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TRANSFORMING LIVES AND LANDSCAPES

# Smallholder Rubber Agroforestry for Higher Productivity in Thailand

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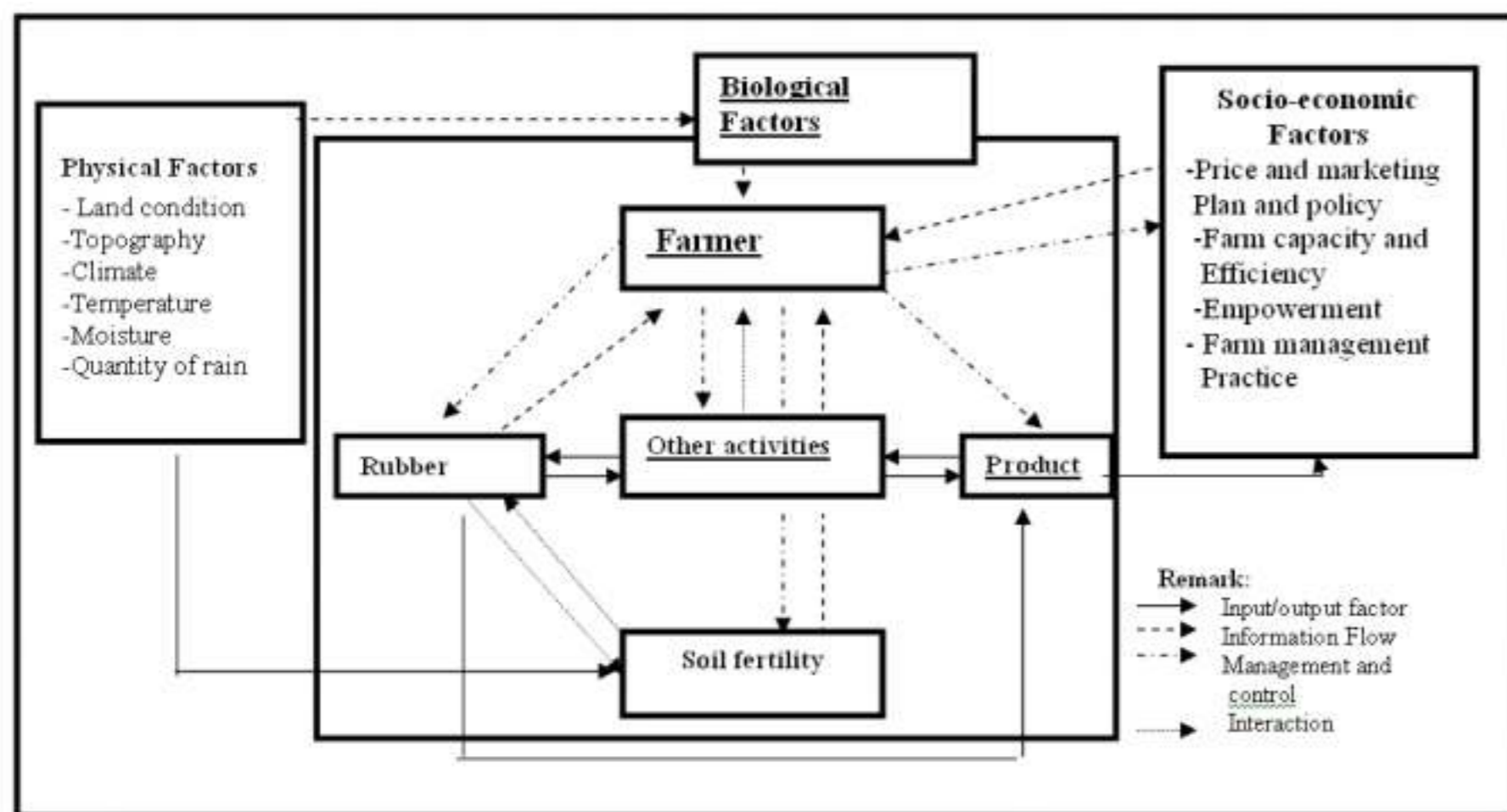


## Introduction

Thailand is the largest producer of natural rubber (NR) in the world with a production of about 3 million tons in 2006. Most (93%) of this comes from smallholder farmers. Rubber agroforestry is commonly practiced and involves mixing rubber with other food, fruit and timber crops. The practice increases farm household income and also in line with the current policy of promoting biodiversity in rubber plantations. The reported study was carried out to understand types and characteristics of Smallholding Rubber Agroforestry system (SRAS) in Thailand; to examine their economic performance; and to identify possible strategic development in future.

## Thai Rubber Agroforestry System Model

There are two factors that influence production. The endogenous factors are biological and some physical components and the exogenous factors are some physical and socio-economic components. The framework also help understand what rubber farmers' do and why.



Rubber-based farming system framework for smallholder rubber agroforestry in Southern Thailand

## Methodology

Data from 299 smallholding rubber agroforestry farms was collected through a questionnaire survey from southern, eastern and northern-eastern regions. The north-east Thailand is a new area for rubber.

## Smallholder Rubber Agroforestry Systems

### Food crop mixed system

The main food crops grown with rubber are pineapple, rice, maize and vegetables grown during the initial unproductive period of rubber, i.e. up to 3 years. The decision to intercrop depends on soil, topography, labour availability and market access.

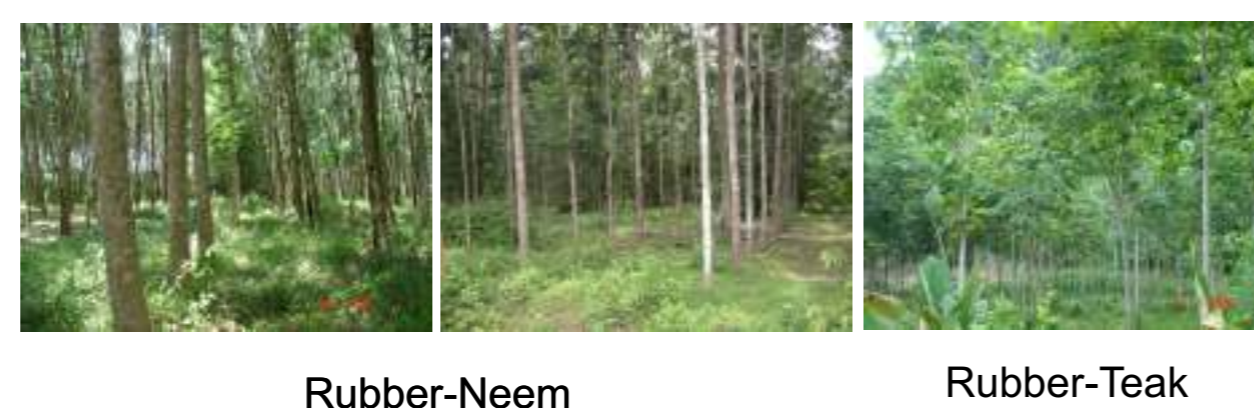
### Fruit trees mixed system

Fruit trees such as guava, durian, Salacca, Gnetum, mangosteen and Longkong are commercial crops.



### Timber species mixed system

The main timber species preferred for mixing with rubber are Neem and Teak used normally for construction and furniture.



## Profitability of SRAS

Among the food crops, the system of rubber with pineapple has the highest economic return but also requires more farm resources and input. Rubber-banana mixture is also very profitable. Rubber-chili combination is less efficient due to diseases and intensive management required. Among rubber-fruit combinations, rubber-Salacca showed the highest net income but requires more farm input. Guava and Gnetum mixtures are also profitable due to low cost of production and management.

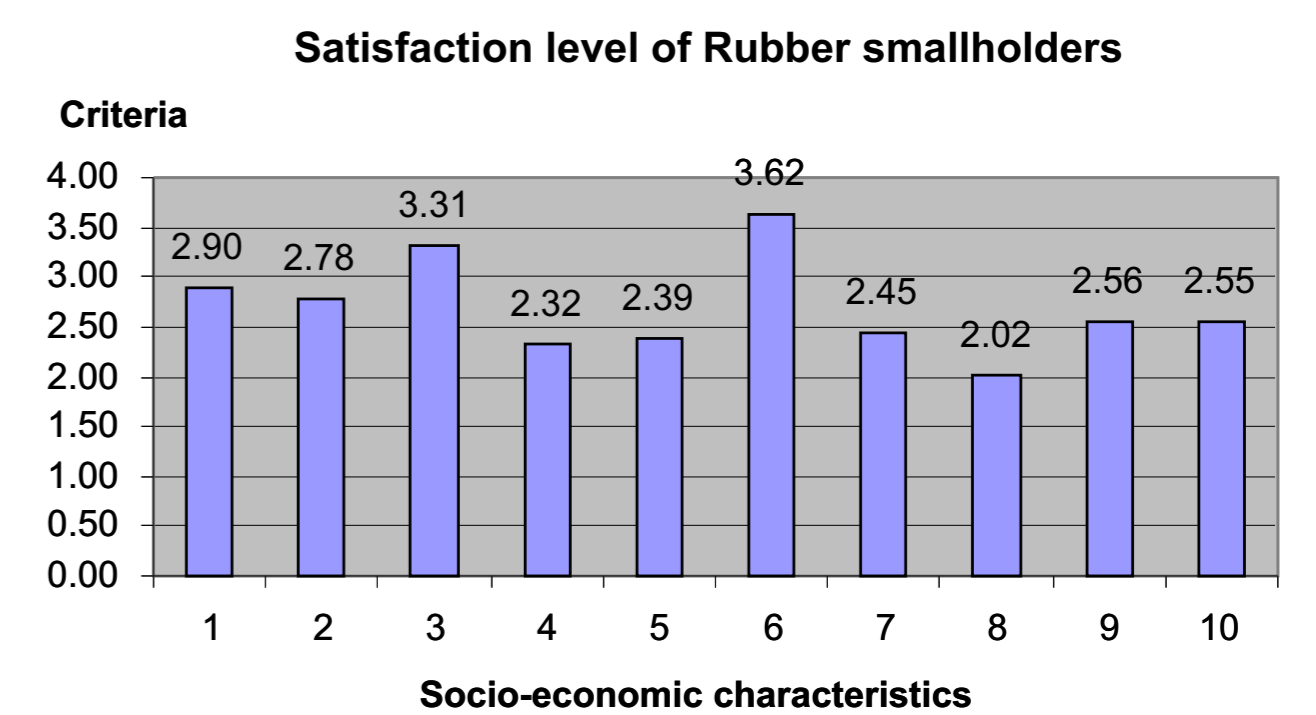
## Sustainable profiting from of SRAS through

- ✓ Availability of local capital (credit) and price insurance
- ✓ Training and technology for disease and pest control, management skills
- ✓ Improved transportation system
- ✓ Labor sharing system to decrease labor shortage problem
- ✓ Strengthened farmer institutions for price negotiation and decreasing cost of input.

SRAS	Total Farm Income (baht/ha/yr)	Total Farm Expenditure (baht/ha/yr)	Net Farm Income (baht/ha/yr)
<b>Rubber-food crop</b>			
Pineapple	617,256	237,500	379,756
Rice	76,000	18,120	57,880
Maize	48,562	12,502	34,060
Banana	24,000	2,500	21,500
Chili	106,250	56,250	50,000
Papaya	137,500	68,750	68,750
<b>Rubber-fruit crop</b>			
Guava	712,125	233,350	478,775
Durian	320,625	78,125	242,500
Salacca	1,825,000	450,000	1,375,000
Gnetum	479,175	25,000	454,175
Mangosteen	306,250	62,500	243,750
Longkong	209,375	69,375	140,100

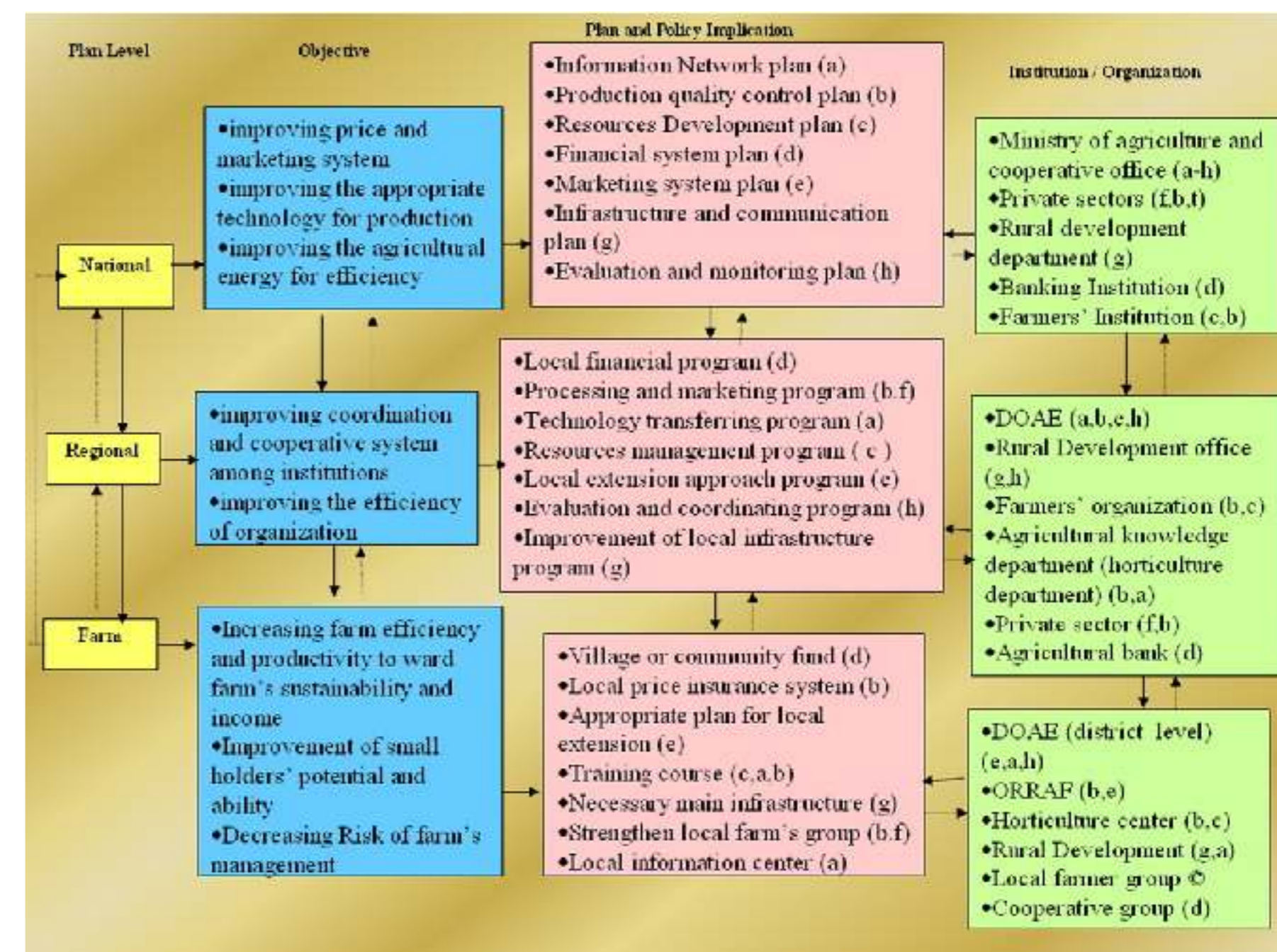
## Farmer opinion

Smallholder farmers practising mixed farming were generally satisfied with various input-output characteristics aspects. Many farmers were less satisfied with family income and their money saving.



Remark : Average mean of smallholder's satisfaction :1-1.75; not satisfaction 1.76-2.50; little satisfaction 2.51-3.25 moderate satisfaction, and 3.26-4.00 much satisfaction

1. Sufficient household labor
2. Sufficient area for production
3. The improvement of farm production in future
4. Sufficient household net income
5. Sufficient family net income
6. The household expenses
7. Sufficient capital
8. Sufficient money saving
9. Debt income on farm production adjustment
10. Sufficient water resources



## SRAS development strategy for Southern Thailand

- ★ Improvement in price and marketing of agroforestry products
- ★ At farm level, appropriate technology for higher productivity, better farm efficiency and reduced risk.
- ★ At regional level, improved co-ordination between stakeholder agencies at regional level.