

Changing agricultural land-use patterns and the drivers of these changes in Vietnam's Red River Delta

Stephen Leisz, Colorado State University

Nghiem Thi Phuong Tuyen, Center for Natural Resource and Environmental Studies, Hanoi National University

Jen Mulgrew, Colorado State University

Overview

- Background on Agricultural Transitions in SE Asia
- Introduction
- Study Area
- Changes in the Red River Delta of Vietnam
 - Findings to date
- Case Study – Agricultural and land-cover changes in Xuan Quan Commune
- Discussion
 - Drivers of Changes
 - Next steps

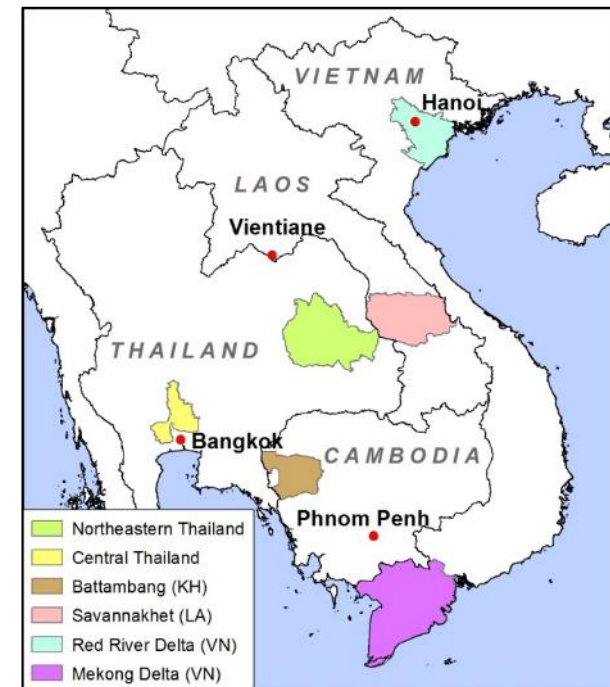


Background: Agrarian Transition

- As economies grow, farm sizes grow, but rural populations decrease
- Originally documented in the “developed” countries (U.S., Europe, Australia, some countries in South America)
- Southeast Asian countries:
 - moved from low income to middle and upper-middle income
 - Share of GDP from agriculture has dropped
 - Share of labor force in agriculture has dropped
 - Transition in farm size has not occurred
 - Truncated agrarian transition(?)

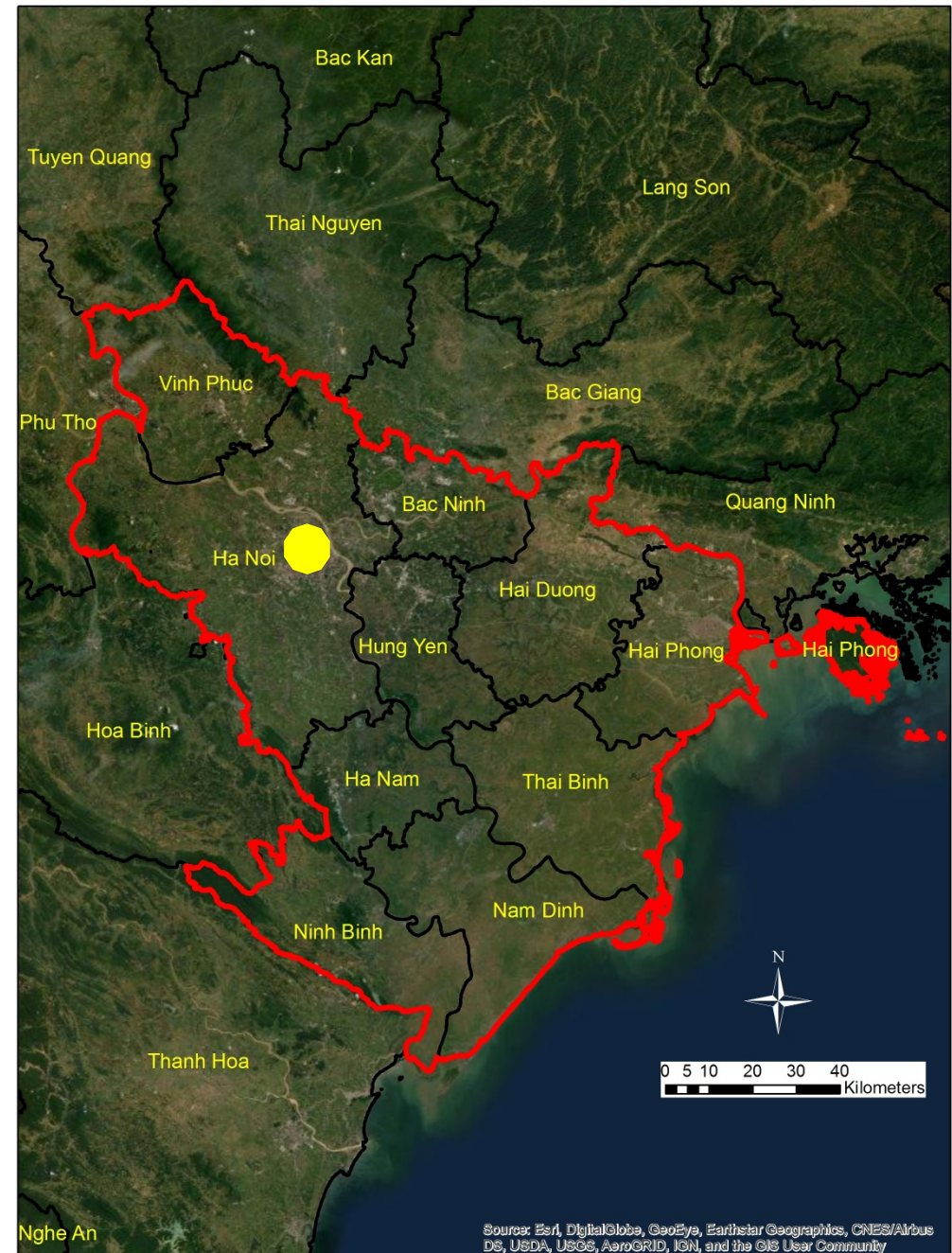
Introduction: The context of this presentation

- Research is part of the larger project: “The agrarian transition in Mainland Southeast Asia: Changes in rice farming – 1995 to 2018” (PI: Jefferson Fox; Co-I’s Jamon Van Den Hock, Kaspar Hurni, Caitlin Kontgis, Ian Baird, Stephen Leisz)
- Focus of larger project:
 - Northeast and Central Regions, Thailand
 - Savannakhet Province, Laos
 - Battambang Province, Cambodia
 - Mekong Delta, Vietnam
 - Red River Delta, Vietnam



The Red River Delta

- One of two major rice growing regions in Vietnam
 - Historically important to Vietnam for rice production
- Yields per hectare of rice can be greater than 13 ton/ha
- Hanoi is located near the center of the Red River Delta
- Industrial zones expanding





Policies related to farming in the Red River Delta

- 1954: Land to the tiller
 - Redistribution of land from landlords to local households
- 1960 – 1980: Collectivization
- 1986: *Doi Moi*
 - Land to households (“Red books”: right to exchange, bequeath, transfer, lease, mortgage)
 - Long term leases (20 yrs/annual crops, 50 yrs/perennial crops)
- 1993: Land Law
 - Equal distribution of land
- 2013: Lease period for all land 50 years

Note: Within land laws prohibition on converting large areas of rice land to other uses have been in place.

Study sites

- Provinces randomly chosen
 - Stratified Red River Delta into upper, middle, lower regions
 - Randomly chose one province from each region
- Districts randomly chosen from each province that was selected
- Communes – selected by district
- 7 communes:
 - Yen Lac, Dai Tu (Vinh Phuc [upper])
 - Xuan Quan, Pham Ngu Lao, Vinh Xa (Hung Yen [middle])
 - Nam Duong, Nam Thang (Nam Dinh [lower])



Methods

- Interviews
 - Semi-structured interviews (2018)
 - Officials at the Province, District, Commune
 - Key informants in each District and Commune
 - Structured Questionnaire (2019)
 - 270 households
- Remote Sensing
 - High Resolution Imagery analysis for commune level case studies
 - Imagery from Google Earth for 2002, 2010, 2017 (QGIS screen capture)
 - Ground truth collected in the field
 - Object based image analysis and visual interpretation
 - Results checked against high resolution imagery after classification and ground truth

(Note: on-going not completed for all sites)

Results:

Farming Systems in the RRD

Upper RRD: Vinh Phuc Province

- Land allocation 1993
- Two rounds of land consolidation (2002, 2013)
- Agriculturally dependent
 - Rice growing (2 crops or 1 crop)
 - Winter vegetable crops for market
 - Aquaculture
- Consolidation of rice land at household level
 - Fewer plots per HH
 - Some HH leaving farming; rent land to others (5 year rental agreements)
- HH labor starting to go to industrial parks



Results:

Farming Systems in the RRD

Middle RRD: Hung Yen Province

- Land allocation 1993
- Two rounds of land consolidation (2002, 2013/2014)
 - Plots of rice land per HH decreased from 8 to 1 to 2
 - Two crops of rice per year
 - Rice growing less emphasized
 - Winter crops grown on 1/3 of land
- Goal of Province: decrease rice growing and increase tree crops
 - History of fruit and flower production (originally in northern part of province; moving to southern and eastern areas)
 - Provide trees/flowers for landscaping of new housing developments

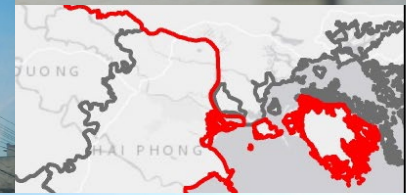
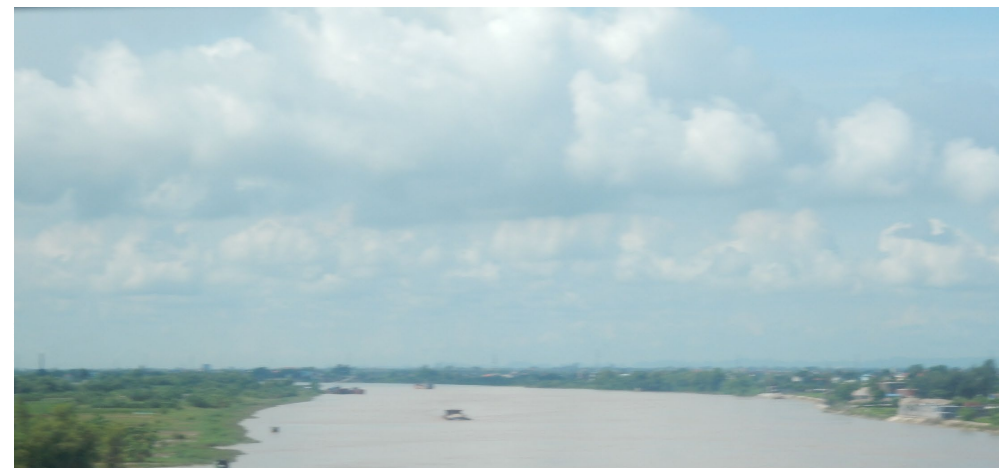




Results: Farming Systems in the RRD

Lower RRD: Nam Dinh Province

- Land allocation 1993
- Two rounds of land consolidation (2002, 2013)
- Agriculture focuses on rice growing
 - 3 crops per year or 2 crops per year
 - Winter crop (potatoes, cauliflower, groundnuts, melons)
 - Consolidation of plots; fewer plots per HH (2 or 3)
- Other agricultural activities
 - Mulberry trees
 - (New) Sod farming (sell to hotels, resorts, golf courses in Vietnam, Laos, Cambodia)

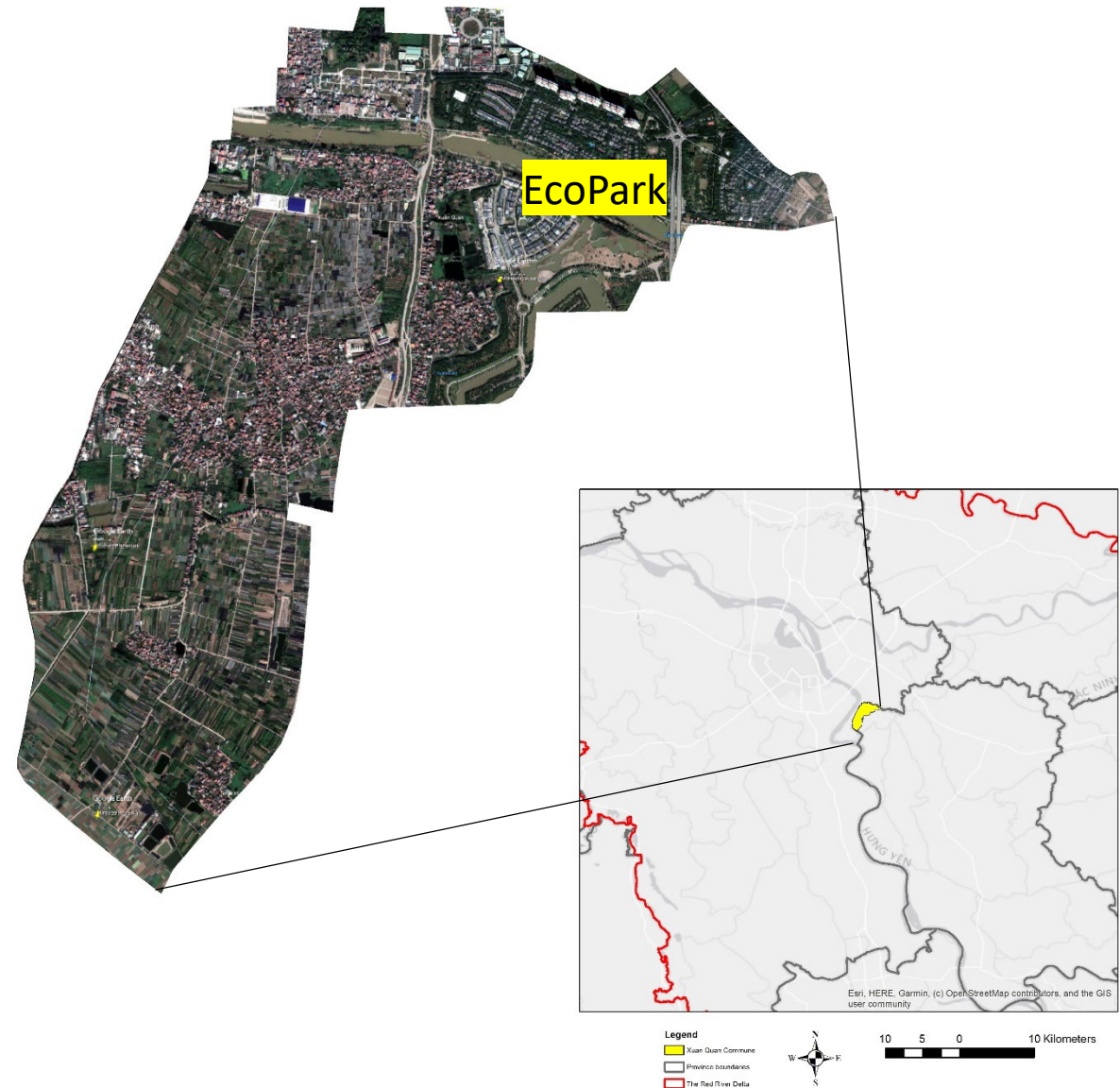


09.06.2018 20:28

09.06.2018 02:28

Case Study: Farming System and Land Cover Changes in Xuan Quan Commune

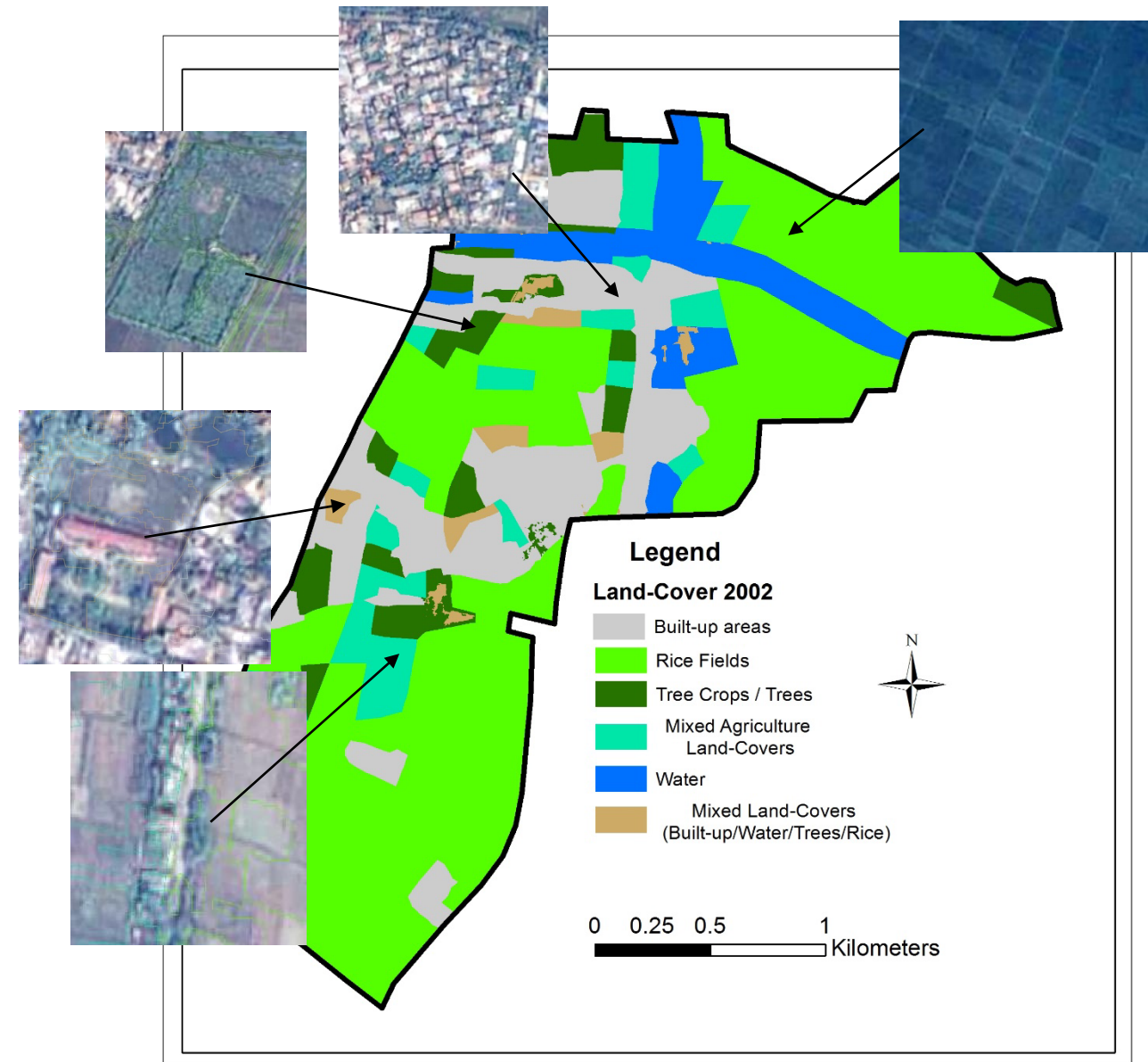
- Located in north of Hung Yen Province; close to Hanoi
 - In addition to rice growing, historically supplied fruit and flowers to Hanoi market
- 2012: lost rice growing land east of dike to housing development (EcoPark)
- 2012: Households started replacing rice and fruit trees with ornamental trees and flowers



Xuan Quan 2002 – Farming System and Land Cover

Land-Cover

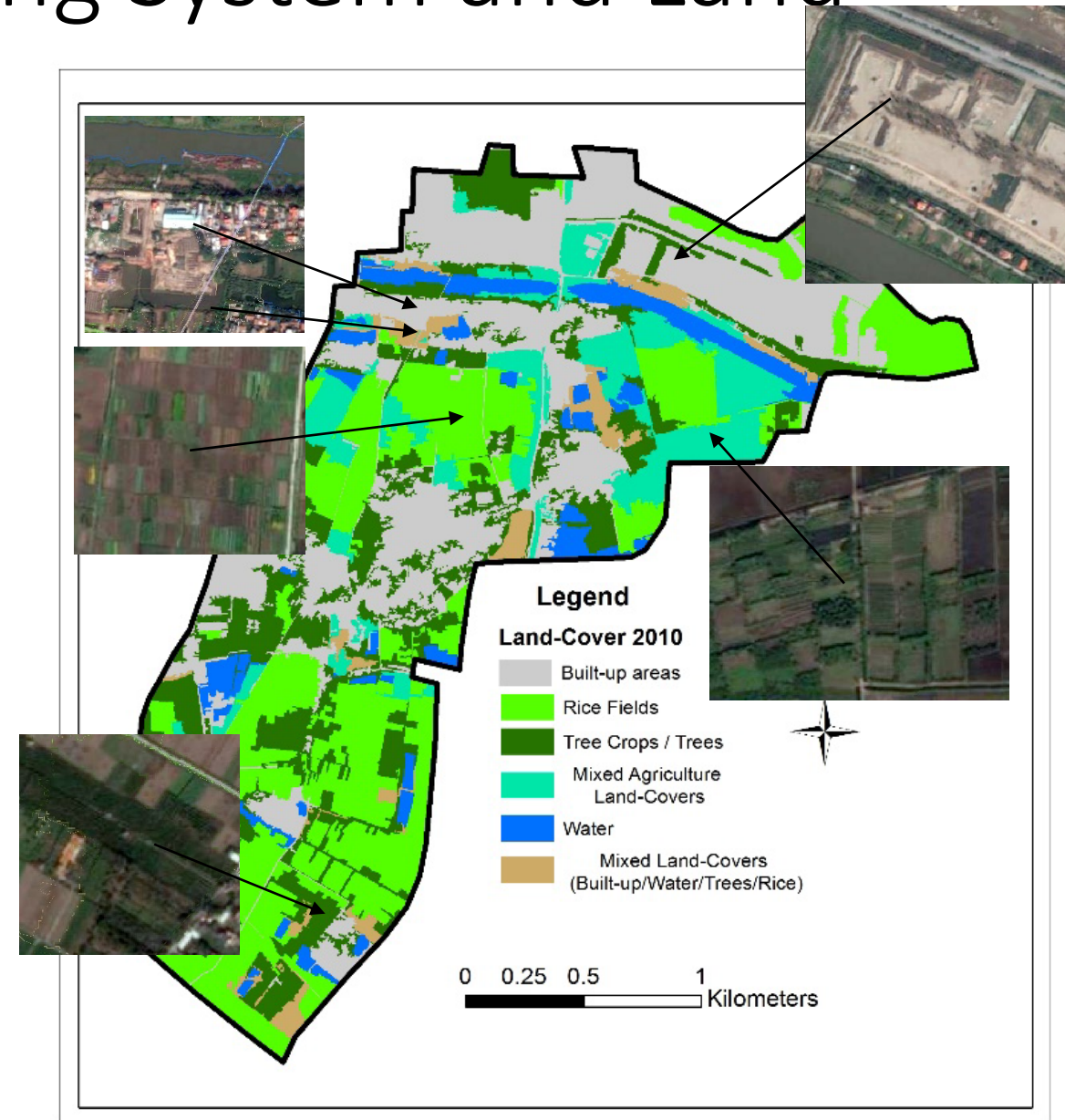
- Residential: 109 ha
- Agriculture
 - Rice: 298 ha
 - Tree crops / trees: 41 ha
 - Mixed agriculture: 44 ha
- Water: 47 ha
- Mixed land covers: 13 ha



Xuan Quan 2010 – Farming System and Land Cover

Land-Cover

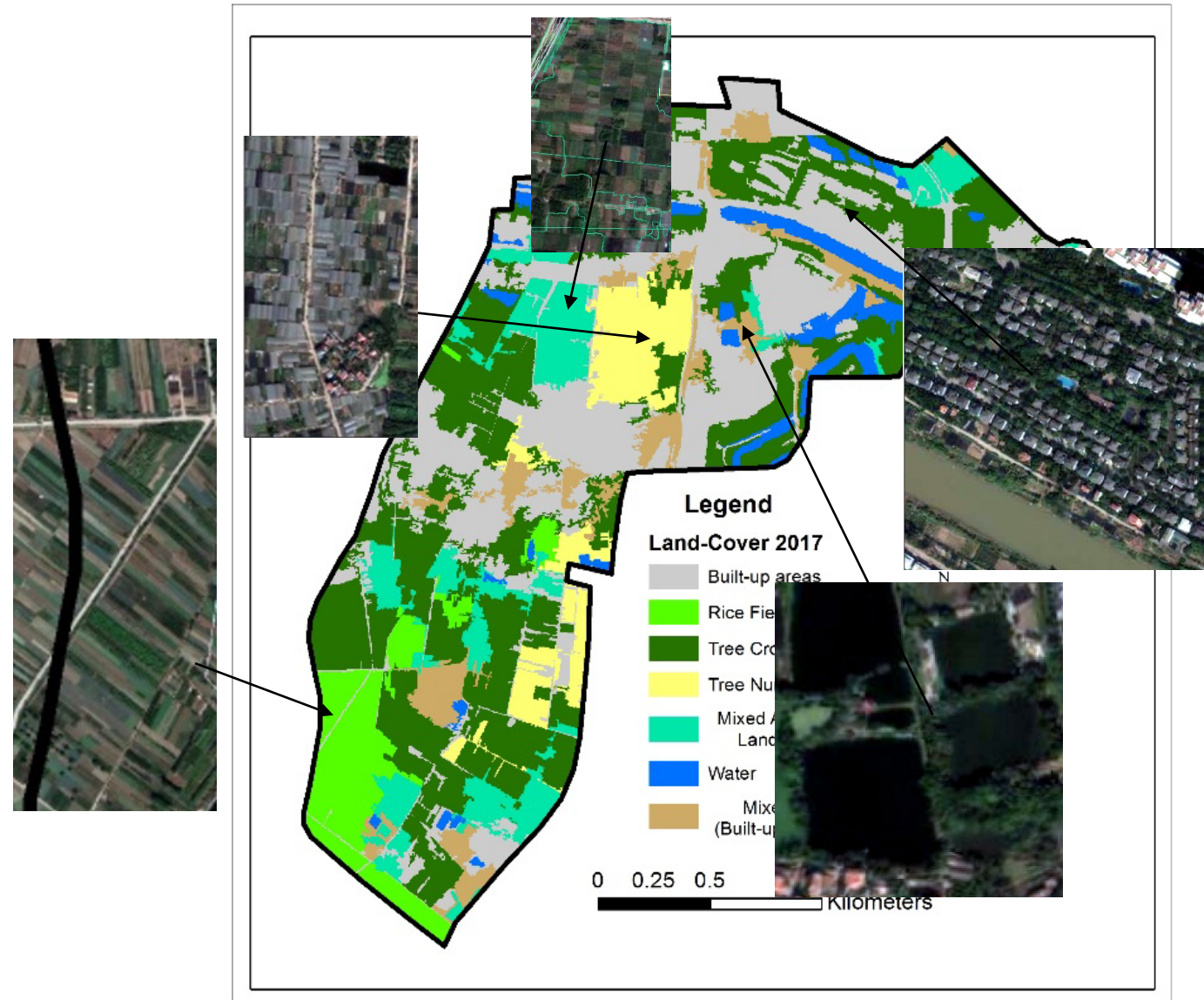
- Residential: 156 ha
- Agriculture
 - Rice: 173 ha
 - Tree crops / trees: 107 ha
 - Mixed agriculture: 62 ha
- Water: 35 ha
- Mixed land covers: 20 ha



Xuan Quan 2017 – Farming System and Land Cover

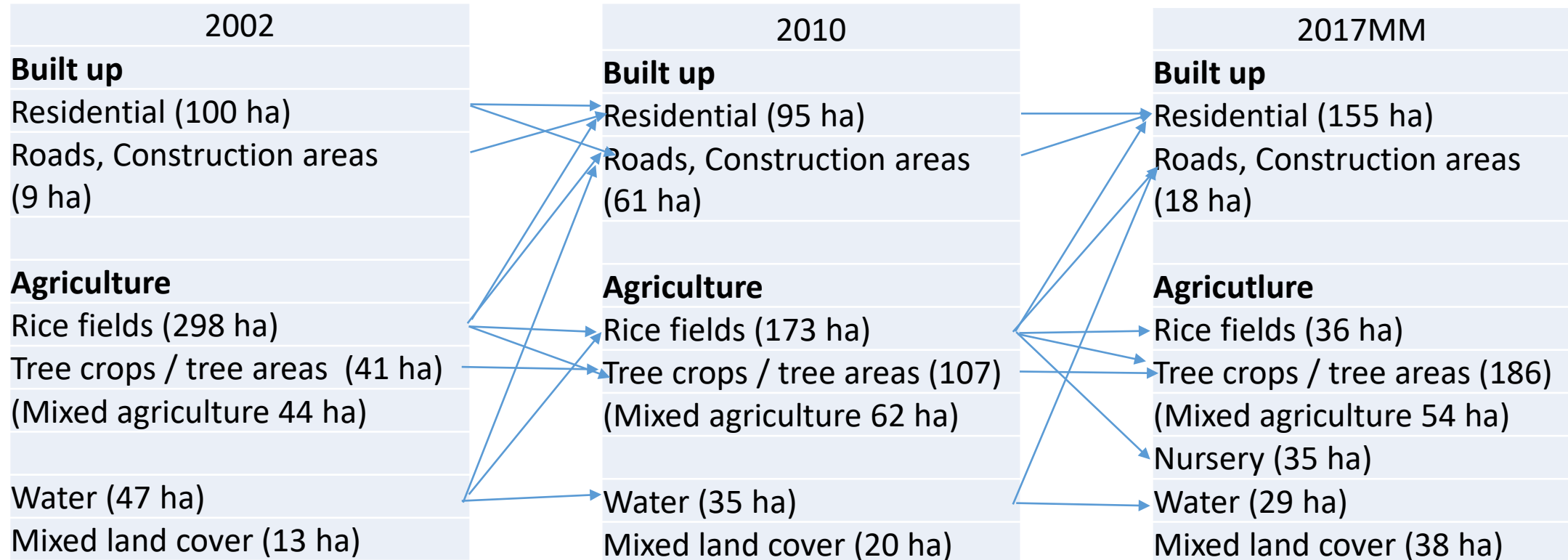
Land-Cover

- Residential: 174 ha
- Agriculture
 - Rice: 36 ha
 - Tree crops / trees: 186 ha
 - Mixed agriculture: 54 ha
 - Tree nurseries: 35 ha
- Water: 29 ha
- Mixed land covers: 38 ha



Discussion

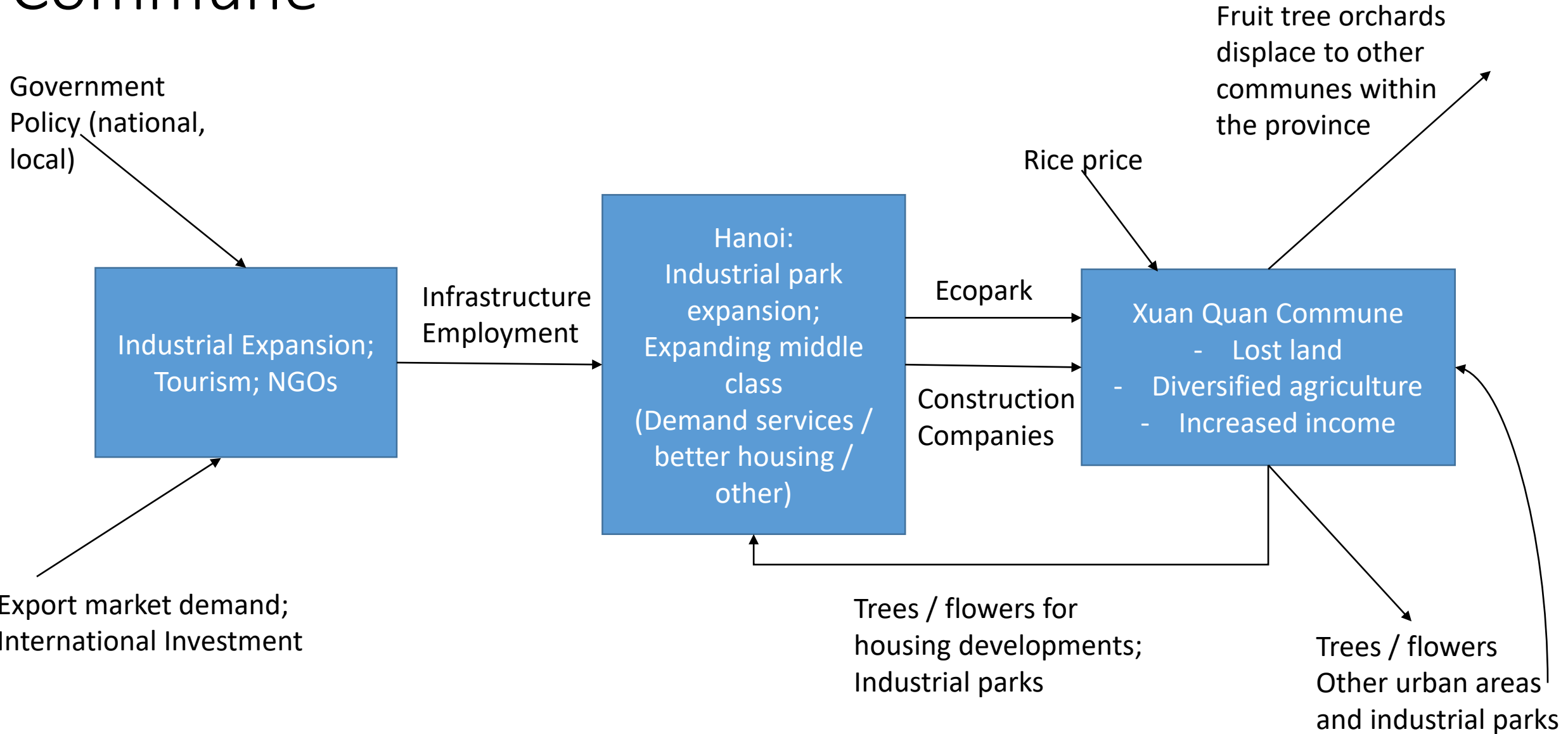
Trajectory of the changes in Xuan Quan Commune



Social changes/livelihood changes:

- ½ HH (or more) own nurseries and employ others in commune or external workers
- Household income increased; residential improvements
- Decrease rice agriculture; increase tree crops

Discussion: Drivers of changes in Xuan Quan Commune



Conclusions and next steps

- Implications for other communes in the Red River Delta
 - Decrease in land devoted to rice growing (decrease in rice production?)
 - Diversification of agricultural crops
 - Farmers continue in agriculture, but not growing rice
 - Agrarian transitions in some cases may take different forms than the classical one that most literature addresses
 - Is this a form of what Rigg (2018) describes as a truncated agrarian transition? Or another type of agrarian transition?
- Next steps
 - Object based image analysis for other commune cases
 - Expand analysis to cover each district and province
 - Household Questionnaires in all communes (August 2019)

Thank you