</tr>
<tr>
<td>Netreturns (MK)</td>
<td>10,762</td>
<td>15,644</td>
<td>203,577</td>
</tr>
<tr>
<td>Cost / Revenue</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
</tbody>
</table>
Baseline situation: Crop and livestock net returns

Net returns, per acre crops in comparison to livestock ownership (MK)

- Goats
- Poultry
- Cowpea
- Pigeon pea
- Groundnuts
- Sorghum
- Maize

Graph showing net returns in MK per acre for various crops and livestock, with Groundnuts and Maize having the highest returns, and Poultry having the lowest.
Baseline situation: Crop and livestock net returns

Farm net returns (MK)

- Maize: 30,000
- Sorghum: 12,000
- Groundnuts: 14,000
- Pigeon pea: 6,000
- Cowpea: 9,000
- Poultry: 11,000
- Goats: 15,000
Baseline situation: Livestock (2/2)

Potential to increase gains from livestock
At district level
• Prices (seasonality, distance)
• Reducing losses

<table>
<thead>
<tr>
<th></th>
<th>Poultry</th>
<th>Goats</th>
<th>Milk</th>
</tr>
</thead>
<tbody>
<tr>
<td>n / l sold (per month peak season)</td>
<td>10,000</td>
<td>5,500</td>
<td>55,000</td>
</tr>
<tr>
<td>n / l sold (per month off season)</td>
<td>2,500</td>
<td>2,500</td>
<td>44,000</td>
</tr>
<tr>
<td>Value sold (per month peak season, MK)</td>
<td>21,900,000</td>
<td>102,200,000</td>
<td>7,034,280,000</td>
</tr>
<tr>
<td>Value sold (per month off season, MK)</td>
<td>7,300,000</td>
<td>61,320,000</td>
<td>5,627,424,000</td>
</tr>
<tr>
<td>Value lost (per month peak season, MK)</td>
<td>46,971,914</td>
<td>128,061,585</td>
<td>447,636,000</td>
</tr>
<tr>
<td>Value lost (per month lean, MK)</td>
<td>15,657,305</td>
<td>76,836,951</td>
<td>447,636,000</td>
</tr>
</tbody>
</table>

Reference unit: Project EPA catchments markets
Baseline situation: Nutrition (1/2)

People in a year live 6.2 months from self-produced foods

Consumption of livestock based foods is underrepresented

Frequency of food consumption

- Vegetables
- Legumes
- Meat
- Milk

- daily
- weekly
- monthly
- seasonally
- occasionally
- yearly
- never
Baseline situation: Nutrition (1/2)

Rural consumers spend large share of income on food

Low income consumers prioritize availability and affordability

Higher income consumers pay for diversity and quality

Monthly expenditure on different foods, by consumer types

<table>
<thead>
<tr>
<th></th>
<th>Pulses</th>
<th>Eggs</th>
<th>Meat</th>
<th>Milk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural consumer</td>
<td>4,726</td>
<td>2,760</td>
<td>5,153</td>
<td>1,696</td>
</tr>
<tr>
<td>Low income urban consumer LLW</td>
<td>2,843</td>
<td>2,419</td>
<td>6,173</td>
<td>2,010</td>
</tr>
<tr>
<td>Low income urban consumer BTY</td>
<td>4,384</td>
<td>4,706</td>
<td>11,418</td>
<td>2,497</td>
</tr>
<tr>
<td>High income urban consumer LLW</td>
<td>8,993</td>
<td>5,220</td>
<td>15,360</td>
<td>7,576</td>
</tr>
<tr>
<td>High income urban consumer BTY</td>
<td>7,714</td>
<td>5,786</td>
<td>22,857</td>
<td>10,143</td>
</tr>
</tbody>
</table>

Constraints to more frequent consumption of eggs, by consumer types

<table>
<thead>
<tr>
<th></th>
<th>Rural consumer</th>
<th>Low income urban consumer LLW</th>
<th>Low income urban consumer BTY</th>
<th>High income urban consumer LLW</th>
<th>High income urban consumer BTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affordability</td>
<td>68</td>
<td>67</td>
<td>57</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Accessibility</td>
<td>18</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Food quality</td>
<td>6</td>
<td>33</td>
<td>7</td>
<td>27</td>
<td>60</td>
</tr>
<tr>
<td>Diversity</td>
<td>3</td>
<td>0</td>
<td>14</td>
<td>40</td>
<td>20</td>
</tr>
</tbody>
</table>
Our theory of change: Income, food insecurity and nutrition (1/2)

Farm investments → Crops → Food security

Current policy priorities: directing farm investments to produce more maize
Our theory of change: Income, food insecurity and nutrition (1/2)

Farm investments
- Land
- Labor
- Capital

Crops

Livestock

Food security

Income

Nutrition

- Current policy priorities: directing farm investments to produce more maize
- Directions that we need to go if we are to enhance nutrition outcomes
- Positive systems feedback loops
Our theory of change:
CROP-LIVESTOCK AND MARKETS (2/2)

Household financial needs: Food, Education, health, construction etc.

Off farm income

Crop Production
- Cereal
- Legumes

Livestock Production
- Chickens
- Goats
- Dairy
- Beef

Food security

Markets

Value chains

On farm

$
Our theory of change: CROP-LIVESTOCK AND MARKETS (2/2)

- Household financial needs: Food, Education, health, construction etc.

- Off farm income

- Crop Production
  - Cereals
  - Legumes

- Livestock Production
  - Chickens
  - Goats
  - Dairy
  - Beef

- Markets

- Value chains

- Food security
Policy implications

- Land sizes
- Integration of crops and livestock
- Diversification / intensification
- Focus on losses as first step to increase production
- Balance between food security and nutrition vs market orientation
- Legumes
Thank you!