

Livelihoods of cassava farmers in Lao PDR

Mid-Term review
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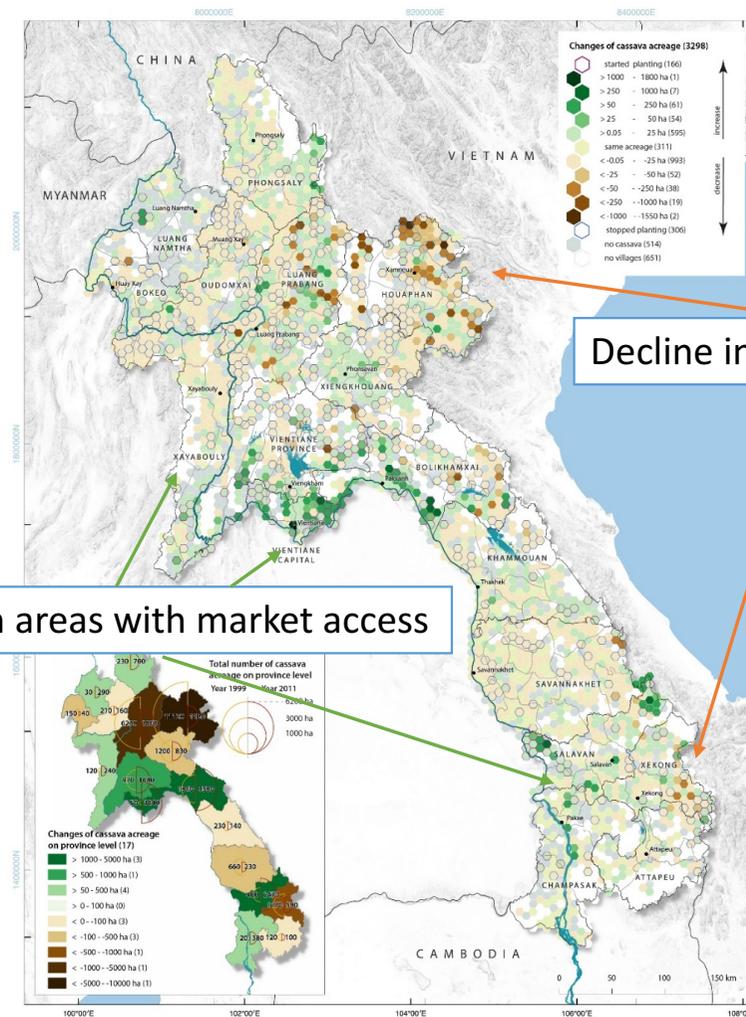
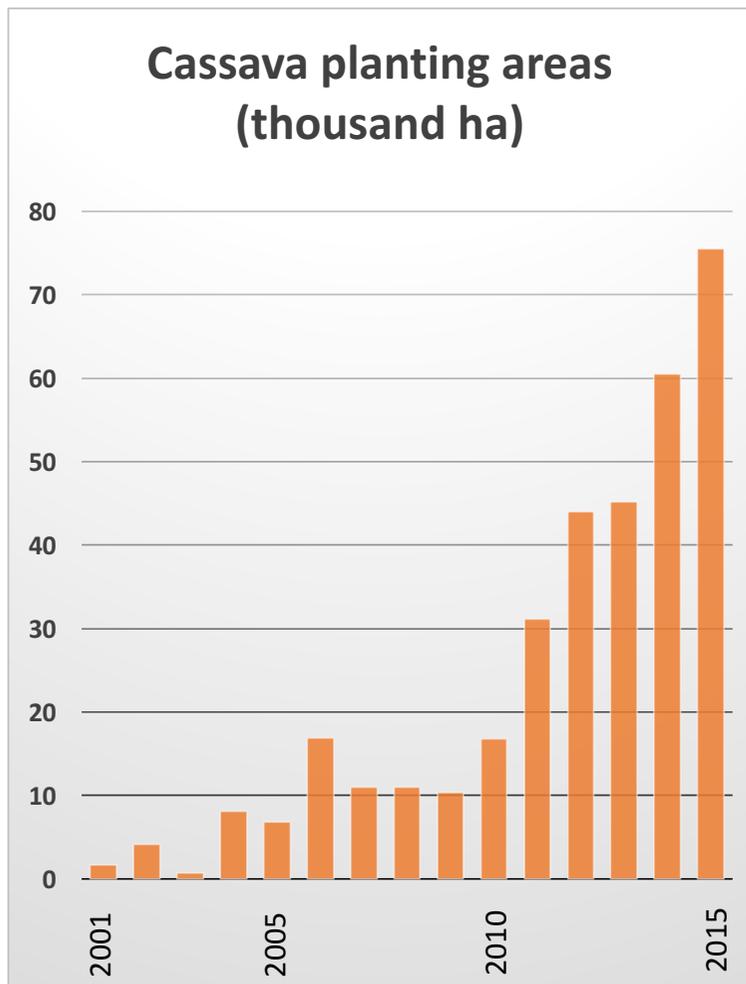
Outline

- Cassava production and marketing in Lao PDR
- What does a smallholder cassava farmers livelihood look like?
- What resources do cassava farmers have to draw on?
- How do they currently manage the crop?



From subsistence to commercial production

Changes of cassava acreage between 1999 and 2011



Expansion in areas with market access

Decline in remote uplands

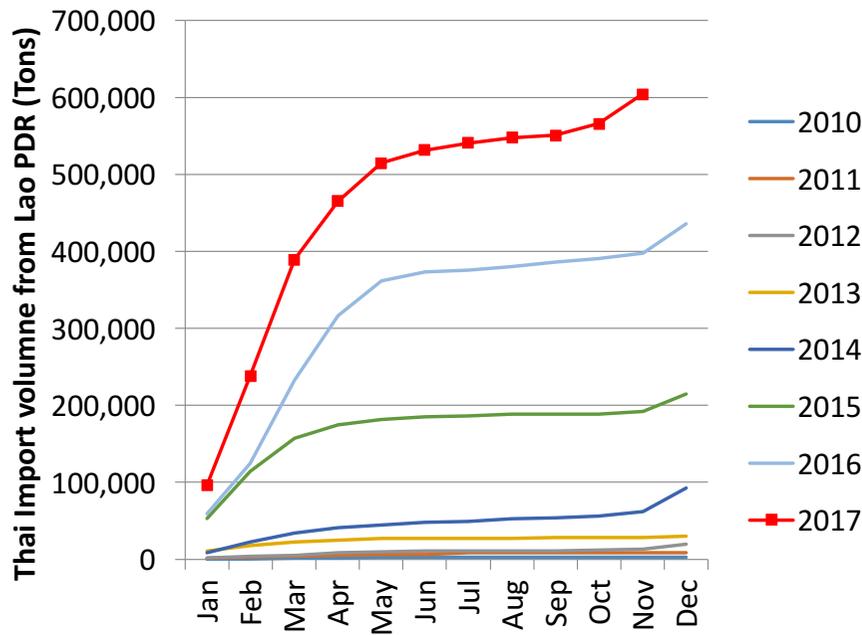
Processing

- 14 starch/dry chip processing factories throughout the country
- Investors – domestic, Vietnam, Thailand, and China

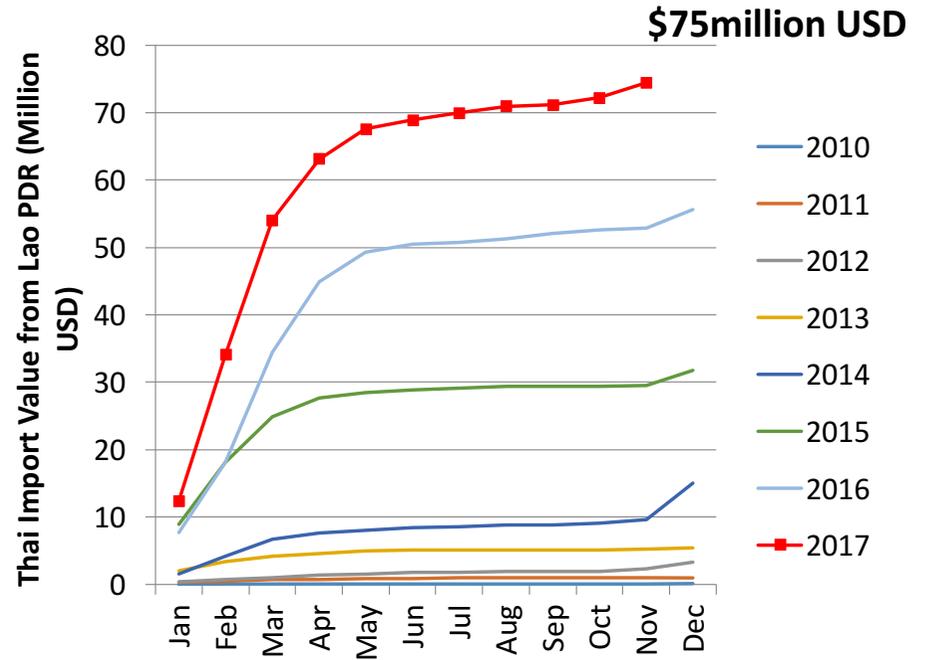


Thai imports of Lao cassava (fresh and dried)

Cumulative monthly volume of Thai imports from Lao PDR



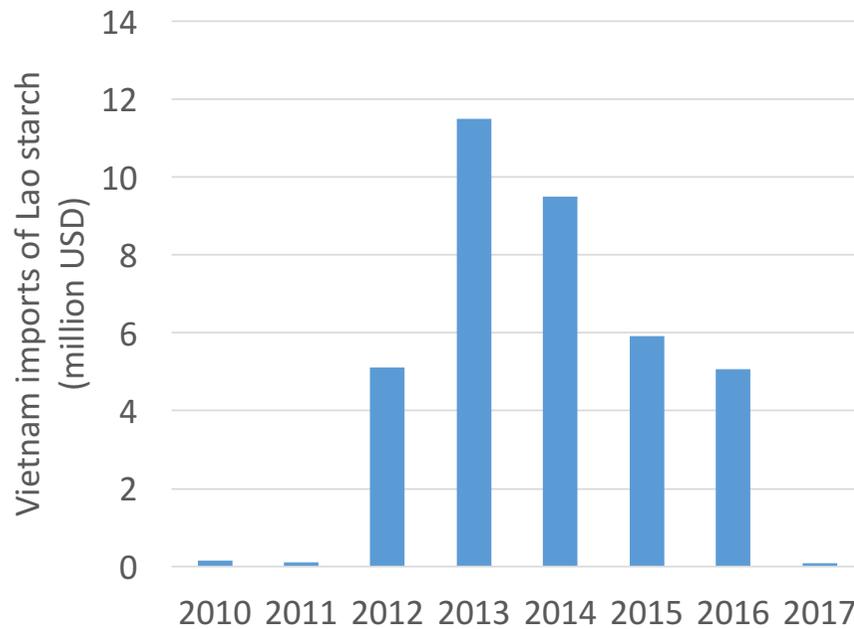
Cumulative value of Thai imports from Lao PDR



Volume and value of trade increasing each year

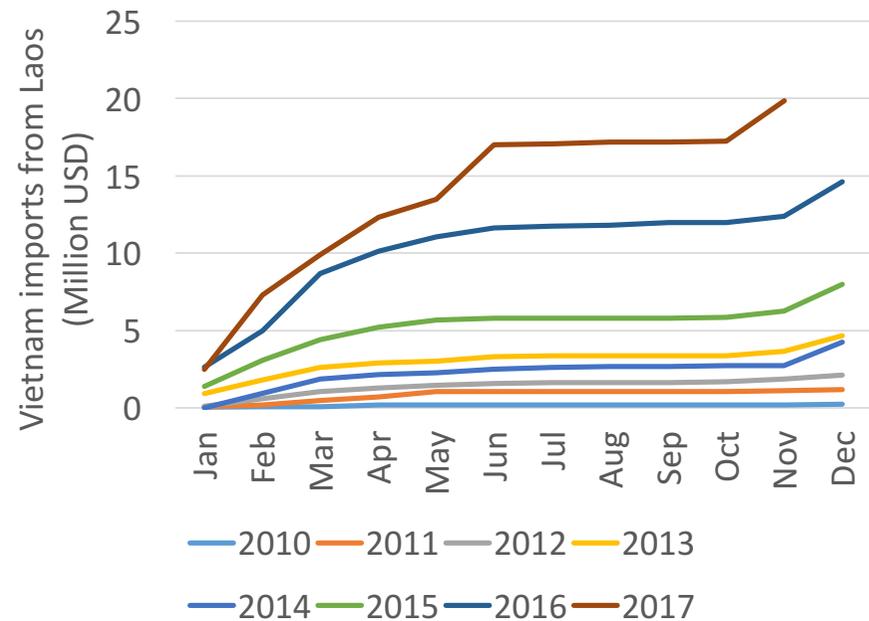
Vietnam import from Lao PDR

Annual starch imports (USD)

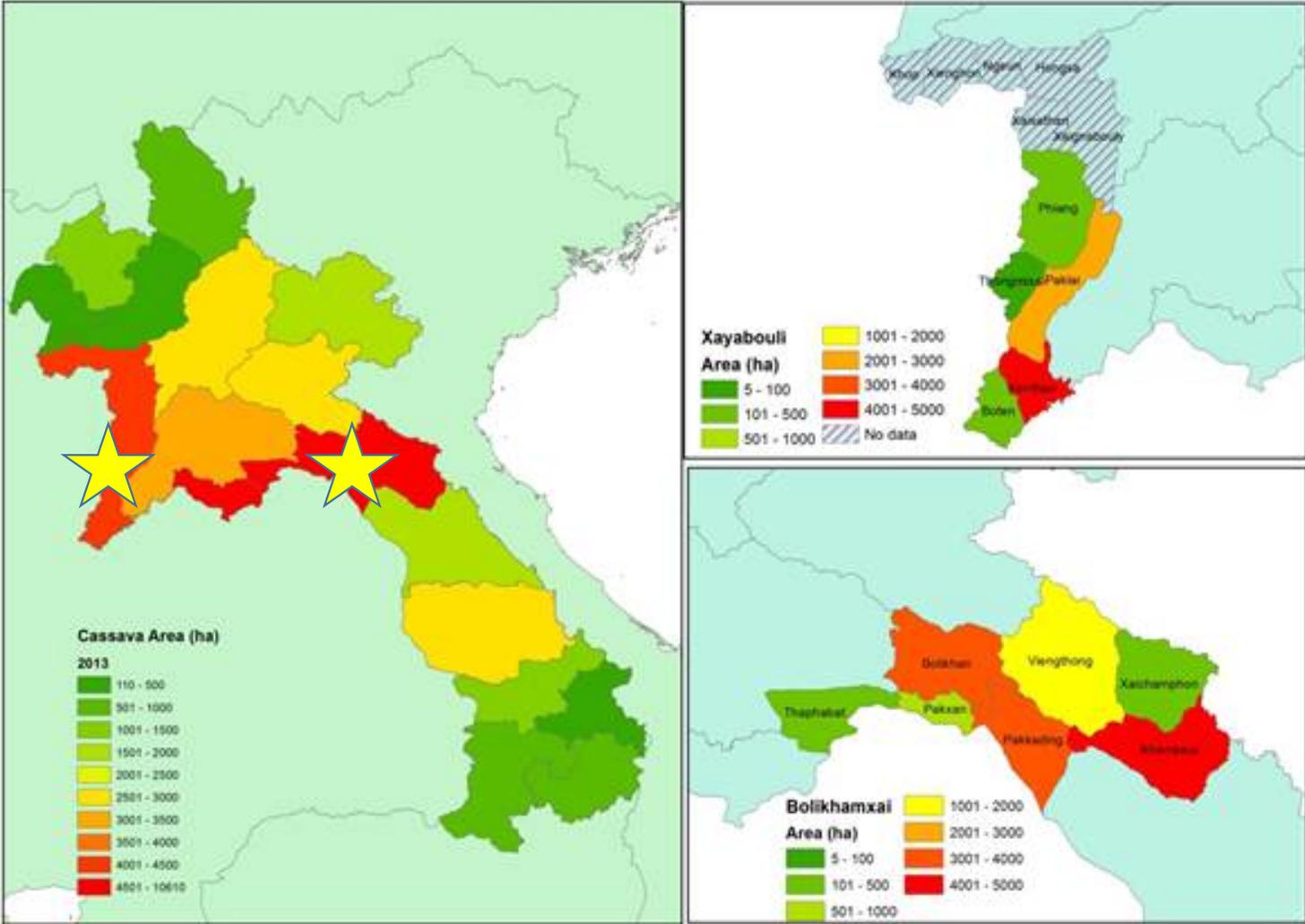


Export of starch to Vietnam has declined

Monthly cumulative import of fresh and dried cassava (USD)



Project sites



Village Focus groups



Focus groups discussions

- Focus groups were conducted in Bolikhamxai and Xayabouli Province
 - Bolikhan District, Bolikhamxai
 - Viengthing District, Bolikhamxai
 - Paklai District, Xayabouli
 - Kenthao District, Xayabouli

Information on:

1. Information about the village
2. Different activities of farmers in the village
3. Timeline of key events related to cassava production and marketing in the village
4. Seasonal calendar (gender roles)
5. Cassava enterprise budget – cost and returns
6. Discussion of marketing – validate the value chain map
7. Ranking of different activities
8. Main constraints to cassava production and marketing
9. Potential interventions and ranking

Table 47: Key events related to cassava production in Houyehoum

Year	Events
1989	Village was established (moved from Boten District, Xayabouly Province)
1993	Start to grow water banana, sold fresh banana to Thailand
1995	Start to grow maize, sold to Thailand
2005	The first rubber plantation
2011	The first cassava came to village and 7 households cultivated 3 ha. The seedlings are bought from Thailand.
2012	The seedlings are given by traders who came to buy roots in the village
2013	Farmers sold fresh roots to traders in the village then sold to traders in Kenethao district. Rubber trees are commenced tapping.
2014	The cassava price increased to 2 Baht/kg as the highest price then dropped to 1.8 Baht/kg in 2015
2015	Appearance of cassava diseases (<i>Pia Peng</i> , <i>Pia Fai</i> , death roots)
2016	The cassava price decreasing 0.8 Baht/kg. Cassava areas reach 318.9 ha (no more expansion as low price and limited area to grow).

- Introduction of the commercial cassava and changing production systems
- Marketing problems and changes
- Arrival of pest and disease

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rain fall						Rainy season						
Food availability								Food more available				
stress period	hard work more activity											
Cassava	Land preparation and spray herbicide		planting									
					weeding							
	harvesting											
Paddy rice						seedling	transplanting	weeding		harvesting		
Upland rice				slash (clear land)	herbicide			weeding		harvesting		
vegetable	harvesting										growing	

- Competition for labour and other resources between rice production and other activities

Budgeting and beginning some scenarios analysis

- Participatory budgeting
 - Explore impact of low, average, high prices on household income and returns to labour

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ကိစ္စ: ကို	လက်	တစ်ကပ်	တစ်/တစ်ကပ်/ တစ်	စာမ
# တစ်ကပ် (အထွေထွေ)	1 လက်	1 လက်	2500 β	8500 β
- မြေ၊ မြေပိုင်	6 လက်/တစ်	6 လက်/တစ်	2000 K/တစ်	48.000 K
- မြေပိုင်/တစ်	1 လက်	1 လက်	20.000 K/တစ်	20.000 K
# - မြေပိုင်/တစ်	3 လက်	6 လက်	22.000 K/တစ်	492.000 K
- မြေပိုင်/တစ်	3 လက်	3 လက်	20.000 K/တစ်	41.000 K
# မြေပိုင်/တစ်	2 လက်	2 လက်	82.000 K/တစ်	164.000 K (၇၇၂၆)
# မြေပိုင်/တစ်	2 လက်	2 လက်	35000 K/တစ်	70.000 K (၇၇၂၆)
# မြေပိုင်/တစ်	1 လက်	9 လက်	70.000 K/တစ်	630.000 K
- မြေပိုင်/တစ်	3 လက်	15 လက်	70.000 K/တစ်	1050.000 K
- မြေပိုင်/တစ်	1 လက်	3 လက်	55.000 K/တစ်	165.000 K
- မြေပိုင်/တစ်	1 လက်	20 လက်	55.000 K/တစ်	1100.000 K
# မြေပိုင်/တစ်	1 လက်	40 လက်	55.000 K/တစ်	2.200.000 K
- မြေပိုင်/တစ်	1 လက်	60 လက်	55.000 K/တစ်	3.300.000 K
# မြေပိုင်/တစ်				40.000 K
မူဝါဒ				
- မြေပိုင်	+		25 t/ha	
- မြေပိုင်	+		20 t/ha	
- မြေပိုင်	+		15 t/ha	
မူဝါဒ				
- မြေပိုင်		2 တစ်/တစ်		
- မြေပိုင်		1,5 တစ်/တစ်		
- မြေပိုင်		0,8 တစ်/တစ်		

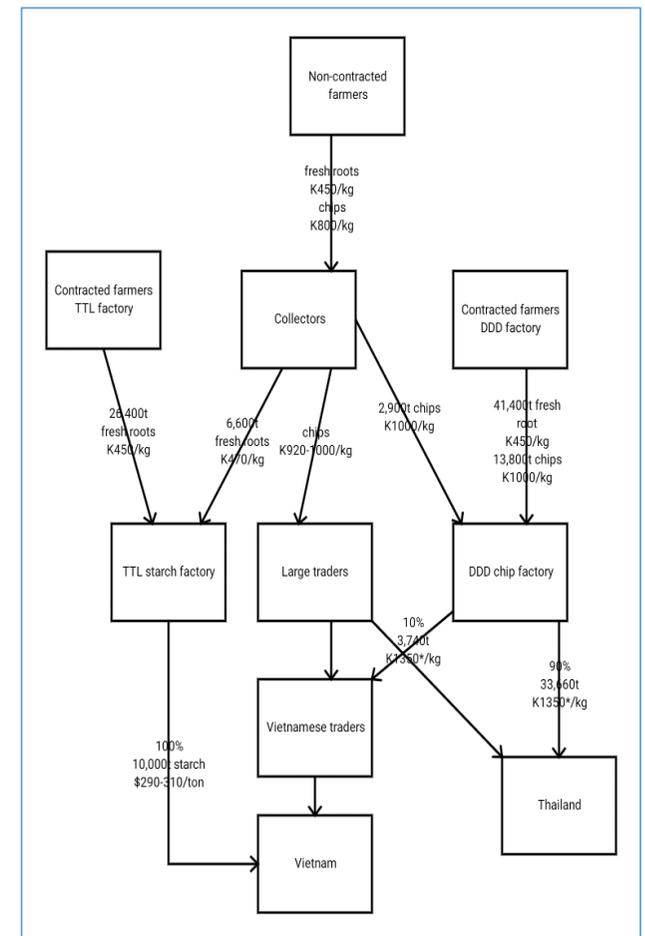
Value chain assessments



Bolikan District: dynamic markets and linkages

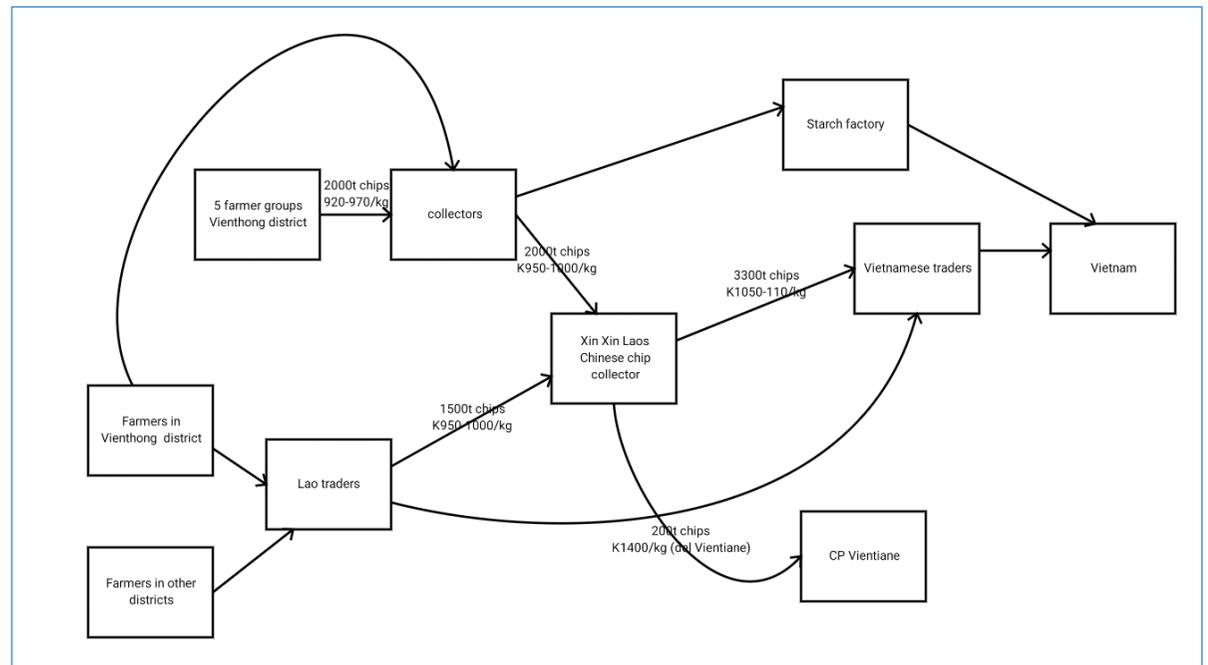
Some key features

- Originally linked to failed Lao-Indo China Factory (Vientiane)
- New factories (one chip and one starch) begin using contract farming
- Chip factory provides capital to farmers to buy tractors
- Starch factory linked to sister company in Nghe An Province in Vietnam
- Stop contract models due to market volatility
- Issues with access to working capital in value chain
- Some farmers stop selling fresh roots to dry chip factory largely due to delays in payment
- Begin making their own dry chips



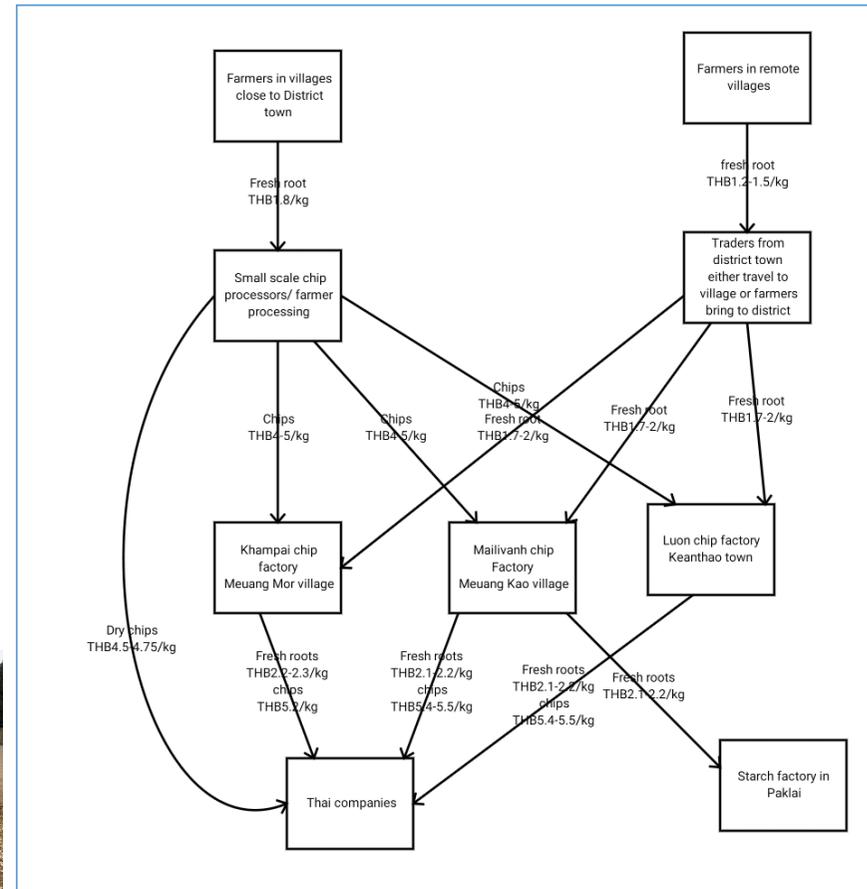
Viengthong District: links to Vietnam market

- New starch factory (Vietnamese investment)
- Dry chip production by farmers
- Medium trader had some contract arrangements with farmer groups for dry chips
- Sale of chips to small-scale traders based at border



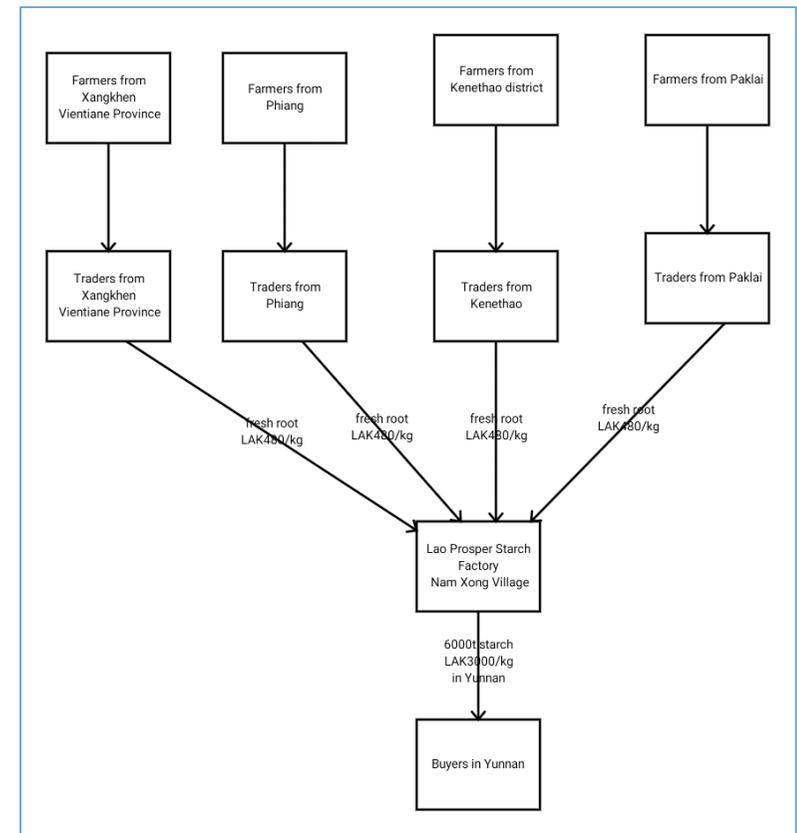
Kenthao District: Dry chip & cross-border trade

- Farmers linked to Thai market either by selling fresh roots or dry chips
- Several large dry chip processors in district
- Cross border trade in fresh roots that sent to several Thai Provinces



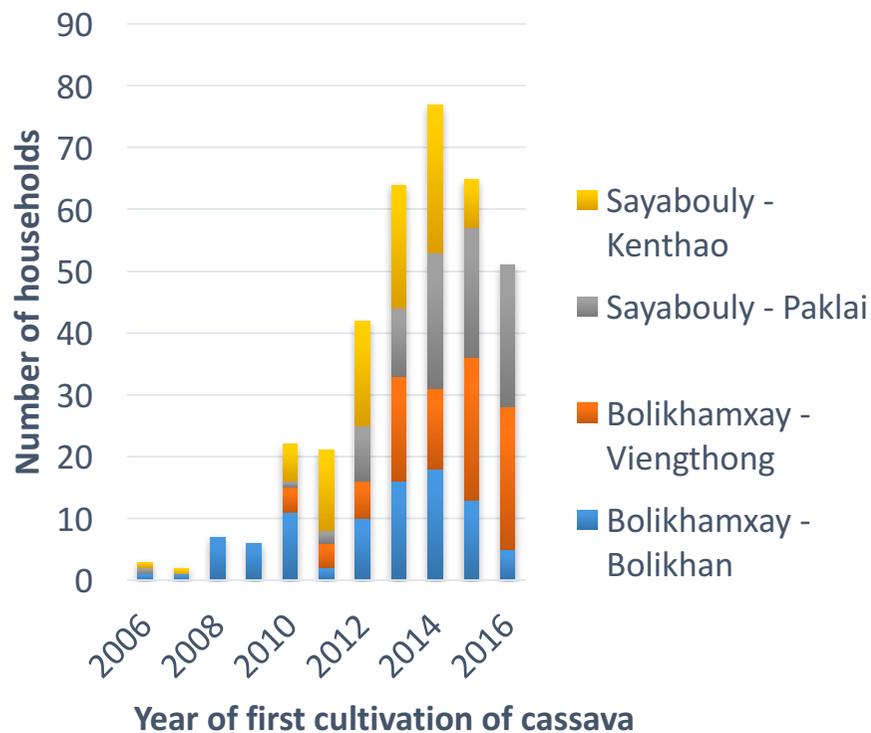
Paklai District: One main starch processor

- 900t fresh root per day = 200t starch
- Short processing season (3months)
- 2016-2017 30,000t of cassava purchased
- All sold to China at border gate with Yunnan
- Changing transport costs impact business



Household survey

Year of first production in project villages



- Initial areas developed in Bolikan District driven by starch processors in Vientiane.
- Expansion in Bolikhamxai and Sayabouly driven by cross border trader of fresh roots and dried chips
- Some new Lao processors contributing to demand in Paklai and Viengthong

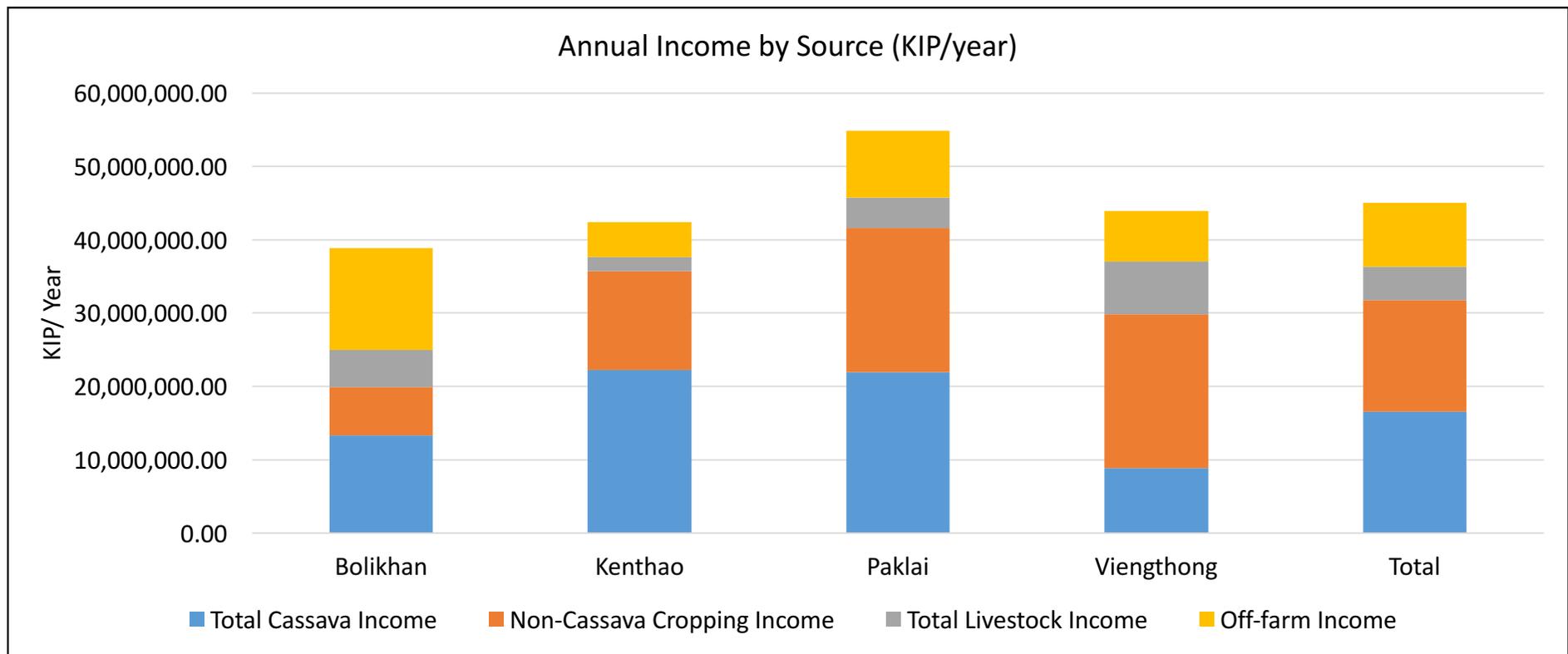
Livelihoods of smallholder cassava farmers

	Bolikhmxy	Sayabouly	Total
Cropping			
Paddy rice	86.1%	93.9%	90.0%
Cassava	98.9%	100.0%	99.4%
Upland rice	20.6%	1.1%	10.8%
Maize	3.9%	23.9%	13.9%
Sugarcane	1.7%	0.0%	0.8%
Jobs tears	0.0%	6.7%	3.3%
Peanuts	1.1%	8.9%	5.0%
Livestock			
Cattle	61.7%	26.7%	44.2%
Buffalo	20.0%	18.3%	19.2%
Goat	6.1%	0.0%	3.1%
Pigs	50.0%	12.8%	31.4%
Chicken	72.2%	66.7%	69.4%
Ducks	32.8%	43.3%	38.1%
Fish ponds	4.4%	2.2%	3.3%
Labour			
Off-farm	16.7%	26.7%	21.7%
Non-farm	13.9%	13.9%	13.9%
Salaries	12.8%	8.9%	10.8%
Remittances	16.7%	4.4%	10.6%

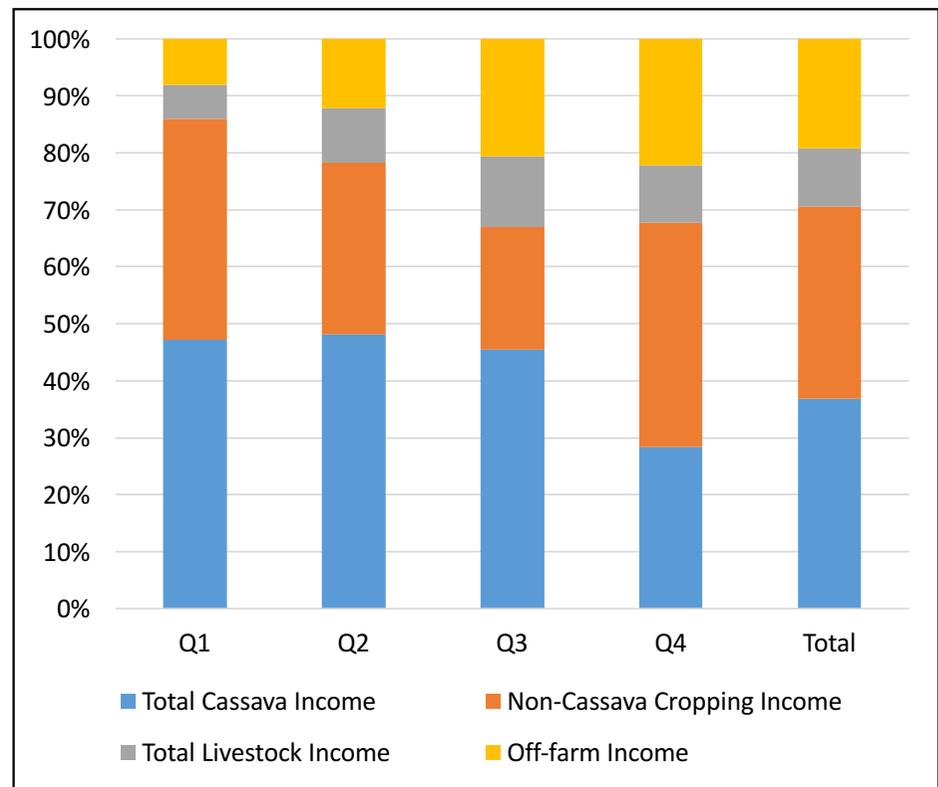
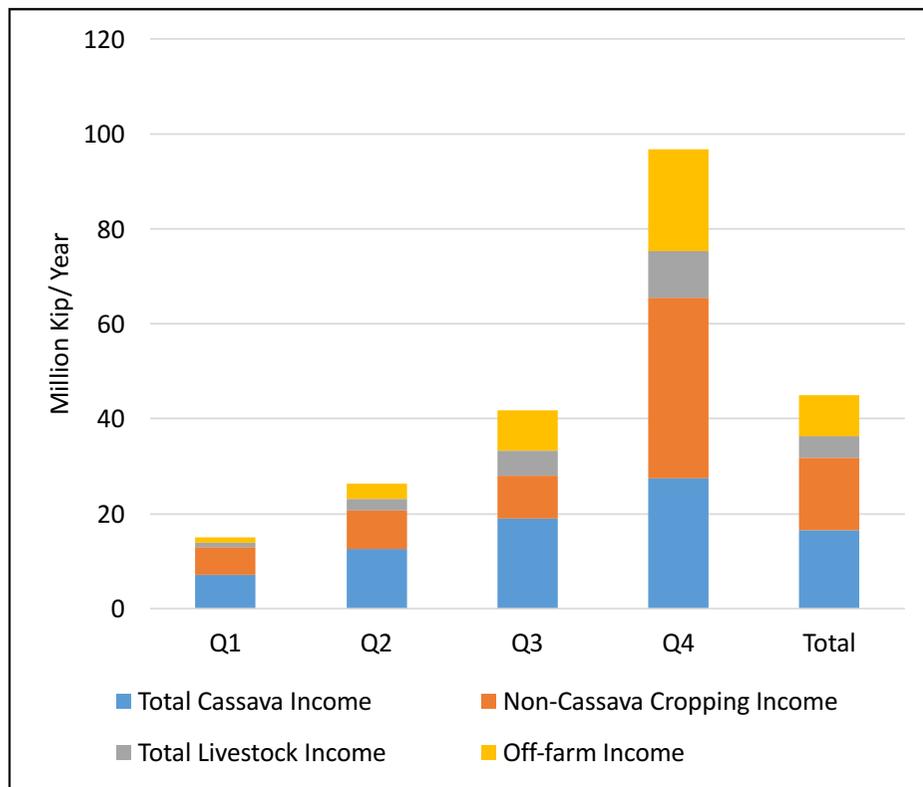
- Survey of 360 households
- Households have access to both lowland and upland land resources
- Most cassava farmers are still paddy rice farmer (90%) – which is important for food security
- Livestock important for both food and income
- Labour activities are less important source of income than in areas without upland cultivation
- Upland farming is an important source of cash income – cassava being the main crop at the moment

Percent of surveyed households

Annual income by source (District)



Annual income by source (Income quartile)



Ownership of assets

Assets	Q1	Q2	Q3	Q4	Total
Truck	1.11%	1.11%	4.44%	11.11%	4.44%
Car	10.00%	3.33%	17.78%	22.22%	13.33%
Motorbike	86.67%	92.22%	92.22%	93.33%	91.11%
Lot sing	17.78%	15.56%	26.67%	31.11%	22.78%
Two wheel tractor	58.89%	75.56%	75.56%	83.33%	73.33%
Four wheel tractor	8.89%	3.33%	2.22%	11.11%	6.39%
water_pump	5.56%	3.33%	2.22%	6.67%	4.44%
Generator	1.11%	3.33%	5.56%	2.22%	3.06%
Mobile phone	93.33%	88.89%	92.22%	93.33%	91.94%
Smart phone	23.33%	18.89%	28.89%	34.44%	26.39%
Tv	83.33%	85.56%	92.22%	96.67%	89.44%
Dvd player	17.78%	26.67%	26.67%	47.78%	29.72%
Radio	23.33%	26.67%	32.22%	36.67%	29.72%
Refrigerator	82.22%	80.00%	90.00%	96.67%	87.22%

Access and utilisation of upland fields

	Bolikhambxay Province	Bolikhambxay District	Viengthong District	Sayabouly Province	Paklai District	Kenthao District	Total
Average number of fields cultivated in 2016	1.6	1.7	1.6	2.0	2.1	1.9	1.8
% of households with fallow fields	33.9%	33.3%	34.4%	5.6%	6.7%	4.4%	19.7%
Number of fallow parcels (of those with fallow)	1.3	1.2	1.4	1.0	1.0	1.0	1.2
% of household with tree crops and plantations	9.4%	7.8%	11.1%	22.8%	24.4%	21.1%	16.1%

- Households cultivate 1-2 parcels (1-4 ha per parcel)
- Less than 35% of households in Bolikhambxay now have fallow land and only 5.6% in Sayabouly

Agricultural labour force of cassava households

Employment status in Agriculture	Number of family members			Average of Age		
	Female	Male	Total	Female	Male	Total
Full_time	1.2	1.3	2.5	34.5	37.0	35.7
Part_time	0.4	0.5	1.0	23.4	25.3	24.4
Rarely	0.1	0.1	0.1	25.7	25.6	25.7
Never	0.8	0.8	1.6	21.6	19.9	20.7
Total	2.6	2.6	5.2	28.2	29.4	28.8

Cassava production

	Bolikhan	Kenthao	Paklai	Viengthong	Total
Average Cassava Harvest Area 2016 (ha)	1.93	3.05	2.25	1.36	2.15
Cassava production 2016 (tons)	31.6	71.3	58.3	20.3	45.4
Cassava Yield 2016 (tons/ha)	17.7	26.6	27.3	18.7	22.6
Highest Cassava Production in the last five years (tons)	49.9	88.8	63.9	24.2	57.2
Highest Cassava Yield in the last five years (tons/ha)	25.4	31.8	30.7	17.9	26.6
Lowest Cassava Production in the last five years (tons)	26.3	47.1	39.5	14.7	32.2
Lowest Cassava Yield in the last five years (tons/ha)	15.5	27.1	25.6	14.8	20.8

Perceptions of yield trends, problems, and awareness of solutions

	Bolikhmxy Province	Sayabouly Province	Total
Yield trend			
Declining rapidly	17%	13%	15%
Declining moderately	32%	38%	35%
Relatively constant	29%	21%	25%
Increasing	11%	21%	16%
Increasing rapidly	3%	4%	3%
Fluctuating –No clear trend	5%	3%	4%
No response	3%	1%	2%
Soil erosion			
Soil erosion perceived as problem	8%	5%	6%
Small problem	3%	1%	2%
Medium problem	4%	2%	3%
Serious problem	1%	2%	2%
Aware of technology to control soil erosion	3%	2%	3%
Had training in technologies	1%	0%	0%
Interested in trialling practices	43%	29%	36%
Intercropping			
Ever intercropped	0%	2%	1%
Still intercrop	0%	1%	1%
Interest in intercropping	31%	21%	26%

Adoption of fertiliser and access to credit

	Bolikhambxay Province	Sayabouly Province	Total
Apply organic fertiliser	1%	0%	0%
Apply inorganic fertiliser	1%	0%	0%
Understand NPK	1%	1%	1%
Seen fertiliser demonstration	5%	4%	4%
Improve Profitability	44%	43%	44%
Interest in visiting trial	55%	47%	51%
Hosting trial on own land	51%	47%	49%
Credit fertiliser available	10%	4%	7%
Fertiliser on credit	1%	0%	0%
Other loan	14%	7%	11%



Weeds, weeding and herbicide

	Bolikhamxay Province	Bolikhan District	Viengthong District	Sayabouly Province	Paklai District	Kenthao District	Total
Perception of weed problem							
Large problem	60%	57%	63%	55%	54%	56%	58%
Medium problem	27%	30%	23%	27%	28%	27%	27%
Small problem	7%	10%	4%	17%	17%	18%	12%
No problem	6%	3%	9%	1%	1%	0%	3%
Manual weeding	97%	100%	93%	80%	77%	83%	88%
1 weeding	14%	22%	7%	36%	43%	28%	25%
2 weedings	51%	60%	42%	38%	29%	47%	44%
3 weedings	26%	12%	39%	5%	3%	7%	15%
Apply herbicide	9%	2%	17%	68%	51%	84%	39%
1 application	7%	1%	13%	43%	41%	44%	25%
2 applications	1%	0%	2%	21%	10%	31%	11%
3 applications	0%	0%	0%	3%	0%	6%	1%
Not specified	1%	1%	1%	2%	0%	3%	1%
Training in used of herbicide ¹	18%	100%	7%	6%	2%	8%	7%
Use protective clothing ¹	29%	0%	33%	76%	80%	74%	71%

Land preparation techniques

	Bolikhamxay	Bolikhan	Viengthong	Sayabouly	Paklai	Kenthao	Total	
Dibble	7%	0%	14%	7%	0%	13%	7%	Labour saving technologies such as mechanised land preparation and herbicide have removed labour constraints common in upland rice cultivation
Manual tools	54%	28%	81%	17%	2%	32%	36%	Farmers can cultivate larger area of land
Draught	0%	0%	0%	0%	0%	0%	0%	
2 wheel Tractor	7%	11%	3%	12%	12%	12%	10%	Reduces fallow period
4wheeltractor	39%	67%	11%	64%	84%	43%	51%	With limited soil management this is contributing to declining productivity and future prospects
Ridges	36%	67%	4%	6%	1%	10%	21%	

Pests and disease

Pest/Disease	Bolikhamxay	Bolikhhan	Viengthong	Sayabouly	Paklai	Kenthao	Total
Mealybug	45.0%	56.7%	33.3%	45.0%	35.6%	54.4%	45.0%
last year	25.6%	33.3%	17.8%	22.8%	16.7%	28.9%	24.2%
Witches broom	65.0%	72.2%	57.8%	38.9%	26.7%	51.1%	51.9%
last year	34.4%	34.4%	34.4%	17.2%	8.9%	25.6%	25.8%
Bacterial Blight	34.4%	37.8%	31.1%	32.2%	25.6%	38.9%	33.3%
last year	10.0%	10.0%	10.0%	8.3%	6.7%	10.0%	9.2%
Mites	30.0%	33.3%	26.7%	28.9%	22.2%	35.6%	29.4%
last year	13.3%	14.4%	12.2%	10.6%	7.8%	13.3%	11.9%
CMD	16.1%	14.4%	17.8%	10.0%	11.1%	8.9%	13.1%
Yes	8.3%	6.7%	10.0%	2.2%	2.2%	2.2%	5.3%

Where do farmers sell?

Utilisation and sales	Bolikhmxyay Province	Bolikhhan District	Viengthong District	Sayabouly Province	Paklai District	Kenthao District	Total
Eat	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Own livestock	2.8%	1.1%	4.4%	0.0%	0.0%	0.0%	1.4%
Sell only fresh root	53.3%	70.0%	36.7%	100.0%	100.0%	100.0%	76.7%
Sell dried cassava	38.3%	22.2%	54.4%	0.0%	0.0%	0.0%	19.2%
Sell fresh root + dry cassava	8.3%	7.8%	8.9%	0.0%	0.0%	0.0%	4.2%
Of households selling fresh root							
Sell standing crop	0.0%	0.0%	0.0%	2.8%	3.3%	2.2%	1.7%
Sell to trader in field	1.8%	1.4%	2.4%	16.1%	20.0%	12.2%	10.7%
Trader in village	8.1%	11.4%	2.4%	40.0%	24.4%	55.6%	27.8%
Trader at collection point	0.0%	0.0%	0.0%	12.8%	5.6%	20.0%	7.9%
Sell direct to factory	90.1%	87.1%	95.1%	27.8%	45.6%	10.0%	51.5%

The challenges – building trust and strengthening relationships

	Bolikhamxay Province	Bolikhan District	Viengthong District	Sayabouly Province	Paklai District	Kenthao District	Total
Relationship with fresh root traders							
Very weak	9.0%	8.6%	9.8%	3.9%	6.7%	1.1%	5.8%
Weak	36.9%	31.4%	46.3%	20.6%	21.1%	20.0%	26.8%
Moderate	18.9%	22.9%	12.2%	51.1%	43.3%	58.9%	38.8%
Strong	7.2%	10.0%	2.4%	16.7%	15.6%	17.8%	13.1%
Very strong	0.9%	1.4%	0.0%	4.4%	6.7%	2.2%	3.1%
NA	27.0%	25.7%	29.3%	3.3%	6.7%	0.0%	12.4%
Relationship with dry chip traders							
Very weak	15.5%	14.8%	15.8%				15.5%
Weak	19.0%	11.1%	22.8%				19.0%
Moderate	27.4%	22.2%	29.8%				27.4%
Strong	21.4%	33.3%	15.8%				21.4%
Very strong	4.8%	14.8%	0.0%				4.8%
(blank)	11.9%	3.7%	15.8%				11.9%

Do you think you will still be growing cassava in 5 years?

	Bolikhamxay Province	Bolikhan District	Viengthong District	Sayabouly Province	Paklai District	Kenthao District	Total
Yes	50.6%	47.8%	53.3%	29.4%	34.4%	24.4%	40.0%
No	12.2%	20.0%	4.4%	3.9%	2.2%	5.6%	8.1%
Unsure	37.2%	32.2%	42.2%	66.7%	63.3%	70.0%	51.9%

	Q1	Q2	Q3	Q4	Total
Yes	48.89%	40.00%	35.56%	35.56%	40.00%
No	6.67%	8.89%	10.00%	6.67%	8.06%
Unsure	44.44%	51.11%	54.44%	57.78%	51.94%

Significant uncertainty about the future!

Priorities and challenges

- Lifting productivity or maintaining productivity is important to the outlook of the cassava sector in Lao PDR.
- Farmers are adopting labour saving technologies, expanding production, and reducing fallow periods.
- Fertiliser will play a role in maintaining and improving productivity
 - Lack of information, Access to capital, Risk and uncertainty, Availability of fertilisers suitable for cassava in local markets,
- Pest and disease becoming increasingly widespread
- Both private sector and government need more information about constraints and opportunities to lift productivity

Thanks for Your Attention!

