



Agroforestry for Livelihoods of Smallholder Farmers in Northwest Vietnam

Nguyen La, Delia Catacutan

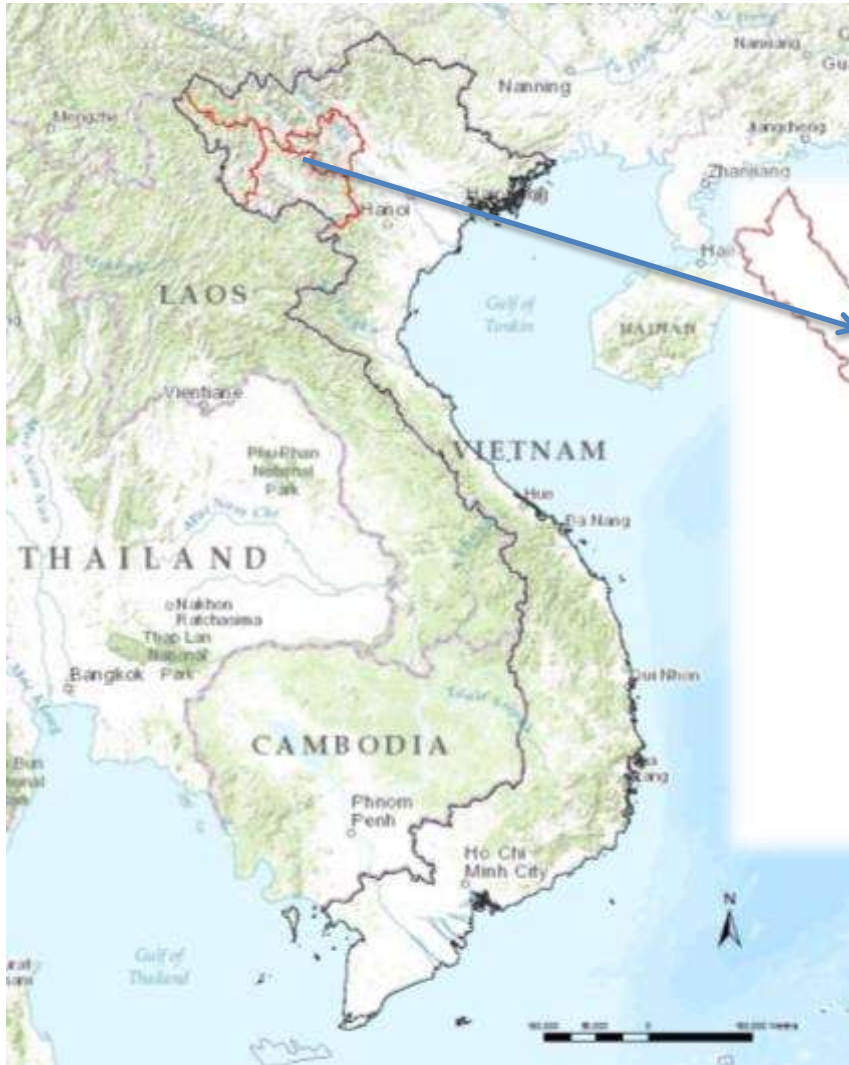
AFLI project in Northwest

What is it trying to address?

- **Low productivity**
- **Land degradation through massive soil erosion**
- **Poverty**



General Introduction



Dien Bien, Son La and Yen Bai provinces



Interventions

- **Best-practice agroforestry systems for three agro-ecological zones;**
- **High-quality germplasm to enable the expansion of agroforestry systems;**
- **Market access for, and opportunities for adding value to, agroforestry products; and**
- **Extension methods and policy dialogues for successful dissemination of agroforestry systems.**

Research in Agroforestry Development

Plot-level trials of AF systems

Farmers involved: 58

Macadamia-coffee in Son La



Acacia-longan-coffee-fodder grass in Dien Bien



Longan-maize-fodder grass in Yen Bai



6 farm level FDTs

Total area: 49.37 ha

Households involved: 104

No. of trees to be planted: 32,869

No. of trees planted: 19,785



2 Exemplar landscapes

Total area: 100 ha

Households involved: 200

No. of trees to be planted: 52,850

No. of trees planted: 22,100

Son La



Yen Bai



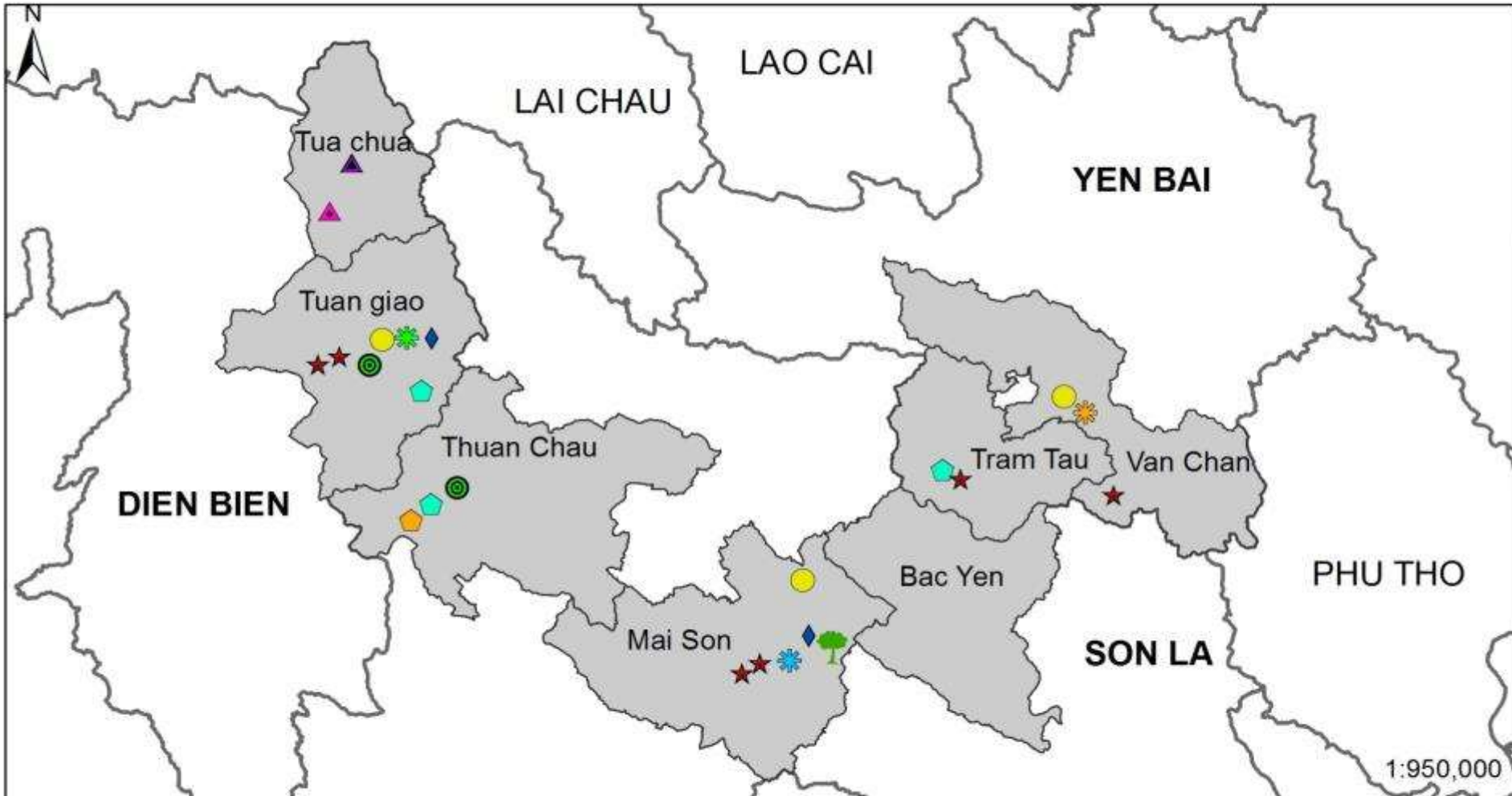
Farmer groups
Village leaders
District people committees
Extension departments

Farmers

Group of volunteer farmers
Village leader
Extension workers

Agroforestry Trials and FDTs of AFLI Project in Northwest Viet Nam

(Son La, Dien and Yen Bai Provinces)



Legend

- | | | |
|---|--|-----------------------|
| Acacia-longan-coffee-fodder grass-short term crop | Macadamia-coffee-short term crop | Sontra-fodder grasses |
| Acacia-mango-fodder grass-short term crop | Teak-plum-fodder grass-short term crop | Sontra-maize |
| Acacia-plum-fodder grass-maize | Shantea-soybean/hill rice in rotation | Small holder nursery |
| Longan-fodder grass-maize | Shantea-fodder grasses | FDT |

10 agroforestry systems established



Late longan-maize-forage grass system

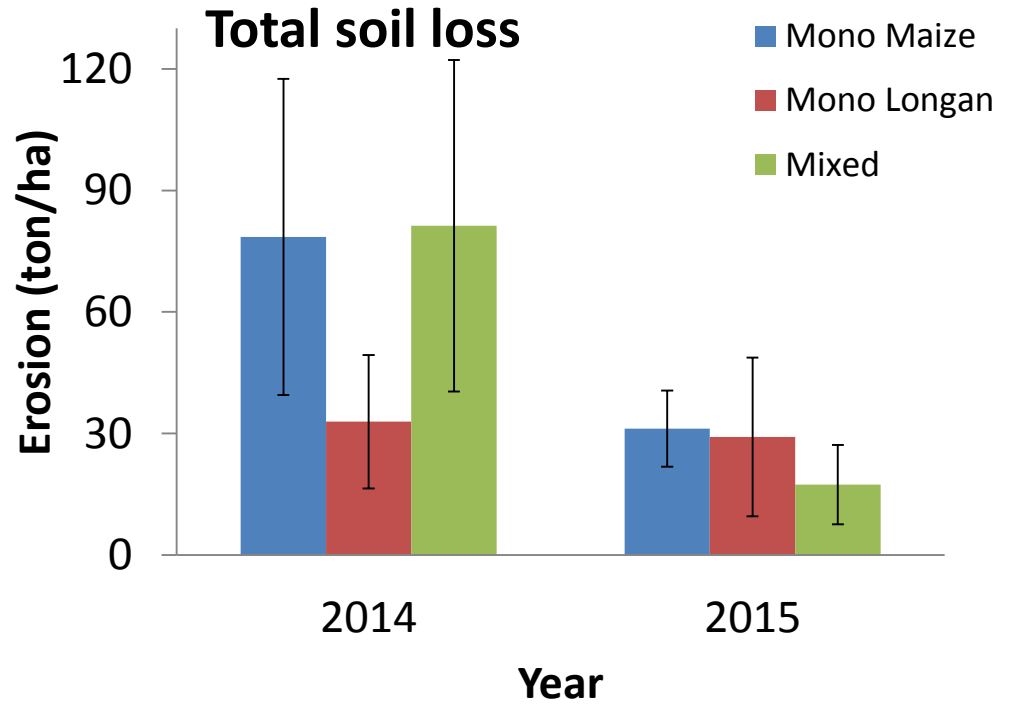
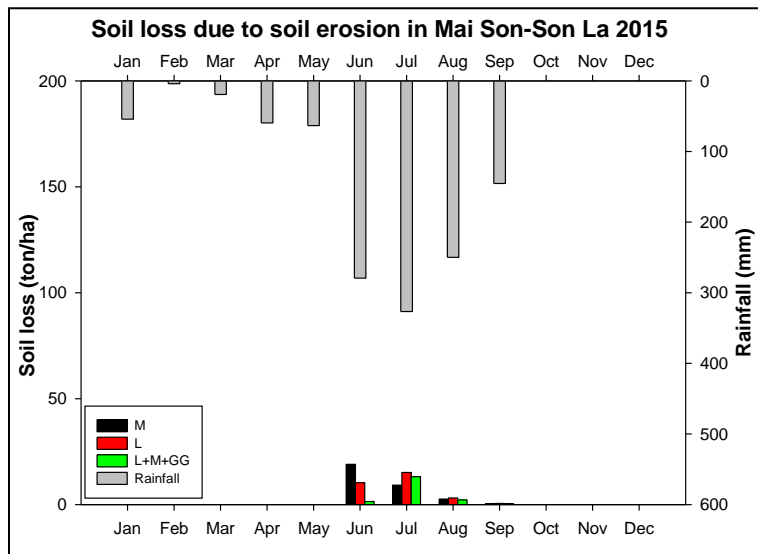
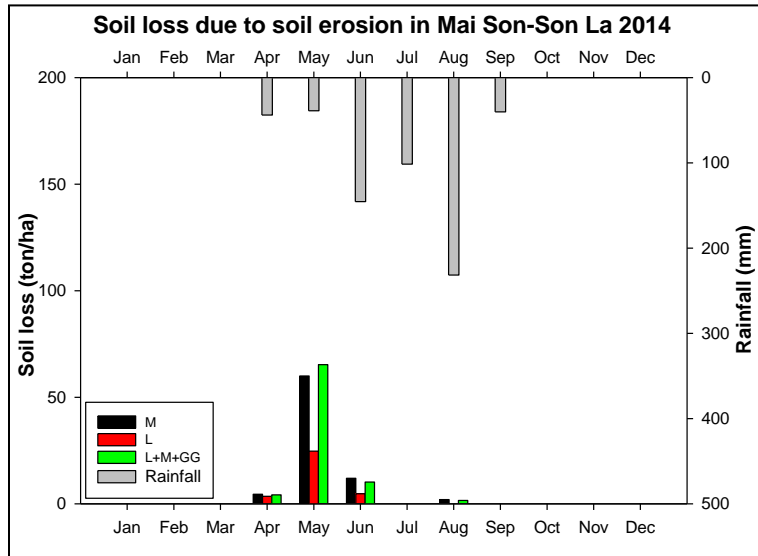
- Effective in preventing soil erosion
- Maize yield is not significantly different with monoculture maize
- Forage grass is used to feed animals
- Longan started bearing fruit on the 3rd year



Profitability in Son La

System	All inputs (million VND/ha)				Gross income (million VND/ha)				Net income (million VND/ha)			
	2012	2013	2014	2015	2012	2013	2014	2015	2012	2013	2014	2015
Maize monoculture	15.2	15.3	14.7	14.8	37	30	28.8	20.2	21.8	14.7	15.3	5.4
Longan monoculture	51.3	7.5	5	5.5	0	0	0	2.5	-51.3	-7.5	-5	-3
Longan, maize and Guinea grass	44.2	20	18	18	37.3	26.1	34.5	48.2	-6.9	6.1	16.5	30.2

Soil erosion measurement in Son La



Macadamia-coffee-soybeans



- **Macadamia started bearing fruit after 3 years**
- **Coffee is harvested in year 2**
- **Soybeans are harvested annually; biomass are used as green manure**



Profitability in Dien Bien

System	All inputs (million VND/ha)			Gross income (million VND/ha)			Net income (million VND/ha)		
	2013	2014	2015	2013	2014	2015	2013	2014	2015
Macadamia, coffee and soybean	39	17	17	1.4	2.9	25.2	-37.6	-14.1	8.2
Macadamia and soybean	21	8.1	7.6	1.3	2.9	0	-19.7	-5.2	-7.6
Coffee and soybean	35.5	16	16.5	1.4	3.1	33.6	-34.1	-12.9	17.1

Son tra-forage grass system



Sơn tra-Mulato



Sơn tra-Ghine



Observations:



- Mulato and ghine are growing well in areas >1000 masl
- Integrating mulato and ghine with Son tra has no effect on tree growth
- Grass yield could range 39.84 – 56.64 tons/ha/year,

- Grafted son tra trees bear fruit after 2 years
- Grow faster compared to non-grafted trees which bear fruit after 4 years



6 Farmer Demonstration Trials (FDT)

- Produced and planted 17,847 seedlings
- 71 volunteer farmers trained in establishing nurseries, preparing seedlings, grafting, marcotting techniques, and designing agroforestry system
- Produced 7 extension materials



Group nursery in Mon village, Son La province



Group nursery in Noong Giang village, Dien Bien province

FDT: Eucalyptus-lemon-coffee-forage grass in Co Noi, Son La



Exemplar Landscape in Son La



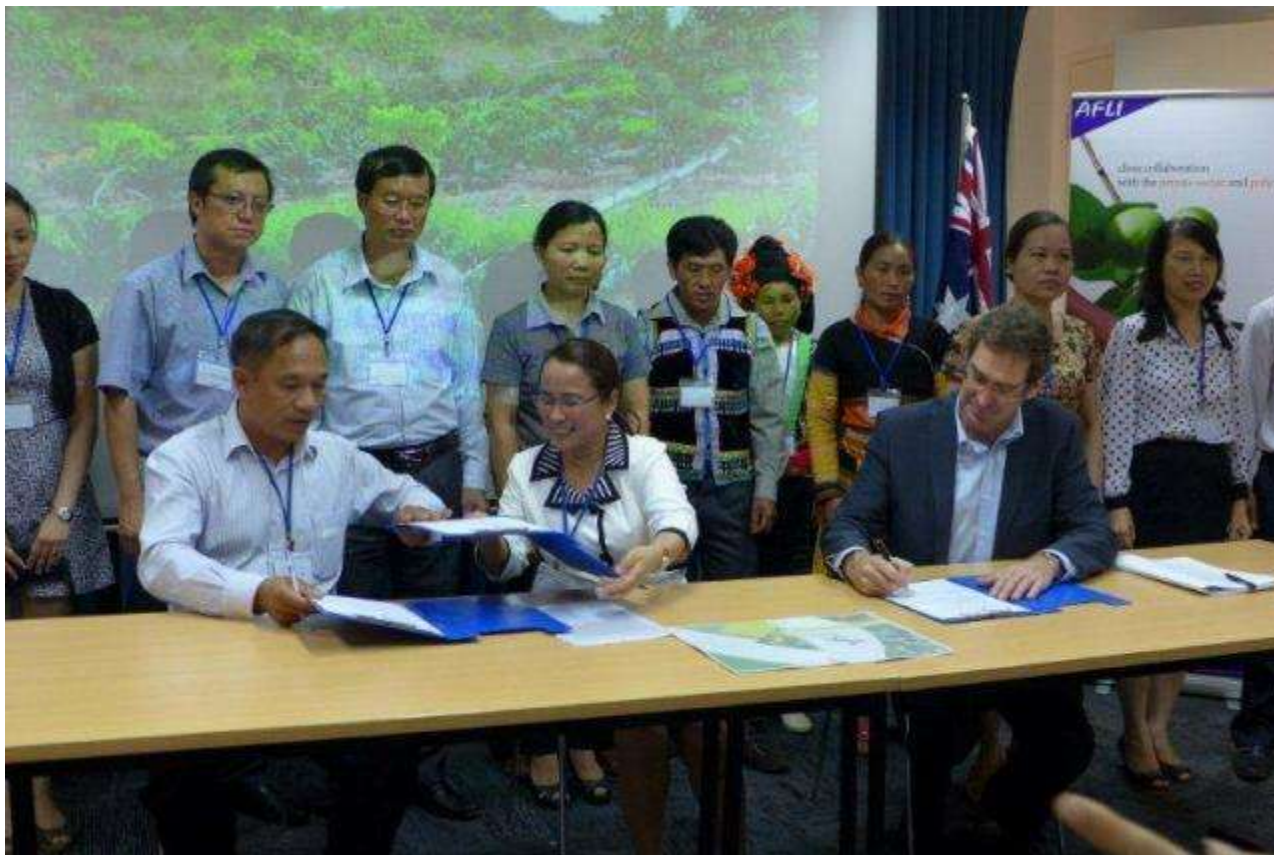
In August 2015, 20,000 seedlings of five tree species (longan, mango, plum, pomelo, and lemon) were planted; 50,000 m forage grass strips established along contour lines.

Exemplar Landscape in Yen Bai

20,000 grafted Son Tra from selected clones, 50,000 m long forage grass and To hap (Altingiaceae) in 50 ha are targeted.



Technology transfer for Sontra fruit processing



On 8 July 2015, ACIAR facilitated a technology transfer for Sontra fruit between ICRAF and Tay Bac Tea and Special Food Company Limited (TAFOOD). TAFOOD will use research results to develop and produce different processed products from Sontra, creating market opportunities for traditional local products.

Dr Nick Austin, ACIAR's Chief Executive Officer (sitting on the right), called the technology transfer agreement *"a wonderful example of research being taken to the next level through private sector engagement. This is the type of engagement the Australian Aid program is championing."*

Policy impacts

The Yen Bai provincial government decided to issue Resolution No. 15/2015/NQ-HDND Yen Bai on 15 Dec 2015, followed by Decision No. 27/2015/QD-UBND Yen Bai on 31 Dec 2015:

1. Financial support (6 M VND/ha) to individual household or group of households planting Sontra in two districts, Tram Tau and Mu Cang Chai.
2. One time financial support for individuals or households applying sustainable maize cultivation in sloping lands through planting grasses along contour lines, to reduce erosion for 1 million VND per ha.

Key lesson

External financial investments are needed to stimulate agroforestry adoption in the northwest region of Vietnam.

- ✓ **Farmers will not spontaneously adopt complex technologies without government guidelines and support**
- ✓ **farmers are generally poor, and have limited land**
- ✓ **The region has challenging natural resource conditions (topography, climate, rain-fed, etc.)**
- ✓ **extension services are inadequate, with respect to staff capacity, mobility and incentives.**
- ✓ **Research and development projects in the forestry, agriculture and rural development sectors traditionally involve cash and non-cash incentives to farmers.**

Thank you



The World Agroforestry Centre
United Nations Avenue, Gigiri
P.O Box 30677 Nairobi, 00100, Kenya
Phone: +254 20 722 4000
Fax: +254 20 722 4001
Email: icraf@cgiar.org
Web: www.worldagroforestry.org

Contact:

Dr. Nguyen La
Project Manager
L.Nguyen@cgiar.org

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