From Aspiration to Transformation: Myanmar Agriculture and the Rural Economy

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Outline

• MOALI’s Agricultural Development Strategy
• Summary findings on the status of ag and rural transformation
• Evidence on ag and rural transformation
  • Migration and wages
  • Mechanization
  • Agriculture and non-farm economy
• Outcomes (rural household incomes)
• Discussion
MOALI’s Aspiration: Agricultural Development Strategy

MOALI Vision Statement: “An inclusive, competitive, food and nutrition secure and sustainable agricultural system contributing to the socioeconomic wellbeing of farmers and rural people and further development of the national economy”
ADS goals require decentralized and multi-sectoral approach

1. Improved production systems
   - Diversified farming systems (food staple, high value, livestock)
   - Improved Varieties (yield, quality, resilience, cycle)
   - Integrated soil fertility/pest and disease management
   - Mechanization for cost saving and precision agriculture

2. Access to sustainable, efficient irrigation services

3. Flexibility of enterprise choice for farmers
   - Land policy, trade policy
   - Efficient agribusiness linkages (seed, chemicals, mechanization services, processors and exporters)
   - Financial services and business management skills
1) Agriculture is the largest source of rural employment and, with growing urban demand for high quality and diversified food, a key potential driver of sustained growth in the rural economy.

2) Migration out of rural areas is accelerating, driving up rural wage rates and injecting liquidity into migrant households in the form of remittances.

3) Increasing wage rates, combined with bank finance for machinery rental services, is driving extremely rapid mechanization.

4) Access to a wide range of goods and services, especially transport and communications, has improved rapidly in rural areas.
5) Agriculture is under-performing relative to potential due to:
   • poor water control (irrigation and drainage)
   • inefficient use of modern technology (improved varieties, fertilizer, pesticide)
   • lack of diversification into high value farm enterprises (aquaculture, livestock, fruit and vegetables)

6) Multi-sectoral (all hands) provision of public goods (research, extension, irrigation management, food safety) is needed to enable farmers to respond to emerging market opportunities.

7) The new Agricultural Development Strategy provides the framework for public sector reform but strong stakeholder engagement will be necessary to overcome organizational and human capacity constraints.
Evidence of agricultural and rural transformation
Survey Locations

- 2015: Mon State Survey
- 2016: Delta Region Survey (with aquaculture VC)
- 2017: Dry Zone Survey (with pulses and oilseed VCs)
- 2018: Dry Zone Variety Adoption and Seed Demand
- 2018: Southern Shan State (with maize and pigeonpea VCs)
## Survey Components

<table>
<thead>
<tr>
<th></th>
<th>Mon</th>
<th>Delta</th>
<th>Dry Zone</th>
<th>Shan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scoping</strong></td>
<td>1 week</td>
<td>3 months (fish VC)</td>
<td>1 month (mostly government) + 1 month (enterprises)</td>
<td>1 month (farmers; government; enterprises)</td>
</tr>
<tr>
<td><strong>Household Survey</strong></td>
<td>1600 HH</td>
<td>1100 HH</td>
<td>1600 HH Seed 1400 HH</td>
<td>1600 HH</td>
</tr>
<tr>
<td><strong>Community Survey</strong></td>
<td>137 villages</td>
<td>73 villages</td>
<td>300 villages</td>
<td>425 villages</td>
</tr>
<tr>
<td><strong>Non-farm surveys</strong></td>
<td>0</td>
<td>Machine &amp; spare parts suppliers (49)</td>
<td>Machinery Dealerships (60) Service providers (123) Oil Mills (182) Traders (376) Total = 742</td>
<td>50 Dealerships TBD Service providers 350 Traders</td>
</tr>
</tbody>
</table>
Accelerating migration, rising wages
Accelerating migration in Delta...

- 90% rural-urban
- 92% domestic
- 1 in 6 HH have migrants
- Average migrant age 21
- 55:45 male/female split
- 70% employed in manufacturing

Cumulative share of all migrants by year first migrated (%), 1995-2015
... and Dry Zone

- 86% domestic
- 1 in 5 HH have long term migrants
- Average migrant age 24
- 56:44 male/female split
- 26% employed in manufacturing
- 55% low-skilled informal jobs

Cumulative share of all migrants by year first migrated (%), 1995-2016
Migration is driving large rural wage increases

Change in real daily wages for male casual workers
Agriculture mechanizing rapidly
Geographical spread of machine supply businesses

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<thead>
<tr>
<th></th>
<th>2010</th>
<th>2013</th>
<th>2016</th>
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<tbody>
<tr>
<td>Ayeyarwady</td>
<td>5</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>Yangon</td>
<td>29</td>
<td>36</td>
<td>38</td>
</tr>
<tr>
<td>Bago</td>
<td>7</td>
<td>9</td>
<td>9</td>
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<tr>
<td>Kayah</td>
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<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Tanintharyi</td>
<td>2</td>
<td>2</td>
<td>3</td>
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<tr>
<td>Rakhine</td>
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<td>5</td>
<td>10</td>
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<tr>
<td>Chin</td>
<td>16</td>
<td>16</td>
<td>20</td>
</tr>
<tr>
<td>Mandalay</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Shan</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Sagaing</td>
<td>1</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Kachin</td>
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Improving access to formal financial services for machine purchases

- Hire purchase agreements with commercial banks began in 2013
- Reduced capital constraints for machine suppliers, cost of credit to buyers

Source of finance for machinery purchases, 2016 (MAAS)
Rental services enabling access to machines

Share of farmers using machinery, by machine type, year and ownership status (READZ)
Scale-neutral technology

Share of households using agricultural machinery, by size of landholding (MAAS)
Access to formal credit is improving
Sources of credit diversifying

Share of villages with credit access by source, 2011 & 2016 (MAAS)
Credit becoming much cheaper as sources diversify

Monthly interest rates from informal lenders and microcredit providers, 2012 & 2017 (READZ)
Rural non-farm economy growing rapidly
Numbers of non-farm businesses growing quickly

Mean numbers of non-farm enterprise per village by type, 2011 & 2016/17 (MAAS & READZ)
Agriculture provides >70% of primary employment, plus indirect non-farm employment in value chains.

Agricultural labor is 80% of off-farm employment in Dry Zone.

BUT: Agriculture still the main source of primary employment

Share of individual primary employment, by type (MAAS)
Gender wage gap smaller for non-farm work

Average daily incomes for men and women worker, by type of work, 2017 (READZ)
Agricultural performance lagging
Only (post-monsoon) rice yields are improving

Reported average yields for selected crops (baskets/acre) in 2016, 2011, 2007 (READZ)
Use of Improved Varieties

- Rice: Improved (34), Traditional (60), Don’t Know (0)
- Sesame: Improved (22), Traditional (72), Don’t Know (0)
- Groundnut: Improved (16), Traditional (81), Don’t Know (0)
- Sunflower: Improved (26), Traditional (72), Don’t Know (0)
- Green Gram: Improved (37), Traditional (58), Don’t Know (0)
- Black Gram: Improved (35), Traditional (56), Don’t Know (0)
- Pigeon Pea: Improved (10), Traditional (84), Don’t Know (0)
- Chickpea: Improved (40), Traditional (54), Don’t Know (0)
Age of variety and seed planted in 2018
Agricultural productivity and profitability remain low

Median = $200/acre

Median agricultural land = 5.5 acres;
Typical annual agricultural income = $1650/HH, or $330/capita
Returns in the Dry Zone are even lower, especially for upland crops.

![Diagram showing mean gross margins (USD/acre) for selected crops in the Dry Zone.]

- **Dry season paddy**: 115 USD/acre
- **Monsoon paddy**: 82 USD/acre
- **Groundnut**: 52 USD/acre
- **Sesame**: 36 USD/acre
- **Green gram**: 19 USD/acre

Mean gross margins (USD/acre) for selected crops (READZ)
Yields very strongly affected by climatic conditions

Average crop yields (kg/acre) in years with “good”, “average” and “poor” climatic conditions (READZ)
Transformation outcomes: rural household incomes
Household Income Components (HHs with ag land)

Crops 44%
Livestock 2%
Ag wages 2%
Fishing/aquaculture 5%
Non-ag wages 5%
Non-farm business 3%
Resource extraction 14%
Remittances 23%

Mon State
- Mean: $1,020 / Median: $617

Delta
- Mean: $794 / Median: $373

Dry Zone
- Mean: $387 / Median: $287

Mean & median total income per capita
Household Income Components (land terciles) Dry Zone

Tercile 1 (low)
- Mean & median total income per capita: $347 / $257

Tercile 2
- Mean & median total income per capita: $366 / $290

Tercile 3 (high)
- Mean & median total income per capita: $450 / $322

- Crops: 32%
- Livestock: 7%
- Aquaculture: 2%
- Ag wages: 5%
- Non-ag wages: 5%
- Salaried employment: 1%
- Resource extraction: 9%
- Non-farm business: 12%
- Remittances: 1%
- Crop value: 49%
- Livestock value: 13%
- Aquaculture value: 11%
- Ag wages value: 7%
- Non-ag wages value: 7%
- Salaried employment value: 66%
- Resource extraction value: 1%
- Non-farm business value: 1%
- Remittances value: 1%
Thanks to our CESD research team
ADS case study: Decentralization of Agricultural Research
Is Myanmar’s Agricultural Research and Extension System equipped to support ADS?

1. Scientists are well trained and highly dedicated – important successes achieved despite obstacles
2. Research human resources extremely limited
   • One tenth the size of neighboring countries
   • Critical capacity gaps in almost all disciplines
3. Research is organizationally fragmented
   • Limited research capacity spread across multiple units (DOA, DAR, YAU)
   • Very limited collaboration between research and extension
4. Research staff geographically over-centralized
   • 80% of DAR PhD and MS level staff at Yezin
5. Slow research career progression discourages talent
Consequences for Research Effectiveness?

1. Discipline-focused rather than production system focused
2. Laboratory and research station focused rather than farmer focused
3. Limited capacity to take advantage of global science
4. Limited capacity to translate research findings into improved farmer production and income increases
5. Limited talent acquisition and retention

*Potential impact of research on farmer welfare and economic growth not fully realized*
ADS Opportunity for Research and Extension
System Reform: “Harvesting the Future”

1. Large-scale research human resource recruitment and
graduate training to address capacity gaps
2. Re-organize existing units to achieve critical mass in short-
term (e.g., Biotechnology)
3. Decentralize research and extension: joint regional,
multidisciplinary teams to address farming system problems
4. Expand long-term international partnerships linking
capacity building and farmer problem solving
5. Increase amount and flexibility of funding

High impact of research on farmer welfare and growth
Potential areas for engagement

- Linkages between USAID funded projects and regional research centers
  - Facilitating farmer visits and participation in variety evaluation on research or seed multiplication farms
  - Expansion of on-farm evaluation of varieties and management practices
  - Models of local commercial seed multiplication by farmers
  - Training of farm service providers
- Regional commercial tissue culture labs