



# Industry and Government Engagement in Cambodia (2017-18 & 2018-19)

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**Australian Centre for  
International Agricultural Research**



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# Outline

- Recap on the structure of the value chain
- Current attempts at engagement
- Future plans

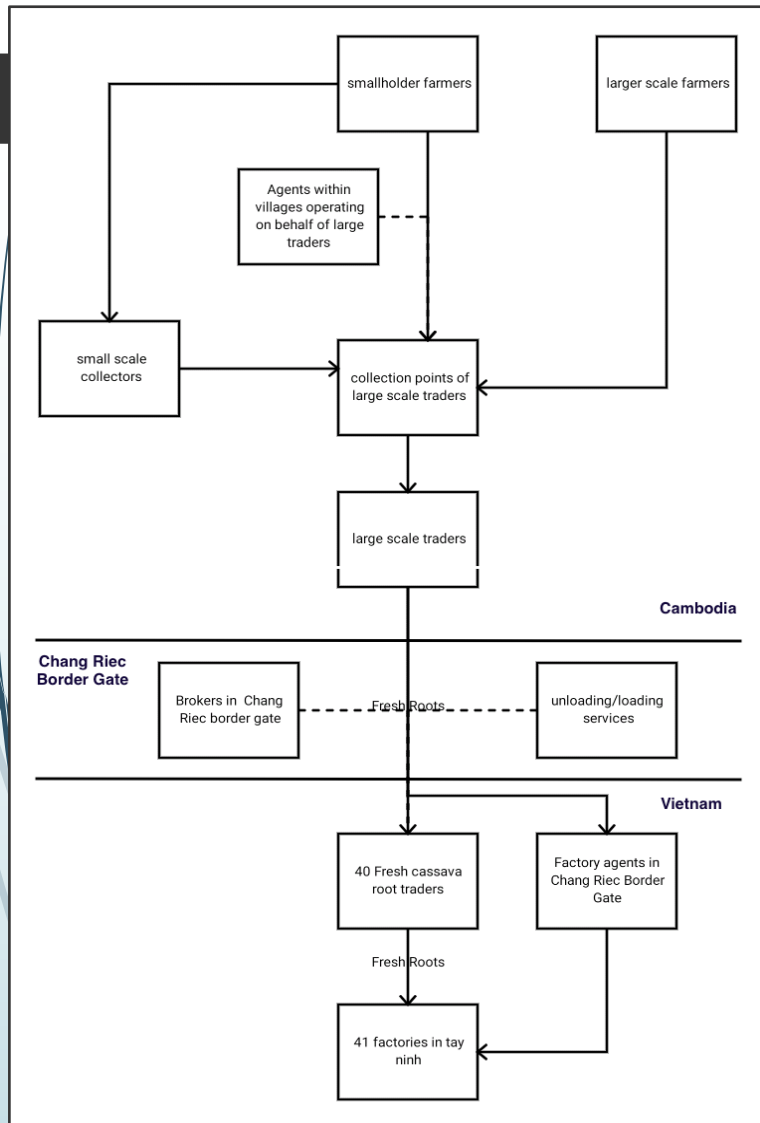




## Recap on agronomic impact

- ▶ Alternative varieties could offer higher fresh root yield – existing structure is quite efficient at moving new varieties adopted in Vietnam into Cambodia.
- ▶ Adoption of low levels of balanced fertiliser could increase yields by 6-10t/ha.
- ▶ Starch content could be improved by adoption of clean elite varieties and appropriate fertiliser rates – increasing starch extraction efficiency.
- ▶ Access to clean stems could limit yield losses by CMD by over 10-15t/ha

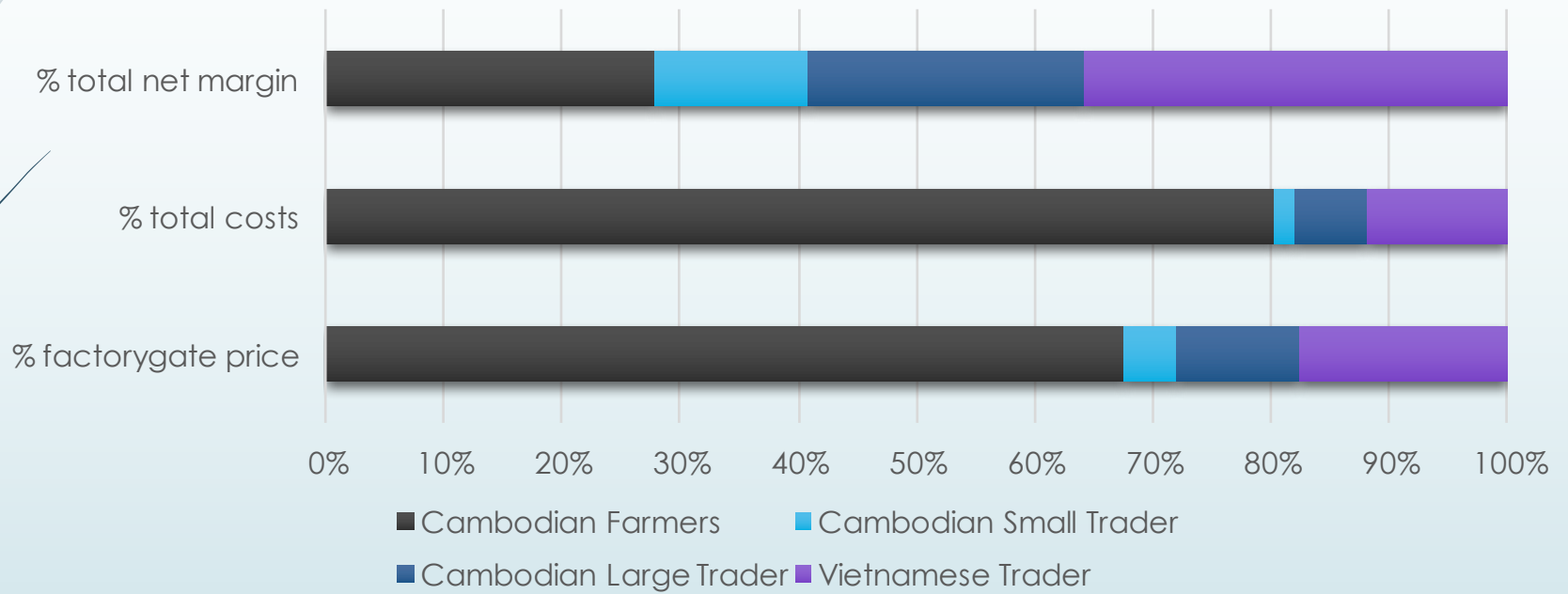
# Linked to the Tay Ninh market



- Eastern Provinces dominated by cross border trade to Vietnam
- At start of the project both fresh roots and dried chips were produced.
- Current high prices has pushed the extensive margin for fresh roots further in to Cambodia
- Weak linkages between actors
- New factories being established on the Cambodian side of the border – fierce competition for feed stock

# Where is the margin?

## Incentive lacking in the cross border trade?





## Do farmers who host or see a demonstration change their practices?

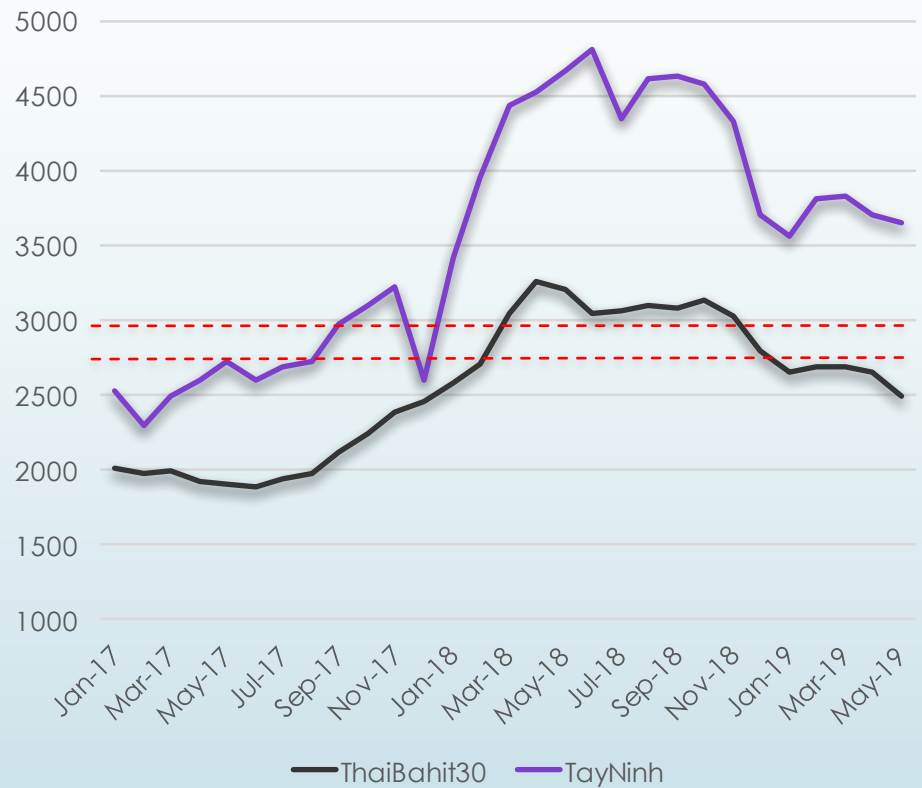
- ▶ One farmer in Chet Borei won fertiliser in a lottery system. After seeing the impact she now starts to apply
- ▶ Farmer co-operator in Snoul follows recommendation

## Discussion with new factory management



- New factory in Kratie – Sing Song
- 1000t/day capacity
- Uses independent traders
- No agents
- 400 Riel/t ....but Vietnam had higher price
  - Not enough roots and did not run the factory
- Initially produced some training material
- Limited interest in working with farmers
  - High competition with Vietnamese market

# Excess capacity in Tay Ninh means strong competition for feedstock.



400 KHR - Factory  
360 KHR - Farm gate



## Similar view of factory in Kampong Cham



- ▶ Did not have much interest in working with farmers
- ▶ Unaware of CMD issue in surrounding area.



## Strategy

- ▶ Continue to involve processors in field days and provide evidence
- ▶ Concentrate on the impact on management of **starch yield** rather than fresh root yield.

Typically 1000t roots = 250t starch

With CWBD

1000t roots = 140t starch

*Processor in Cambodia*



## Green Leader

- ▶ Green Leader is currently overseeing the construction of a \$20 million cassava processing factory on 20 hectares in Kratie province's Snuol district.
- ▶ When complete, the factory will have the capacity to produce 100,000 tonnes of tapioca a year – a haul that would require 400,000 tonnes of raw cassava from local farmers.
- ▶ The company plans to spend \$150 million on 10 processing facilities over the next three years.

# Contract farming – is it the answer??

**Cassava Contract Farming: a model which is innovated to increase incomes of smallholder farmers and reward quick return on investment**



Snoul District, Kratie Province, 17 July 2018– A dialogue forum is organized to bridge cassava farmers who over years sell their harvested roots to unknown buyers without knowledge of end products and Green Leader laying a ground-breaking ceremony of its first starch processing factory on 2 April 2018.

- Is there enough benefit for smallholders to stop side-selling if price in Vietnam is better?
- Contracts between factory and individual farmers in cumbersome
- Contracts with agents perhaps more feasible.

# Work with service sector??



**money**  
easy and safe

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**metfone** **MB Bank**

- Get recommendation into agro-dealer shops.
- Information linked to credit



## Discussion with traders

- ▶ Limited knowledge of cassava management practices
- ▶ Many also trade stems – and have continued to bring infected material into their own supply zone
  - ▶ Some thought symptoms were what the new variety looked like
  - ▶ Some said it was due to soil fertility problem
- ▶ Urgent need to show the impact on yields and supply in their own village
- ▶ Opportunity to set up demonstrations with those that also grow cassava
  - ▶ Potentially could be multipliers of clean material
  - ▶ Also input suppliers
  - ▶ Node for information dissemination of information

## Stem trade



- ▶ Current price of stems ranges from 4,000-12,000 Riel per bundle (\$1-3 USD) in Eastern Cambodia
- ▶ Traders buy from Vietnam
  - ▶ Buy 4,000 – Sell 6,000; Buy 9,000 sell 12,000
- ▶ “Payment” at the border 400,000 Riel per truck ~ \$100 payment
- ▶ \$300 transport from border to Kratie
- ▶ 1500-2000 bundles per truck
  
- ▶ VIETNAM SIDE
  - ▶ 17,000 – 20,000 VND per bundle (0.73-0.86 USD/bundle) all quality
  - ▶ 30,000 high quality ‘not infected’ (\$1.29)

# Discussion with Development Projects

- ▶ Opportunities to link with larger development projects that have resources to work with PDAFF
  - ▶ AIMS
  - ▶ ASPIRE






# National Cassava Policy Development input



## CASSAVA: FACTS AND FICTION



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Resilient nations.

### Overview of Cassava production

Cassava (*Manihot esculenta Crantz*) is a perennial woody shrub, grown as an annual. Cassava is an increasingly important source of starch for various food and industrial uses. The annual value of cassava starch (or tapioca) traded globally exceeds any other form of native starch. Modified starches, sweeteners and syrups, and various fermentation products and acids derived from cassava grown in Asia are utilized throughout the world. Cassava is also a low-cost source of energy (carbohydrate) for animal feeding and is used as a feedstock in the production of bioethanol.

Cassava is currently the most important upland crop of Cambodia. Its production has increased rapidly due to the growing global demand for many final products derived from cassava with a positive long-term outlook. Much of the production increase has been due to land conversion from other upland crops (such as maize) that became less economically competitive; and through the expansion of the agricultural frontier. It is also used as an intercrop during the establishment years of various other tree-based systems such as rubber, pepper and cashews. The growing reliance on cassava cultivation has led to millions of Cambodian smallholder farmers depending on cassava production for their livelihoods.

### Cassava myths and realities

Cassava production is surrounded by many misunderstandings. Some commonly repeated information about cassava production is based more in myth than in fact. To evaluate some of this misinformation, this factsheet explores the most common myths and realities about cassava cultivation.

**Myth 1: cassava destroys soil fertility.**

**Reality:** Over the years, continuous cropping and inappropriate farm management leads to net nutrient removal and gradual decline of soil fertility. Nevertheless, the same is true of all crops. Is cassava worse in this regard than other crops?

Table 1 demonstrates that cassava does not extract more nutrients per kilogram of harvested root relative to other comparable crops. However, one of cassava's major strengths as a crop is its ability to produce relatively high yields, even when grown on degraded soils.

Cassava's reputation to contribute to soil exhaustion is therefore more a result of its ability to produce high yields. Said simply, cassava removes more nutrients than other crops because it has a higher yield, not because it is an inherently 'bad' crop.

Practices like incorporating harvest residues to the soil, intercropping, green manuring, the use of contour strips, and other management options can reduce nutrient depletion in cassava-based systems.

**Table 1. Average nutrient removal (kg ha<sup>-1</sup> and kg t<sup>-1</sup> harvested product) by Cassava and 10 other upland crops.**

CROP/PLANT PART	YIELD (T HA <sup>-1</sup> )		(KG HA <sup>-1</sup> )			(KG T <sup>-1</sup> ) DM PRODUCED			REFERENCE
	Fresh	Dry	N	P	K	N	P	K	
Cassava / roots	35.7	13.53	55	13.2	112	4.5	0.83	6.6	1
Sweet potato / roots	25.2w	5.05	61	13.3	97	12.0	2.63	19.2	2
Maize / grain	6.5	5.56	96	17.4	26	17.3	3.13	4.7	3
Rice / grain	4.6	3.97	60	14	7.5	13	1.71	2.40	4
Wheat / grain	2.7	2.32	56	12.0	13	24.1	5.17	5.6	5
Sorghum / grain	3.6	3.10	134	29.0	29	43.3	9.40	9.4	5
Beans / grain	1.1	0.94	37	3.6	22	39.6	3.83	23.4	6
Soya / grain	1.0	0.86	60	15.3	67	69.8	17.8	77.9	7
Groundnut / pod	1.5	1.29	105	6.5	35	81.4	5.04	27.1	8
Sugarcane / cane	75.2	19.55	43	20.2	96	2.3	0.91	4.4	9
Tobacco / leaves	2.5	2.10	52	6.1	105	24.8	2.90	50.0	10

Adapted from Howley, R. H. (1991). References for Table 1: 1, Nijholt (1935); Howley and Cadavid (1983); Howley (1985a); 2, Scott and Ogilvie (1957); 3, Madra (1953); Barber and Olson (1968); Scott and Aldrich (1975); 4, Van Rossum (1917); Getbova (1954); Scott and Aldrich (1975); 5, Scott and Aldrich (1975); 6, Cobra Netto (1967); 7, Jacob and Allen (1943); 8, Bouyer (1949); 9, Barnes (1953); Du Toit (1955); Innes (1959); 10, Schmid (1951).

1. Establish a **Cambodian Cassava Research and Development Coordination entity**;
2. Promote sustainable and resilient **cassava-based farming systems and livelihoods** avoiding interventions that focus on cassava in isolation of other components of a farming system;
3. Invest in **cassava breeding and coordinate variety evaluation** with industry stakeholders;
4. Develop **viable seed systems and business models** to promote the use of healthy planting material;
5. Develop and promote **robust fertilizer management recommendations** and flexible strategies for different agro-ecological regions of Cambodia;
6. Invest in and coordinate the **monitoring, surveillance and reporting of pest and disease** and promote appropriate management practices;
7. Develop **cassava-based cropping system options** suitable for different agro-economic regions of Cambodia; and
8. Invest in ongoing **development of mechanization technologies** that enable viable contracting models, address rising labour shortages, and enable the implementation of conservation agriculture practices



Presentation of selected results made to:

- ▶ FAO
- ▶ UNDP
- ▶ IFAD
- ▶ IFC
- ▶ CAVAC
- ▶ GIZ



## Future plan

- ▶ Write information sheets of current results aimed at different actors highlighting the potential impact of management or impact of no management.
- ▶ Make development actors aware of current demonstration and field days
- ▶ Work with processors that show interest
- ▶ Try to prioritise traders where possible for establishing demonstrations