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1967-2017

Cassava seed systems in Vietnam and Cambodia

16th Jan 2018, Vientiane, Laos

Outline

- SRA seed systems studies
- Results and discussion
- Future research

Seed systems surveys – VN & KH

Individual survey

- Households
  15 households/ district;
  15-16 districts/ country

Types of seed trade, purchase & sale:
- Distances, volumes, sources
- Varieties, quality
- Farm characteristics

In-depth survey

- **2 locations/ country**
  - **Expansion site**
  - **Established site**
- 100 at each site
- Combined with trader survey

- Indicators from individual survey
- Network analysis of seed movement

Farm characteristics, Varieties, Storage, Seed exchange, information

In-depth surveys

Survey has 2 parts:

Farmer survey

- 1) Respondent information
- 2) Household and seed use overview
- 3) Availability and supply
- 4) Quality
- 5) Affordability/profitability
- 6) Information sources

Follow-up trader survey

- After part 1, interview (in person or by phone)
- Goal: cover all traders active with famers in the last year

National survey results

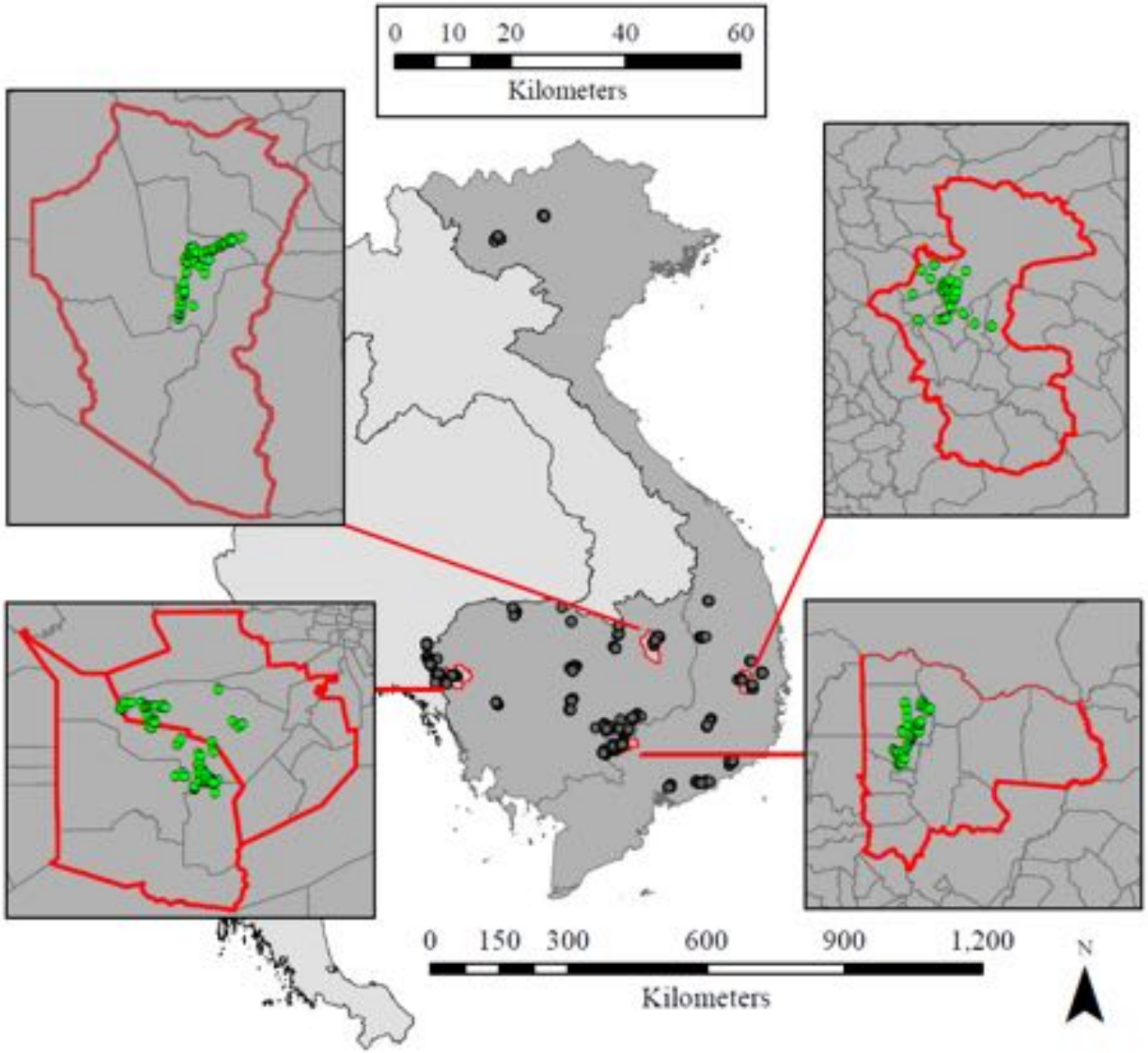
	Cambodia	range	Vietnam	range
Sample size	240		206	
# districts surveyed	16		15	
Gender (M/F)	F-50 M-190		F-49 M-157	
Total farm size (ha)	6.37 (±9.0)	0.1-100	2.0 (±2.5)	0.2-30
Land planted to cassava (ha)	3.89 (±5.6)	0.1-45	1.4 (± 1.3)	0.03-7
# of years growing cassava	6.33 (±5.0)	1-24	12.8 (±9.5)	1-40
Importance of cassava to total income (%)	52.5 (±23.3)	5-100	49 (± 24.2)	1-100

	Cambodia	Vietnam
Regular use of fertilizer on cassava	Y-34 N-206	Y-141 N-52
Number experiencing pest/disease problems in their cassava field	Y-181 N-59	Y-94 N-107
Use of pesticide on the cassava field	N-187 Y-53	N-184 Y-22

In-depth survey results

Ratanak Kiri
Koun Mom dist.
N=**100**
47% Female
yrs experience: **3.2**
Cassava 2017? **81%**

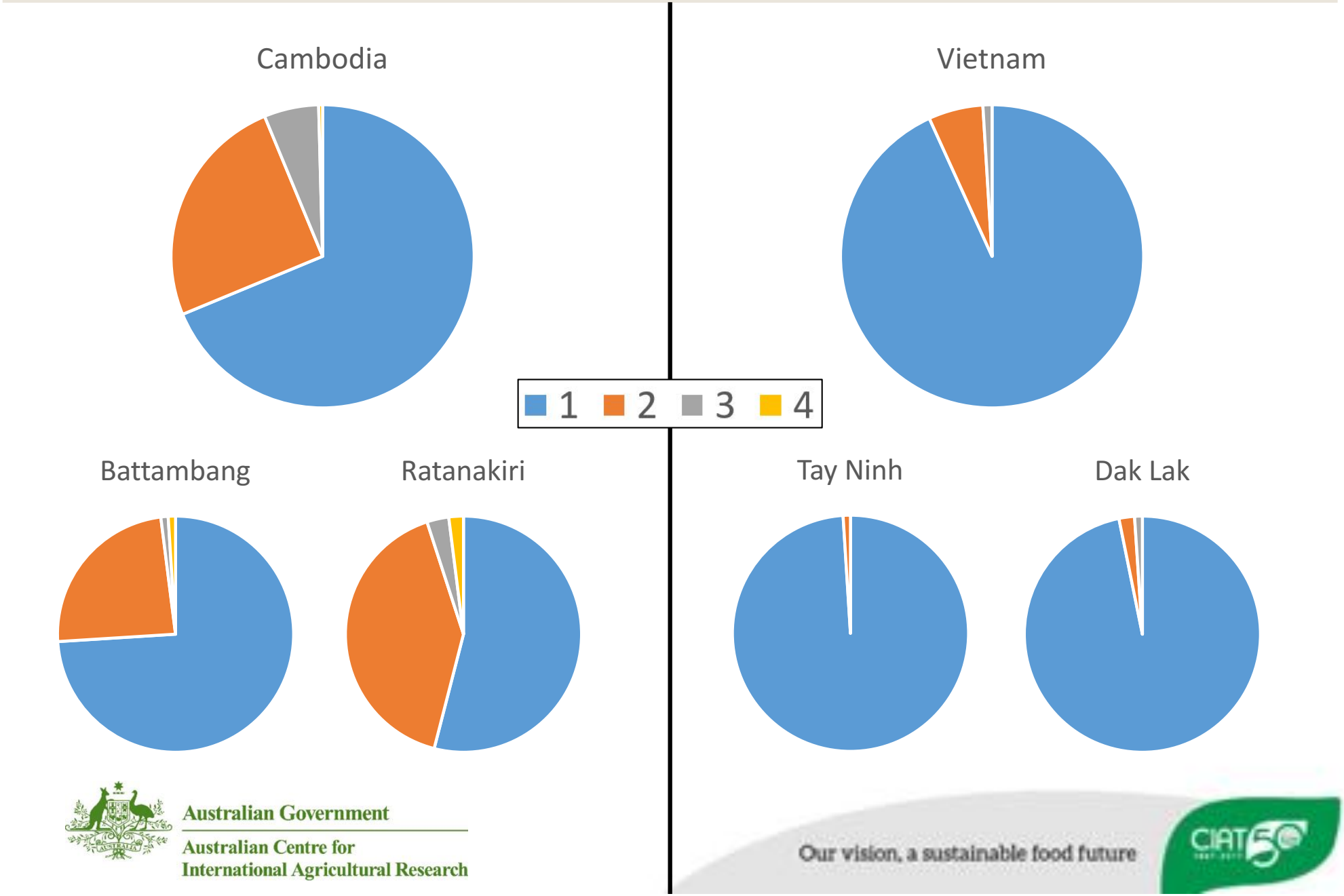
Đắk Lắk
Ea Kar dist.
N=**94**
49% Female
yrs experience: **7.6**
Cassava 2017? **87%**



Battambang
Rotanak Mondol,
Banan dist.
N=**100**
26% Female
yrs experience: **2.7**
Cassava 2017? **95%**

Tây Ninh
Tân Châu dist.
N=**100**
10% Female
yrs experience: **10.3**
Cassava 2017? **88%**

Results – Number of varieties



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Results – Value chain and decisions

End use of cassava roots (%)

	Cambodia	Vietnam
Sold to factory	0.4	**42.2**
Sold to trader	**41.3**	**52.9**
Sold to collection point	**54.6**	8.3
Eaten domestically	0.0	0.0
Did not answer	4.2	0.0

Who makes decisions in the household regarding cassava? (%)

	Battambang	Ratanakiri	Tay Ninh	Dak Lak
Male head	21	15	**73**	34
Female head	9	5	9	35
Decision is made together	**70**	**67**	1	30
Other		11	7	
Did not answer		2	10	1

Results – Stake exchange

Farmers using only farm-saved seed, other sources or a combination (2016)

	Only farm saved	Only other acquisition	Combination	N
Battambang	59%	39%	2%	100
Dak Lak	**87%**	13%	0%	94
Ratanakiri	69%	21%	10%	100
Tay Ninh	30%	**66%**	4%	100

Results – Stake exchange

Who did you exchange stakes with in 2016?

Source	National				Subnational-established sites				Subnational-expansion sites			
	Cambodia		Vietnam		Battambang		Tay Ninh		Ratanakiri		Dak Lak	
	Ac.	Prov.	Ac.	Prov.	Ac.	Prov.	Ac.	Prov.	Ac.	Prov.	Ac.	Prov.
Acquaintance (within community)	26.2	82.3	19.7	77.9	27.1	94.7	23.8	20.7	21.8	90.7	5.2	84.5
Acquaintance (outside community)	3.9		4.3	1.0	4.2		1.9		2.0	1.9		
Local market	0.5		0.4		2.5				0.7			
Agroinput dealer			6.0									
Starch factory	0.5										3.1	
Community collection point		17.7		12.5		5.3	12.4	10.3		5.6		14.1
Community group							1.0			1.9		
Trader (with truck)	18.1		3.0	8.7	2.5		**26.7**	**69.0**	1.4		3.1	1.4
Municipality / district office			1.3								1.0	
Government research organization											1.0	
Other farmer (non-acquaintance)	3.4		1.3				1.9					
Own stock	47.2		64.1		**63.6**		32.4		**74.1**		**86.5**	
Total N transactions	381	130	234	104	118	38	105	29	147	54	96	71
Sample N (individuals)	240		206		100		100		100		94	

Results – Method of stake exchange

How did this exchange happen?

Method of exchange	Cambodia		Vietnam		Battambang		Tay Ninh		Ratanakiri		Dak Lak	
	Ac.	Prov.	Ac.	Prov.	Ac.	Prov.	Ac.	Prov.	Ac.	Prov.	Ac.	Prov.
Save own stocks	47.2		65.0		63.6		32.4		74.1		86.5	
Exchange/barter	0.3	1.5	6.8	45.2			1.0			3.7		
Gift (friends/neighbours/relatives)	10.0	61.5	12.8	33.7	5.9	42.1	11.4	21.4	17.0	53.7	5.2	91.5
Purchase	42.5	36.2	15.4	21.2	30.5	57.9	55.2	78.6	8.8	40.7	6.3	7.0
Voucher/coupon		0.8										
Seed Loan										1.9	1.0	
Money credit											1.0	1.4

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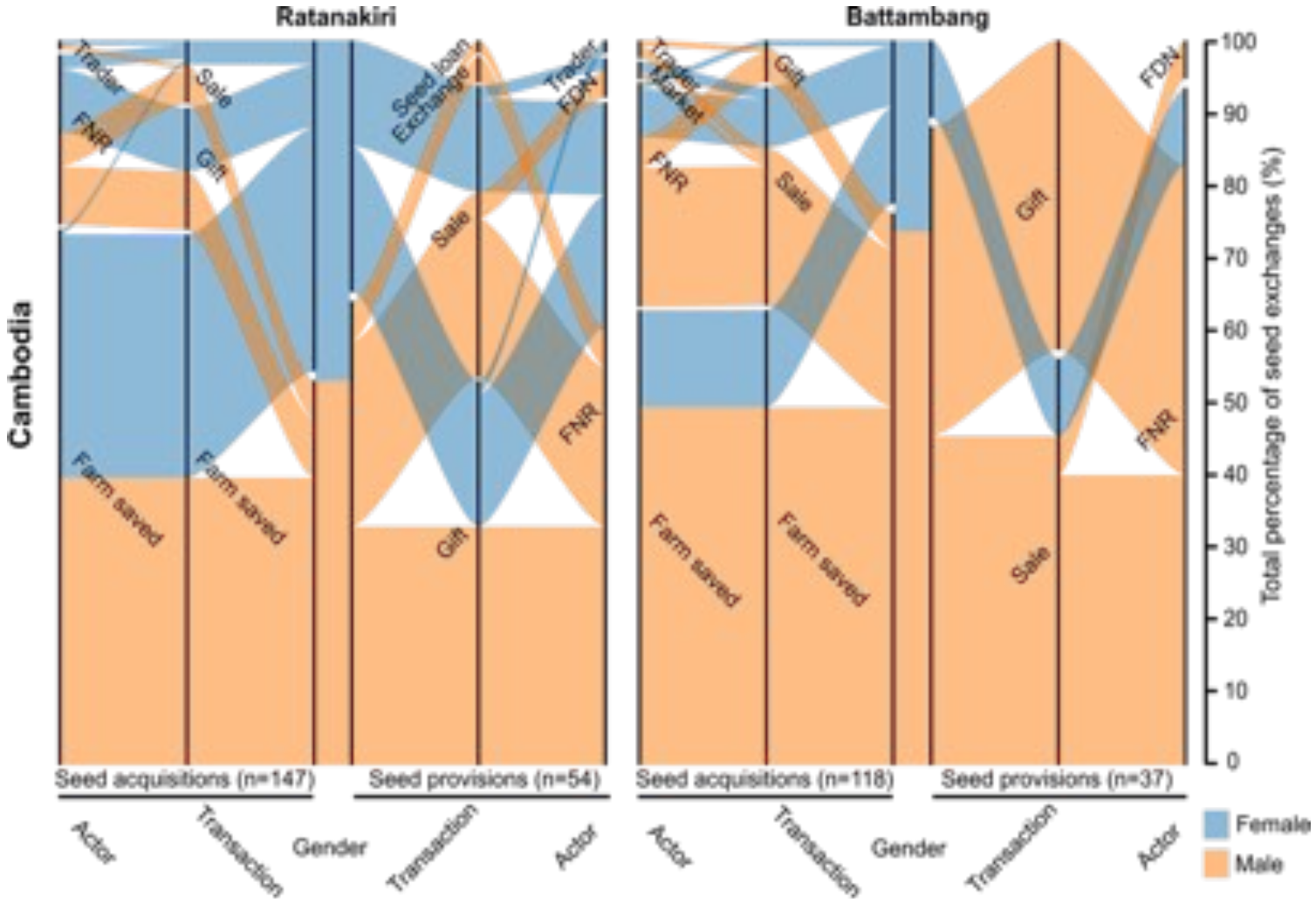
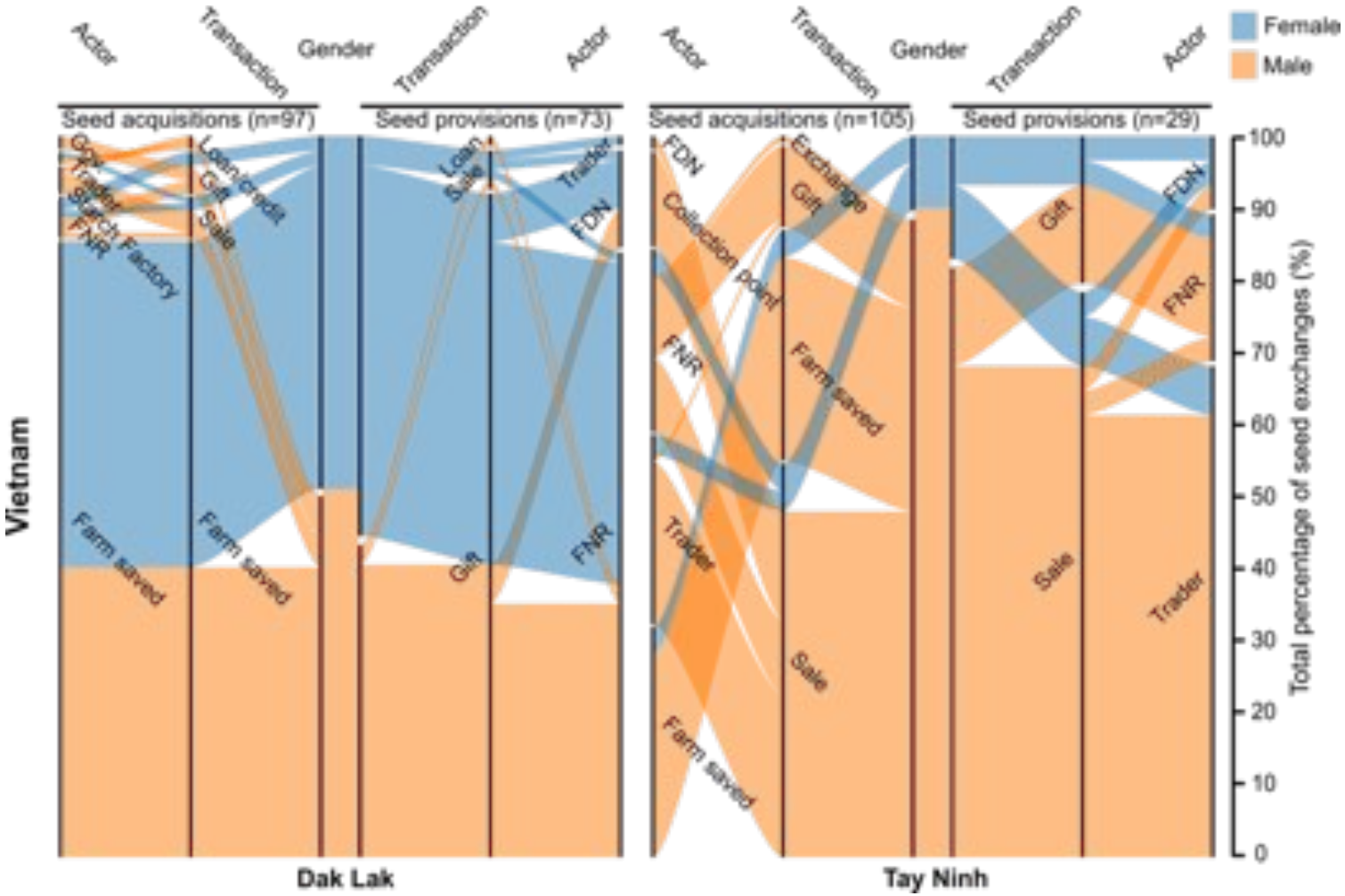
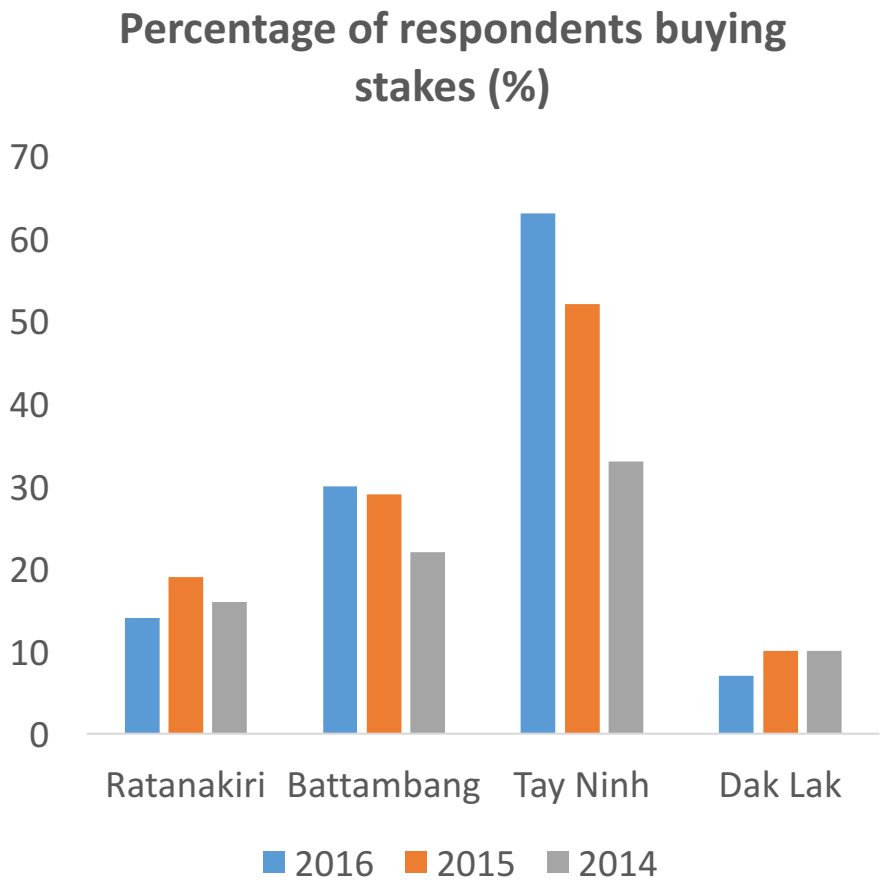
Parallel coordinate plots

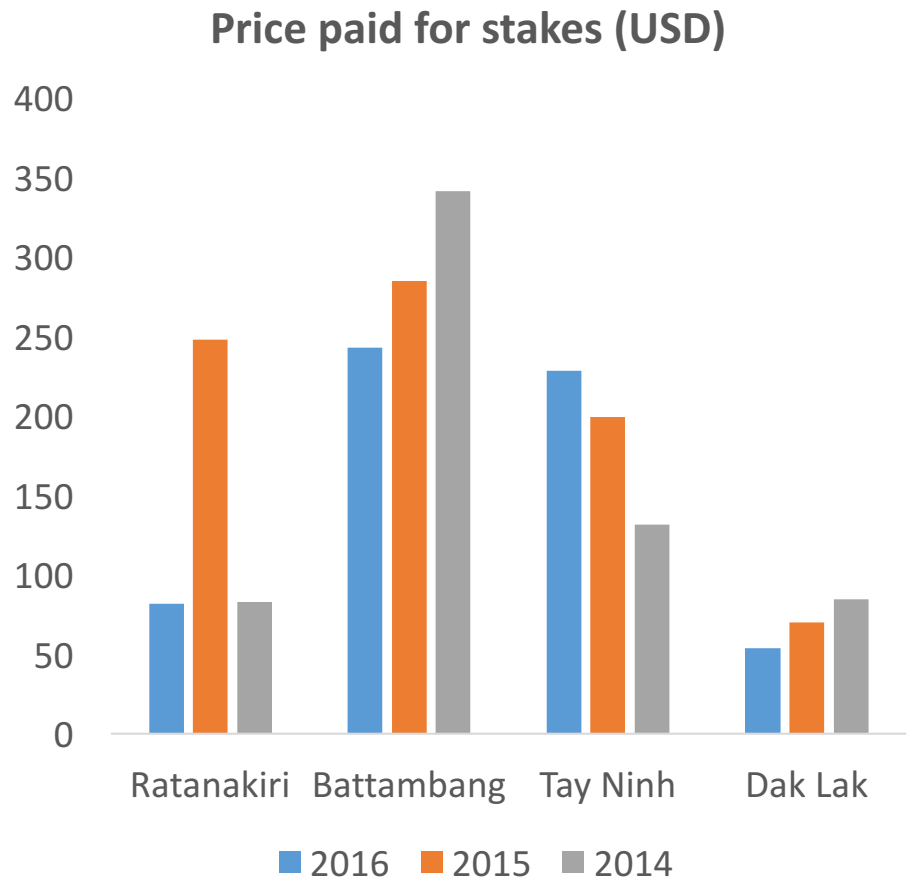


Parallel coordinate plots

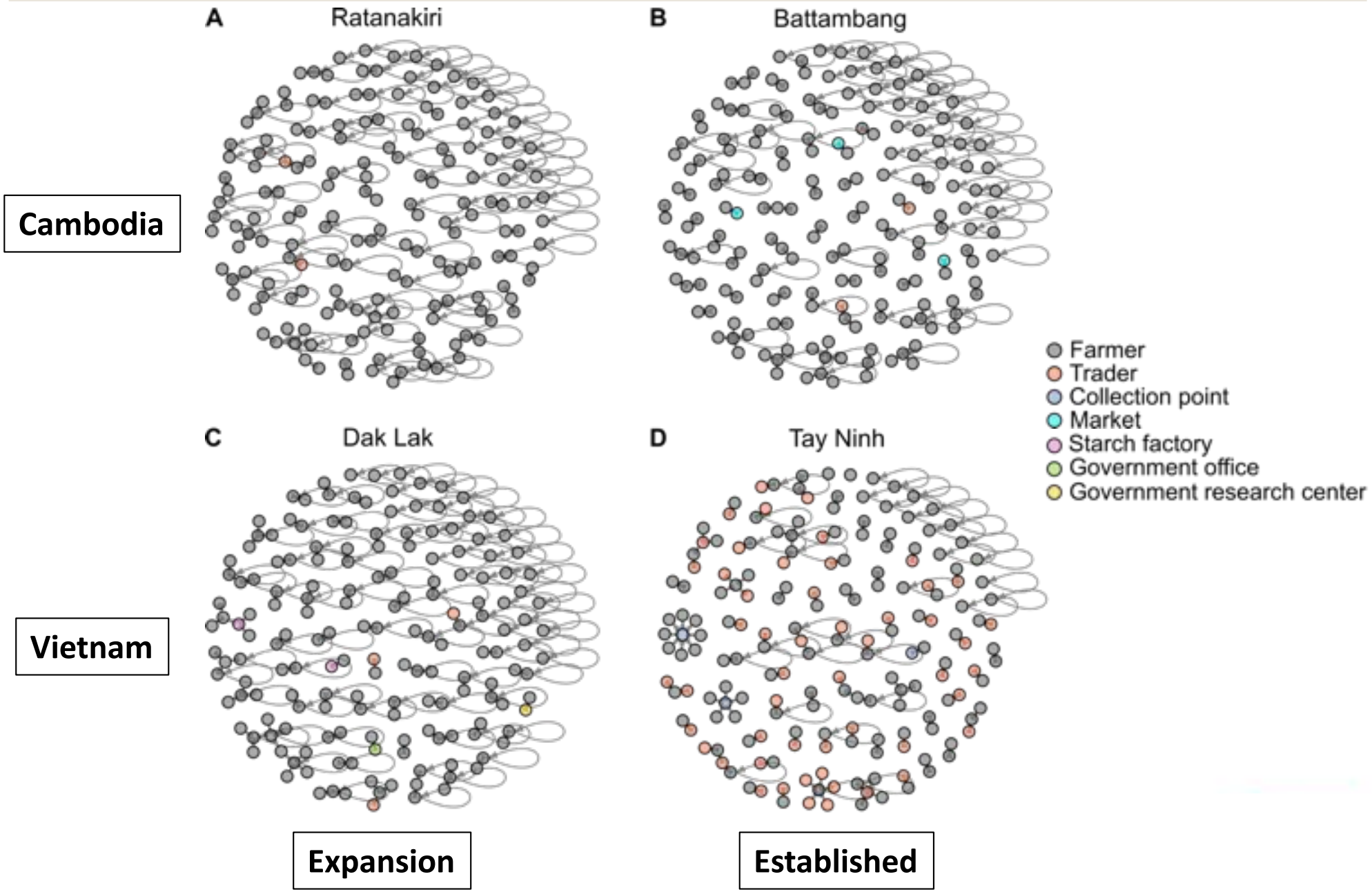


Seed trade - Purchasing





Seed networks in action



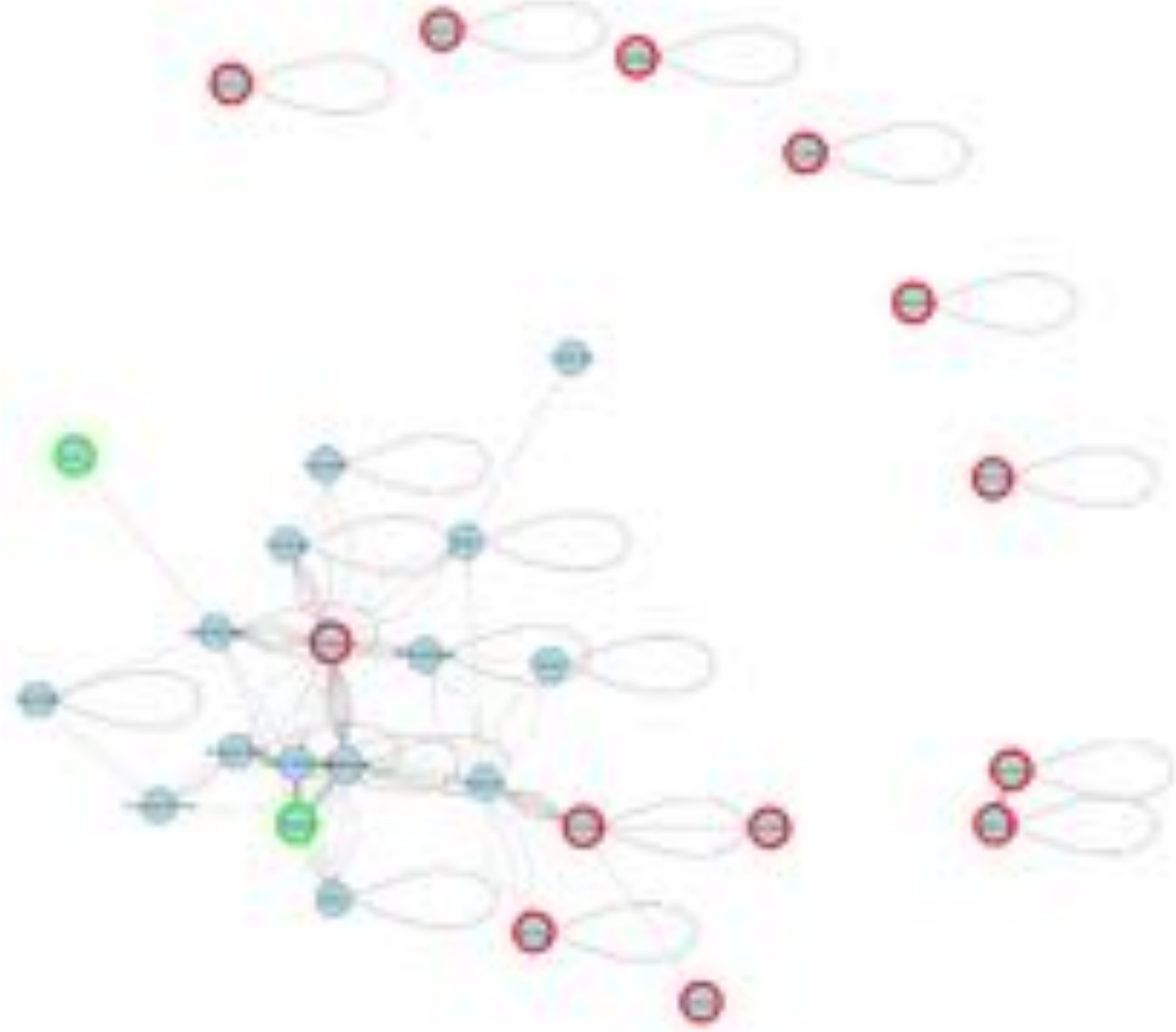
Cambodia

Vietnam

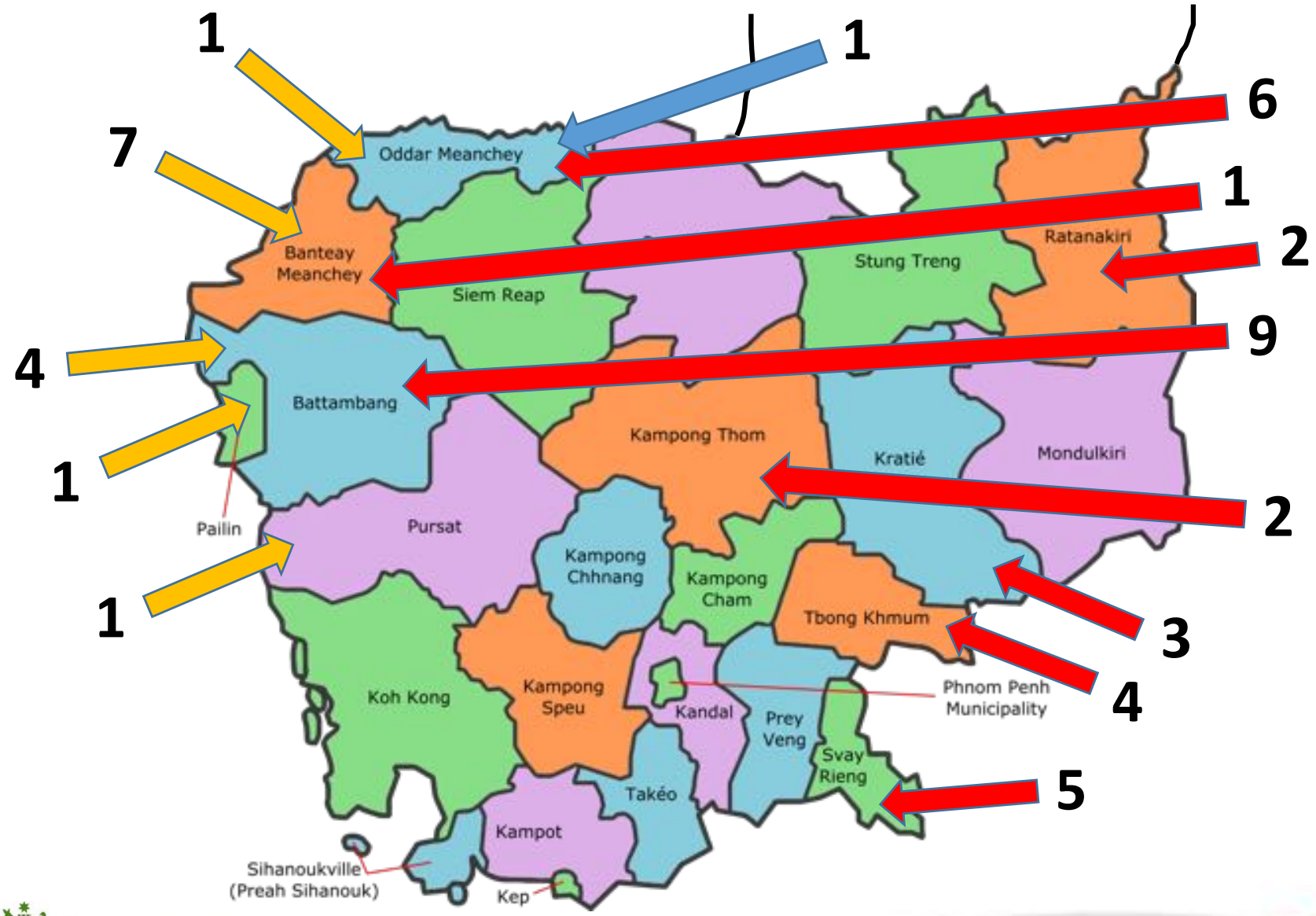
Expansion

Established

Province-province trading



International trading



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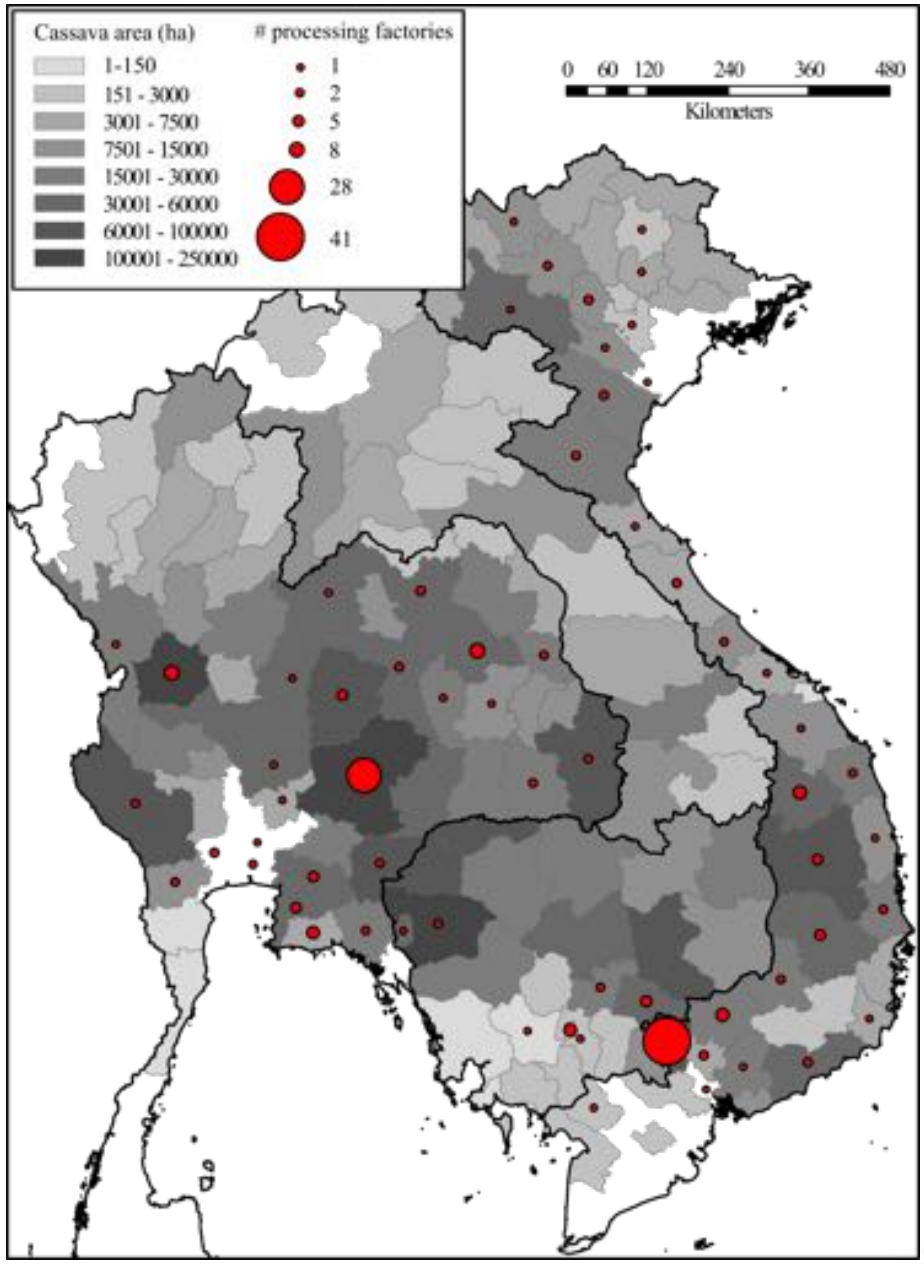
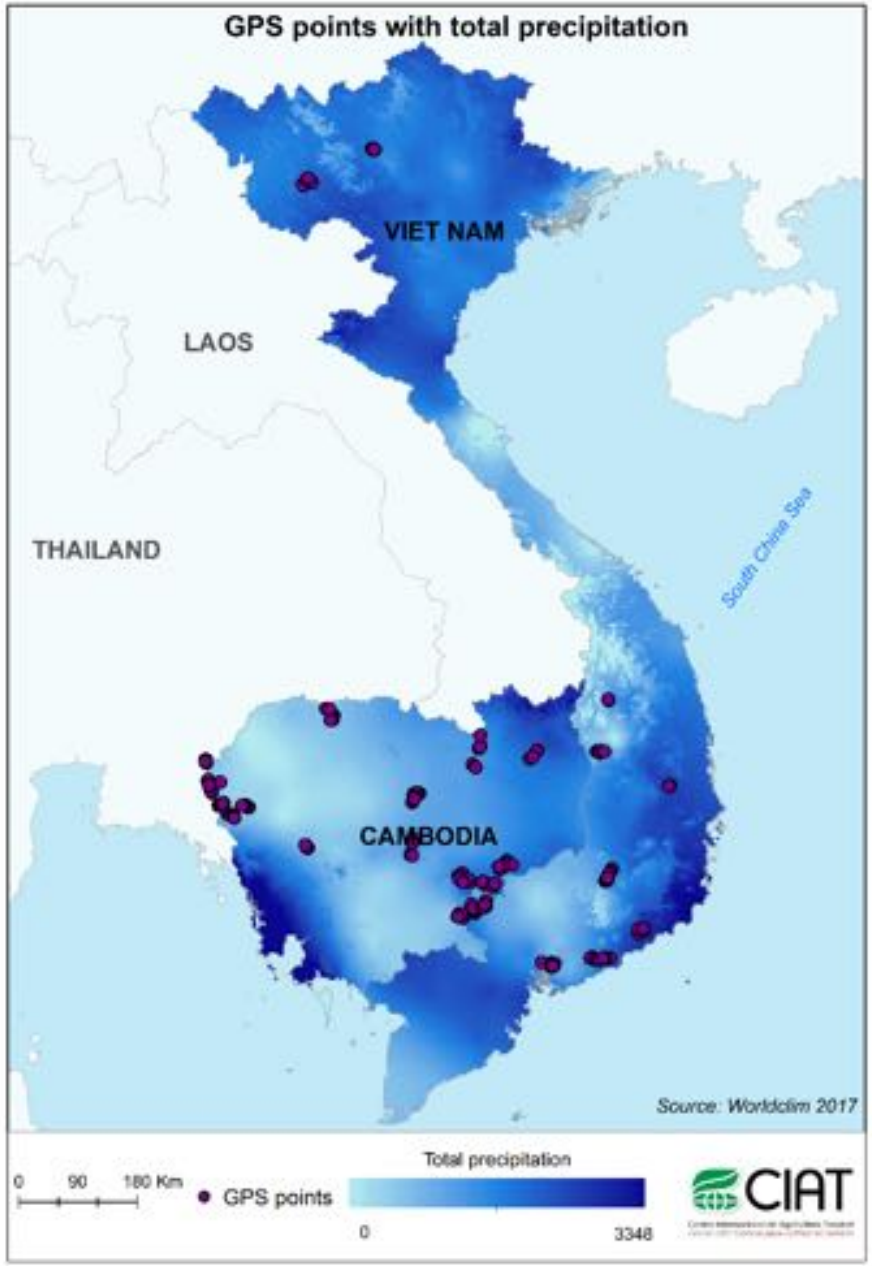
Drivers: cassava trade





Trader surveys

- Trader activity variable from site to site
- Many traders in some locations… but farmers had difficulty providing contact information

<u>Farmer surveys completed:</u>
Ratanakiri – 1, Battambang – 0
Dak Lak - 7, Tay Ninh – 12

- All stakes traded to Dak Lak originated in Tay Ninh
- All traders mix stakes when they have more than 1 source
- Traders served between 10-120 farmers
  - Those from Tay Ninh served 15-20, those from Dak Lak served larger numbers
- Given their critical status in the cassava seed system, a survey initiative dedicated to traders should be a next step

Implications for CMV

- In Vietnam and Cambodia's dense production districts, the landscape is essentially contiguous cassava fields
- A high degree of stake sharing within communities, and trader-mediated links to distant communities make the landscape highly suitable for pest/disease spread
- Low varietal diversity in Vietnam and extensive reliance on buy and trade in Tay Ninh are also risk factors
- International stake movement a reality – but some types of farmers and settings are more prone than others

Conclusions

- The cassava seed system remains a farmer system in both countries
- Although much trade remains local and either self-saved or farmer-to-farmer, the system has developed complex, international links
- The long distances traveled and frequency of purchase are counter to the preconceived notions about vegetative seed

Conclusions

- Women involved in cassava operations on a similar level as men in more rural expansion sites, while intensive production sites are male-dominated
- Cambodia is a sink for seed from both VN and Laos; Southern Vietnam (Tay Ninh) a major provider
- Large variability exists, depending on intensity of production and production cycle details

Additional survey data use

- In addition to becoming open source:
- Beginning work on impact network analysis
  - Modeling scenarios; combining with decisionmaking rules
- Participation in RTB seed system group & cross-cutting analyses

Future needs

- All steps in the whole value chain of stake exchange should be mapped from farm to farm, especially for international trade
- Need further research to understand farmer decisionmaking
- ssss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