

# DRIVEN FACTORS OF LANDUSE CHANGES IN CHIENG KHOI CATCHMENT, YEN CHAU DISTRICT, SON LA PROVINCE, NORTHWEST VIETNAM

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## Introduction

In Northwest Vietnam, land use has been intensified over the recent years and causes negative impacts on crop productivity due to severe nutrient losses by soil erosion, inefficient use of fertilizer and fluctuating markets.



## Objectives

Identify the major factors influencing land-use change over time periods; Current farming system and land use decisions in the future of farmers in Chieng Khoi commune, Yen Chau district, Son La province, Northwest Vietnam.

## Methods

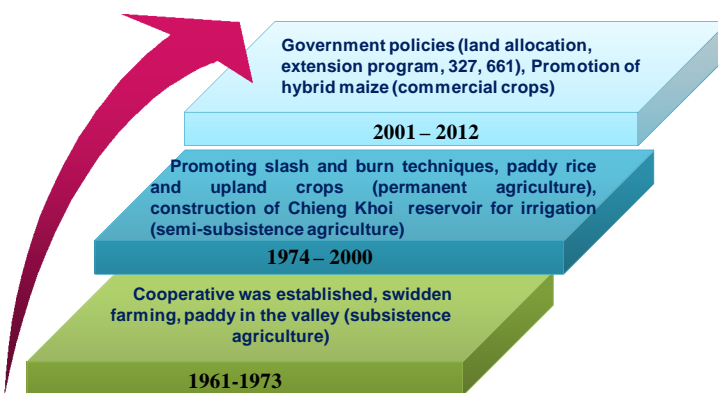
24 local key-stakeholders have been interviewed regarding the land use history, 40 households have been surveyed by questionnaires, and four group discussions have been conducted.

## Results and Discussions

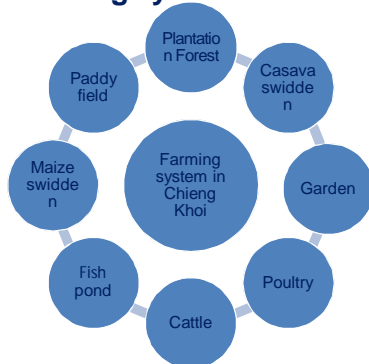
### Crop seasons

Plants	Years																		
	<1963	1963	1966	1973	1975	1976	1978	1980	1991	1992	1995	1996	1997	2000	2006	2008	2009	2012	
Food crops	Local rice																		
	Hybrid rice																		
	Sticky rice																		
	Normal rice																		
	Local maize																		
	Hybrid maize																		
Orchards	Mango, tamarind																		
	Litchi, plum...																		
	Teak																		
	Pine																		
Others	Grass barrier																		
	Cotton plant																		
	Bamboo																		
	Sorghum plant																		
	Milk grass																		
	Mulberry																		
	Arrowroot																		
	Garlic																		

### History of drivers affecting Land Use



### Farming systems and influencing factors



- ❖ Intensive farming with new crop varieties and over fertilizing for 1 ha: Maize (400 kg NPK, 200 kg Urea, 100 kg K); Paddy rice (350 kg NPK, 200 kg Urea, 120 kg Kali); Cassava (400 kg NPK)
- ❖ Factors influencing on land use: Commercial crops special the profit of Maize; Natural geographical position; Traditional cultivation techniques of Thai group
- ❖ Farmers are vulnerable to high risks caused by climate change, market outputs, land degradation.

### Farmers of the study area concerns



Land degradation & soil erosion



Future of children



Agro-market



Drought

Farmers concern	Priority rank	Farmer's solution (% respondents)		
Climate change being worse (n = 40)	1	No solution 100%		
Land degradation (n = 40)	2	Apply more fertilizer	Plant cassava and fallow	Plant legume
		100%	100%	5%
Fluctuation of agro-market price (n = 40)	3	Buy on credit		No solution
		50%	50%	50%

Group	Land use priority in future (10 years later)
1	Fish pond – Cattle – Maize & cassava – Paddy rice – Grass – Vegetable
2	Fish pond – Maize & cassava – Paddy rice – Cattle – Vegetable – Grass
3	Maize & cassava – Paddy rice – Fish pond – Vegetable – Cattle – Grass

## Discussion

Problem-solving approaches for land use issues in Chieng Khoi?

