Cassava markets, value chains and livelihoods in Asia: when uncertain is the only certainty

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Cassava markets, value chains and livelihoods in Asia: when uncertain is the only certainty

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Introduction to cassava in Southeast Asia across scales

As we work through the different scales, consider what a major disease outbreak mean for various stakeholders in the cassava value chain.

1. The global market and trade
2. Local processors and national exports
3. Rural Livelihoods

Cassava farmers and processors in Asia are involved in a constant battle to be competitive.
On the demand side – the market outlook for cassava in Asia needs to be considered in the context of substitutes in different applications

1. Cassava for direct consumption or sale into short value chains as fresh roots for food. Competition with other food such as **rice** based on price and consumer preferences.

2. Global markets where cassava chips compete with other forms of carbohydrate for processing animal feed or ethanol such as **maize**, **sorghum**, **wheat**, **molasses** – oil, gas.

3. Markets where cassava starch competes largely on price with substitutes such as **maize** and **potato** starch, **sugarcane**.

4. Markets where the functional properties of the starch are desired. Consumer preferences, clean label segment, gluten free etc.
And on the supply side – the relative competitiveness against other land use in the context of different trends and shocks

- Own price and relative prices to other commodities that can be produced in agroecological zones
- Changes in costs of production
  - Changing labour costs and ease of mechanization
- Long term climate trends
- Floods and droughts
- Changes in land suitability and land degradation
- IMPACT OF PEST AND DISEASE
How much cassava is currently grown in Asia? How much next year?

- National statistics typically 2 years out of date.
- Difficult to disaggregate to lower administration levels due to traditional reporting processes.
- Cases of ‘political’ statistical reporting to achieve policy objectives.
Value of cassava trade and relative importance of cassava starch in global trade

Global trade largely is Southeast Asia exporting to East Asia and Southeast Asia

Source: Comtrade
A billion dollar export crop for Vietnam for the past 6 years

- A billion dollar USD export earner for Vietnam for starch and chips
- Domestic utilisation in
  - MSG,
  - Paper and cardboard
  - Animal feed (chips and starch)
  - Noodles
  - Sweeteners and syrups
  - Traditional food
Rising incomes in Asia: changing diets and consumption

Averages hide rural poverty, particularly in marginal upland areas.
Demand for animal feed in Vietnam (not self-sufficient)

Consumption of meat per capita

Value of imports (Billion USD)

Vietnam imported $3.2 Billion USD of animal feed in 2017

Import of maize and soy

FAO Stats

ciat.cigarr.org

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Domestic utilisation of starch in Thailand (14.5% Root Equivalents)

2015 – 1.495 Million MT Starch

- Sweeteners: 44%
- Modified Starch: 10%
- Whole Salers: 13%
- Monosodium Glutamate (MSG): 18%
- Paper: 7%
- Tapioca Pearls: 4%
- Textile: 1%
- Other: 3%

2017 – 1.66 Million MT Starch

- Sweetener: 30%
- Modified Starch: 10%
- Sago: 4%
- Textiles: 1%
- Paper: 6%
- Ethanol: 15%
- Other: 2%

Source: TTTA

2015: 1.495 Million MT Starch
2017: 1.66 Million MT Starch

Source: CIAT
Vietnam trade in syrups, sweeteners and fermentation products

**Import of sweeteners**
- D-glucitol (sorbitol)
- Chemically pure fructose
- Glucose, glucose syrup (20-50 % dry weight fructose)
- Other fructose and fructose syrup, <50 % by dry weight of fructose
- Glucose, glucose syrup, < 20 % fructose

**Trade in Glutamic acid (MSG+) & Lysine**
- Glutamic acid and its salts
- Lysine and its esters

Source: Comtrade
Market uncertainty goes with being part of a global market
The regional value chain for cassava products involves large amounts of cross border trade.
Cumulative monthly value of imports of cassava (fresh or dried)

Thailand
2017 = 281.7 million USD

Vietnam
2017 = 282.2 million USD

Thai Import Value from Cambodia (Million USD)

Vietnam imports from Cambodia (Million USD)
Including large volumes of planting material moving around the region

FANTASTIC IN THE ABSENCE OF PEST AND DISEASE
Smallholders cassava farmers part of a larger global carbohydrate market

Large stockpile remains: Rabobank still forecasts a 230m MT of stocks
Cassava root and starch prices in Thailand and Indonesia

**Thailand**

- Fresh root 25% (USD/t)
- Starch FOB Bangkok (USD/t)

**Indonesia**

- Root price (USD/t)
- Domestic starch (USD/t)

Reduction in planted area
Flooding in Thailand
Maize price in China
DISEASE?
Logistics and freight cost are important (back freight helps)

$30 MT

$15-20/t + $10-20 truck and clearance
Comparison between Thai and Indonesian prices

**Fresh roots**

- Root price (USD/t)
- Difference (Thai - Lampung)

**Starch**

- Starch Price (USD/t)
- Difference (Thai - Domestic @ Factory gate)

- Thai Starch (FOB Bangkok)
- Indonesia Starch (East Java)
- Thai + Freight
Cumulative monthly exports from Thailand and Vietnam to Indonesia (million USD)
Difference in Thai cassava and US maize starch

- Cassava starch has again become a relatively more expensive feed stock for deep processing
  - Eg. Manufacture of sweeteners
- Short term options for Indonesian deep processors to remain competitive
  - Use alternative feed stock (maize)
  - Import processed products (glucose etc).
Biofuel prices and root equivalent price

Root cost in Ethanol (Indonesia) | Root cost in Ethanol (Thai) | CBOT Ethanol (USD/litre)
Smallholder livelihood outcomes impacted by these global market trends and shocks
Grown by upland farmers to support livelihood security (Eastern Cambodia)

Gross total income

% share of total income

% share of cash income

Gross total income:

- Chitr_borie
- Siem_bouk
- Snuol
- Total

6m Riel = $1500 USD

Cassava Income
Non-Cassava Cropping Income
Total Livestock Income
Off-farm Income

Income Quartiles:

- Q1
- Q2
- Q3
- Q4
- Total

Cassava Income
Non-Cassava Cropping Income
Total Livestock Income
Off-farm Income

6m Riel = $1500 USD

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Building a sustainable future
Grown by upland farmers to support livelihood security (Lao PDR)

Gross total income

% share of total income

% share of cash income

20m Kip = $2350 USD

20m Kip = $2350 USD
Grown by upland farmers to support livelihood security (DakLak Province - Vietnam)

### Gross total income

<table>
<thead>
<tr>
<th>Produce</th>
<th>Total Income (VND/Year)</th>
<th>Millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cukty</td>
<td>120</td>
<td>160</td>
</tr>
<tr>
<td>Dang kang</td>
<td>80</td>
<td>120</td>
</tr>
<tr>
<td>Ea sar</td>
<td>40</td>
<td>80</td>
</tr>
<tr>
<td>Ea so</td>
<td>140</td>
<td>180</td>
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<tr>
<td>Total</td>
<td>400</td>
<td>520</td>
</tr>
</tbody>
</table>

*40m Kip = $1745 USD*

### % share of cash income

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Cassava</th>
<th>Coffee</th>
<th>Other crops</th>
<th>Livestock</th>
<th>Off-farm Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1</td>
<td>20%</td>
<td>20%</td>
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<td>Q2</td>
<td>25%</td>
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<tr>
<td>Q3</td>
<td>30%</td>
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<tr>
<td>Q4</td>
<td>35%</td>
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*Marginal land & Limited resources*
**Large price uncertainty - Fresh root prices at collection points & factory**

The price of fresh root is still increasing at weekends at 370-375 rei/kg (29.3 USD) at collecting point in Tbaaung Khamum district, Tbaaung Khamum province, while it is at about 250 rei/kg (20.8 USD) at collecting points near the village in Chet Borei district, Krame province.

- **Farm gate = $28**

### Fresh root prices at collection points & factory

- **25% SC**
- **30% SC**

<table>
<thead>
<tr>
<th>Location</th>
<th>Jan-17</th>
<th>Apr-18</th>
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<tbody>
<tr>
<td>Thailand</td>
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<tr>
<td>Battambang (Cambodia)</td>
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<td>Tay Ninh (Vietnam)</td>
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<td>Thong Khmun (Cambodia)</td>
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<td>Central Highlands (Vietnam)</td>
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<td>Sonta (Vietnam)</td>
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<td>Sayabouli (Laos)</td>
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<td>Bolikramxai (Laos)</td>
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<td>Champasak (Laos)</td>
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<td>Lampung (Indonesia)</td>
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<td>North Sumatra (Indonesia)</td>
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Building a sustainable future by CIAT
Farmer experience and perception of farm gate prices (past 5 years)

Survey conducted in July – October 2017
Adding another level of production risk from emerging pest and disease will significant impacts rural livelihoods, industry and national economies
Cassava witches broom disease

Symptom variation of cassava witches’ broom disease

**Mild**
- Not very stunted
- Leaf is grown and expanded

**Severe**
- Many small leaves with short internodes
- Leaf proliferation from the middle of stem
- Dwarf plant
- Leaf growth is inhibited, with dead leaves
Conclusion

1. Market and production risk contribute to the vulnerability of smallholder cassava farmers in Asia – debt, distressed land sales, migration by necessity, and other undesirable livelihood choices... (collection of UXO, logging, etc).

2. An understanding of the global market context in which localised cassava value chains operate (farmer-trader-processor) helps recognize the market risk that farmers and processors are exposed to – but timely information and decision support tools are necessary.

3. The addition of disease pressure will impact the competitiveness of smallholder cassava farmers in the global carbohydrate market

4. The poorest households in communities are the most reliant on cassava for their livelihoods and the less able to quickly adapt their livelihood portfolio in the face of new constraints.
ACIAR Cassava Value Chain and Livelihood Program

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