

# **Agroforestry and Sustainable Vegetable Production in Southeast Asian Watersheds**

NLU kick-off workshop (May 12, 2005)

## **Research planning of the Vietnam TMPEGS team for technology research**

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# Objective

*Develop economically viable and ecologically-sound integrated vegetable-agroforestry (VAF) systems to increase farm productivity and income, and reduce vulnerability and risks*

# Technology (T1)

Farming system diagnosis (VFSD)

Method: PRA

Conduct a survey in the study areas to determine:

Types of tree integration across the agro-ecological transects.

Potential and constraints of vegetable production

Documenting local ecological knowledge

Data analysis

Report writing

A Report on farming system diagnosis

Assessment of best VAFs (vegetable based agroforestry systems)

Data collection on farmers' fields employing these best VAFs.

in relation to tree distance

tree growth

spatial and temporal light distribution

soil analyses

Focus particularly on competition and synergy.

VAF system improvement

Conduct experiments to understand vegetable-tree-soil interaction

*Optimum light transmission*

*Testing the hypothesis that tree roots act as safety nets*

*==> identify options to increase productivity, profitability, reduce production risks*

Vegetable and tree growth

Experiments:

Spatial and temporal vegetable productivity

in relation to the tree distance and age of various tree species,

against no trees or vegetable

==> to be able to compare benefits and limitations of VAF.

Tree species for fruit and vegetable production

Tree-vegetable matching

Determine:

Silvicultural managements of timber trees (thinning, pruning, ...)

Vegetable species or varieties to be matched

Tree species for fruit and vegetable production

**Improved germplasm**

introduce, integrate improved vegetable germplasm into agroforestry system

grown in monoculture and under hedgerow intercropping or alley cropping systems with trees and shrubs.

evaluate: their tolerance to partial shading (low light intensity), pest and diseases, and response to soil moisture and nutrient competition.

**Indigenous vegetables**

Introduce, integrate indigenous vegetables, medicinal and aromatic species into agroforestry system

evaluate their performance

improving and enhancing biodiversity, reducing risks

## Drip Irrigation

On-farm trials of various combinations of irrigation, no-till and agroforestry

preliminary studies to determine:

appropriate irrigation technology to use.

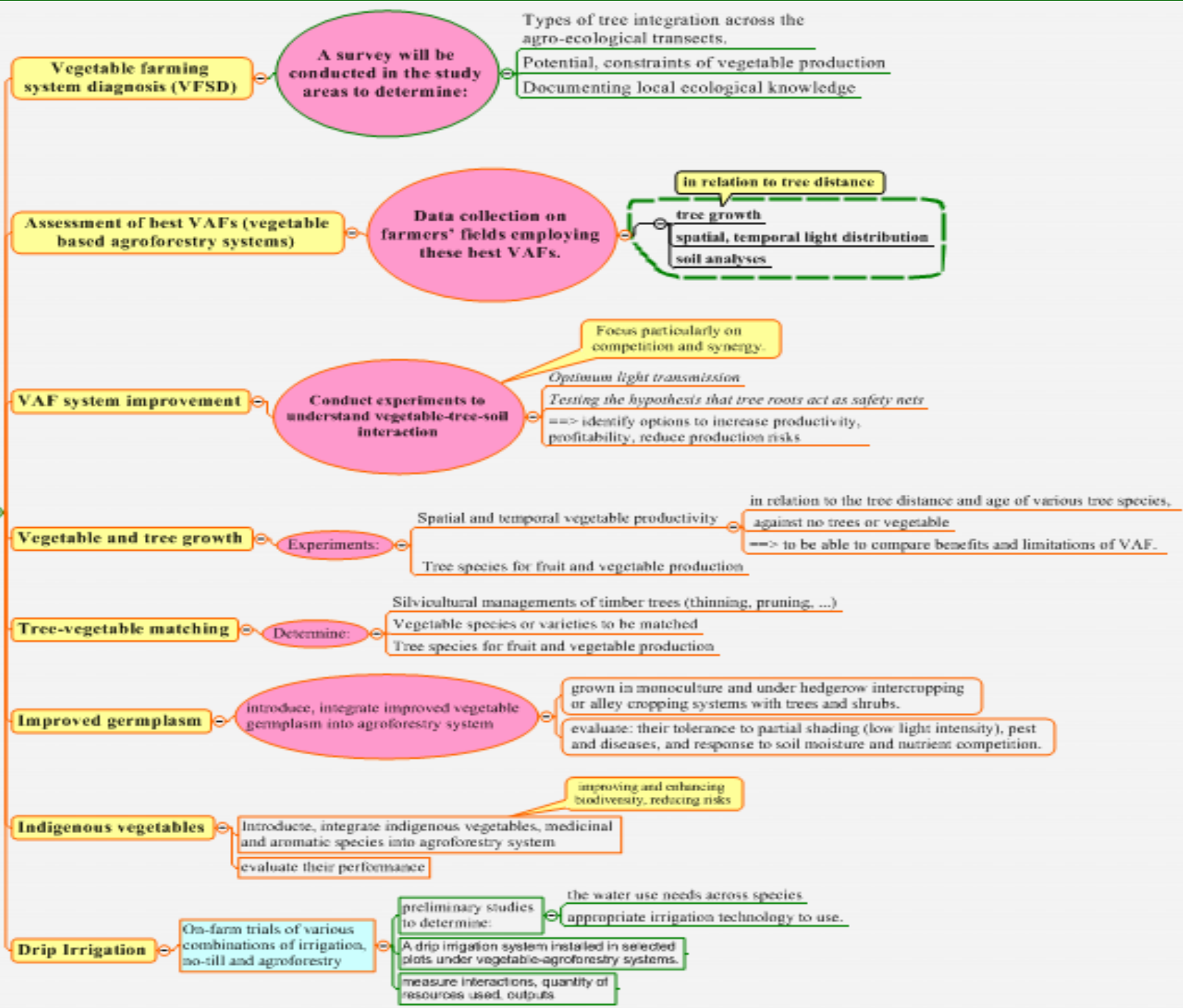
A drip irrigation system installed in selected plots under vegetable-agroforestry systems.

measure interactions, quantity of resources used, outputs

the water use needs across species



# Technology



**Vegetable farming system diagnosis (VFSD)**

A survey will be conducted in the study areas to determine:

- Types of tree integration across the agro-ecological transects.
- Potential, constraints of vegetable production
- Documenting local ecological knowledge

**Assessment of best VAFs (vegetable based agroforestry systems)**

Data collection on farmers' fields employing these best VAFs.

- tree growth
- spatial, temporal light distribution
- soil analyses

**VAF system improvement**

Conduct experiments to understand vegetable-tree-soil interaction

- Focus particularly on competition and synergy.
- Optimum light transmission
- Testing the hypothesis that tree roots act as safety nets
- => identify options to increase productivity, profitability, reduce production risks

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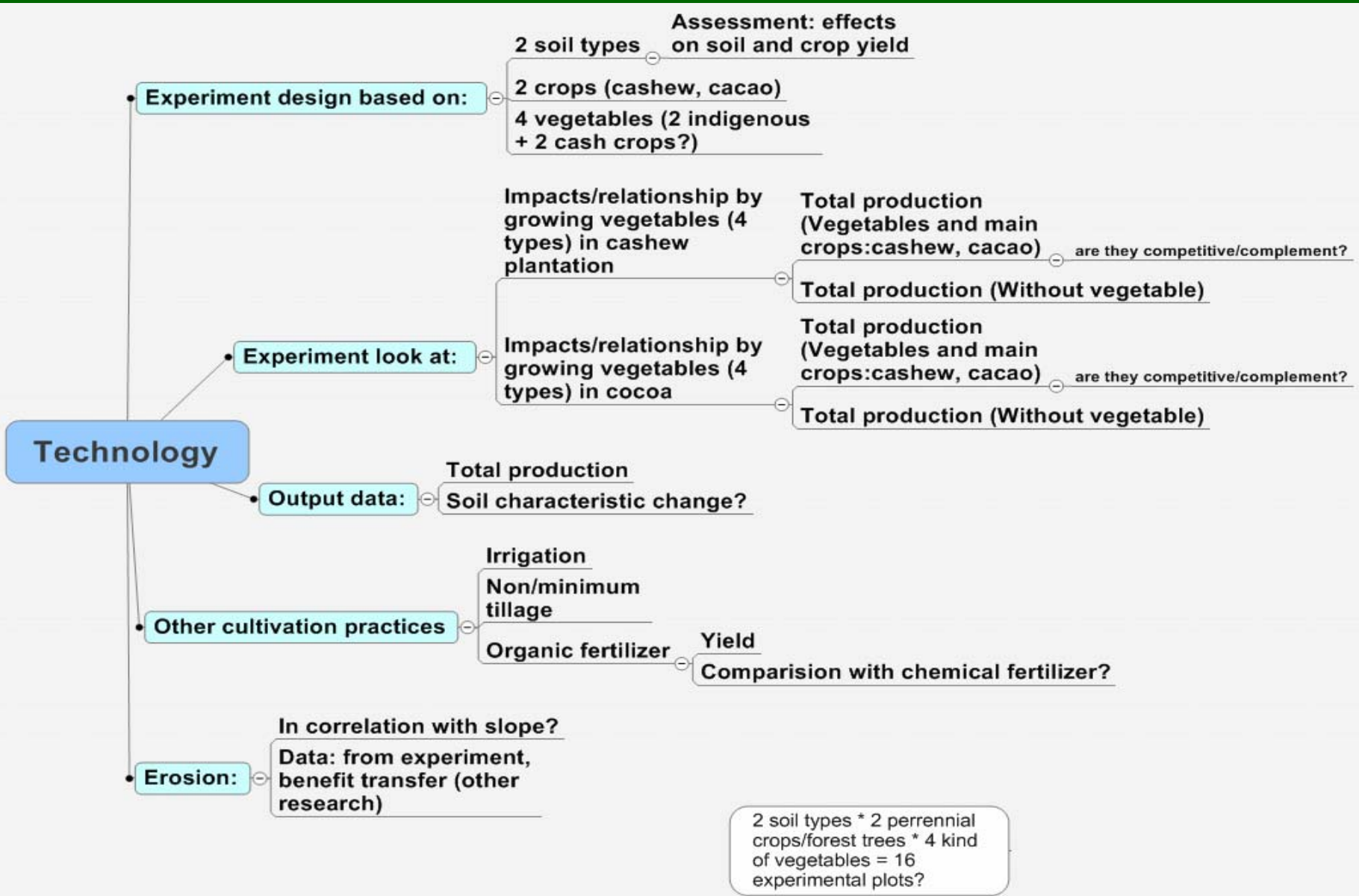
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- appropriate irrigation technology to use.
- A drip irrigation system installed in selected plots under vegetable-agroforestry systems.
- measure interactions, quantity of resources used, outputs

# Preliminary planning for the experiments



## Experimental design should be based on:

- Information and recommendation from the baseline survey,
- Information from the farming system diagnosis,
- Rapid market assessment,
- Consultation with local farmers,
- Emphasize on participatory experimental design/participatory technology development approach.

Thank you  
for your attention!