



Landscape transformation in Lao PDR:

Issues of reconnecting knowledge generation and decision making



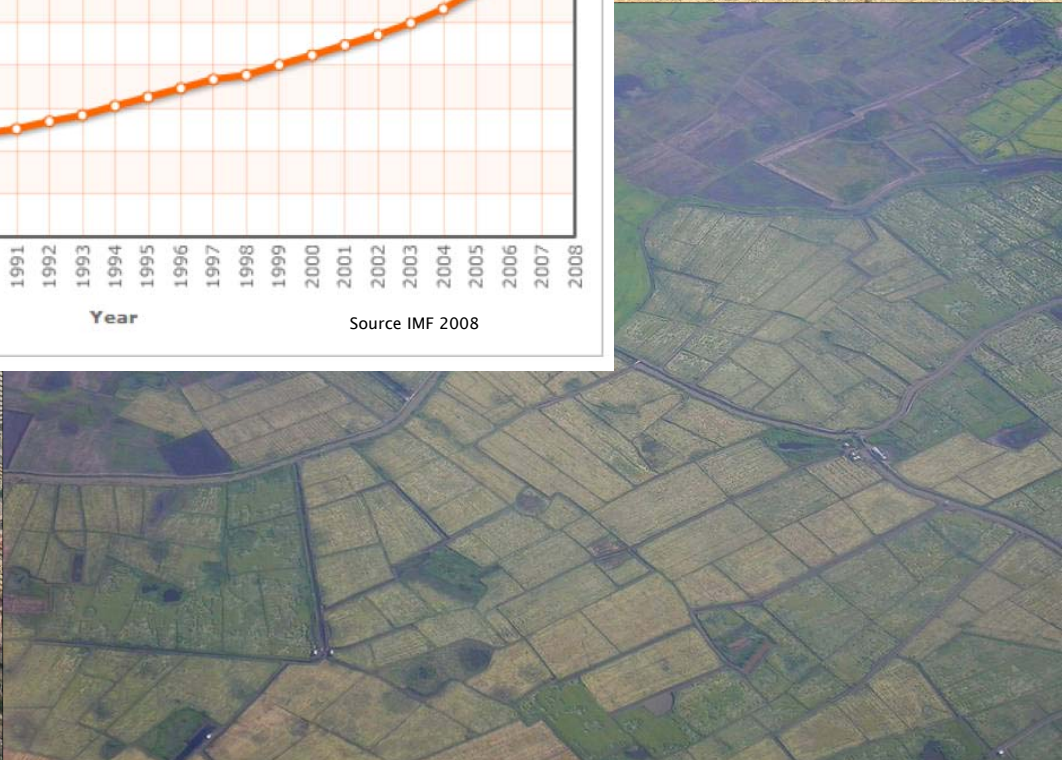
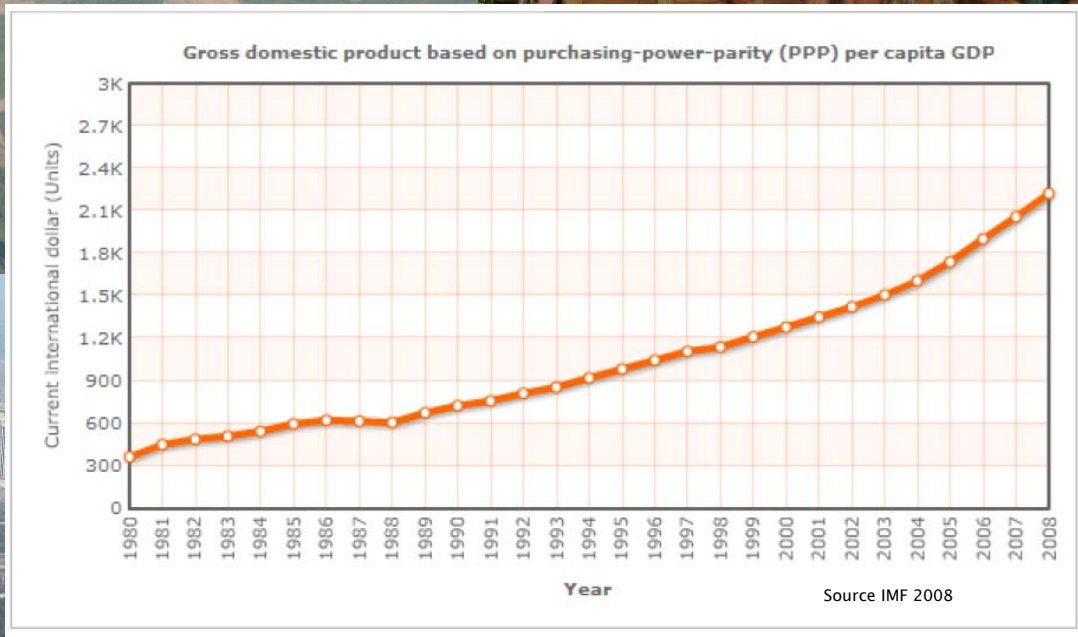
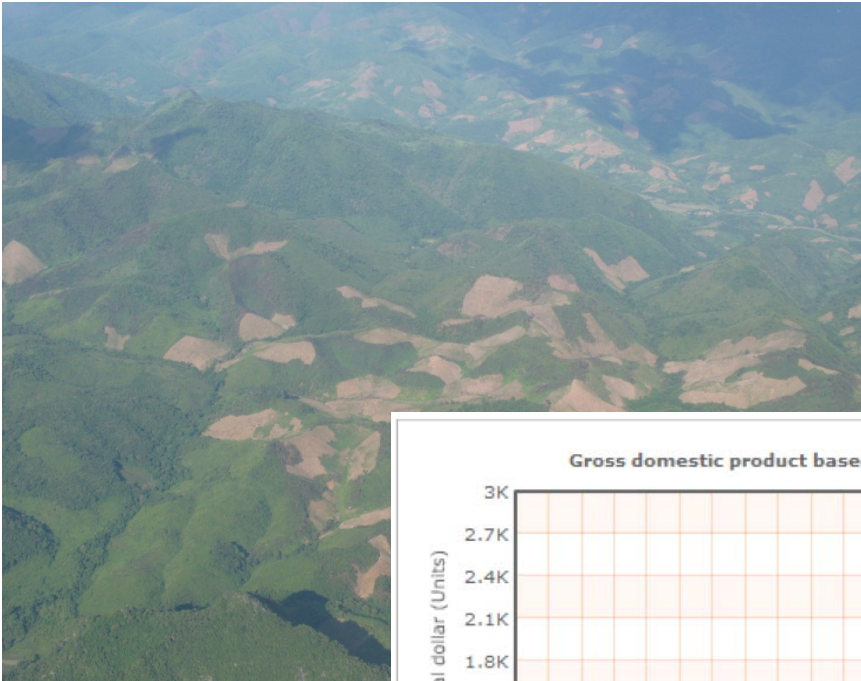
Andreas Heinimann, C. Hett, K. Hurni

University of Bern, Switzerland,

MoNRE, Lao PDR

NASA LCLUC, Hanoi, 8.11.2011

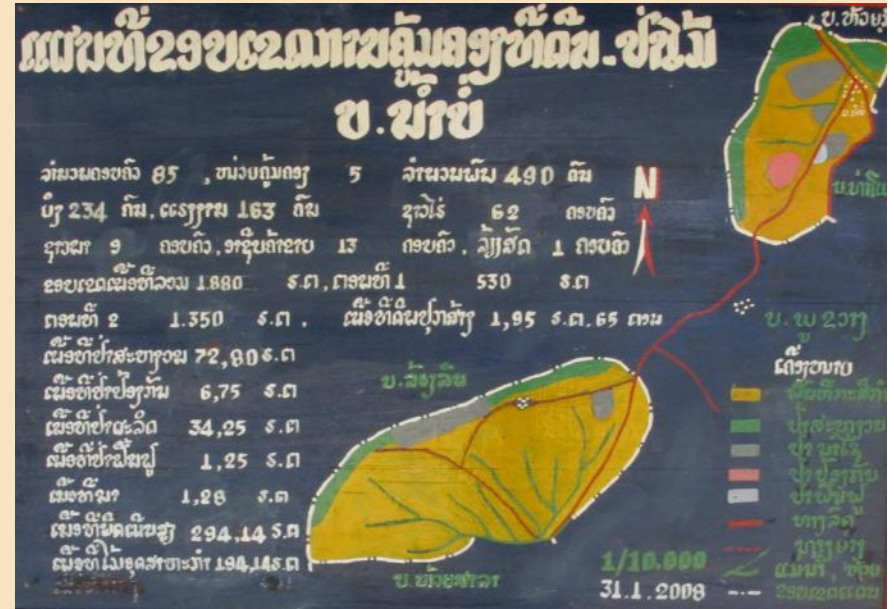




Rural transformation



... and its driving forces



Dynamics: Shortening of fallow in shifting cultivation systems

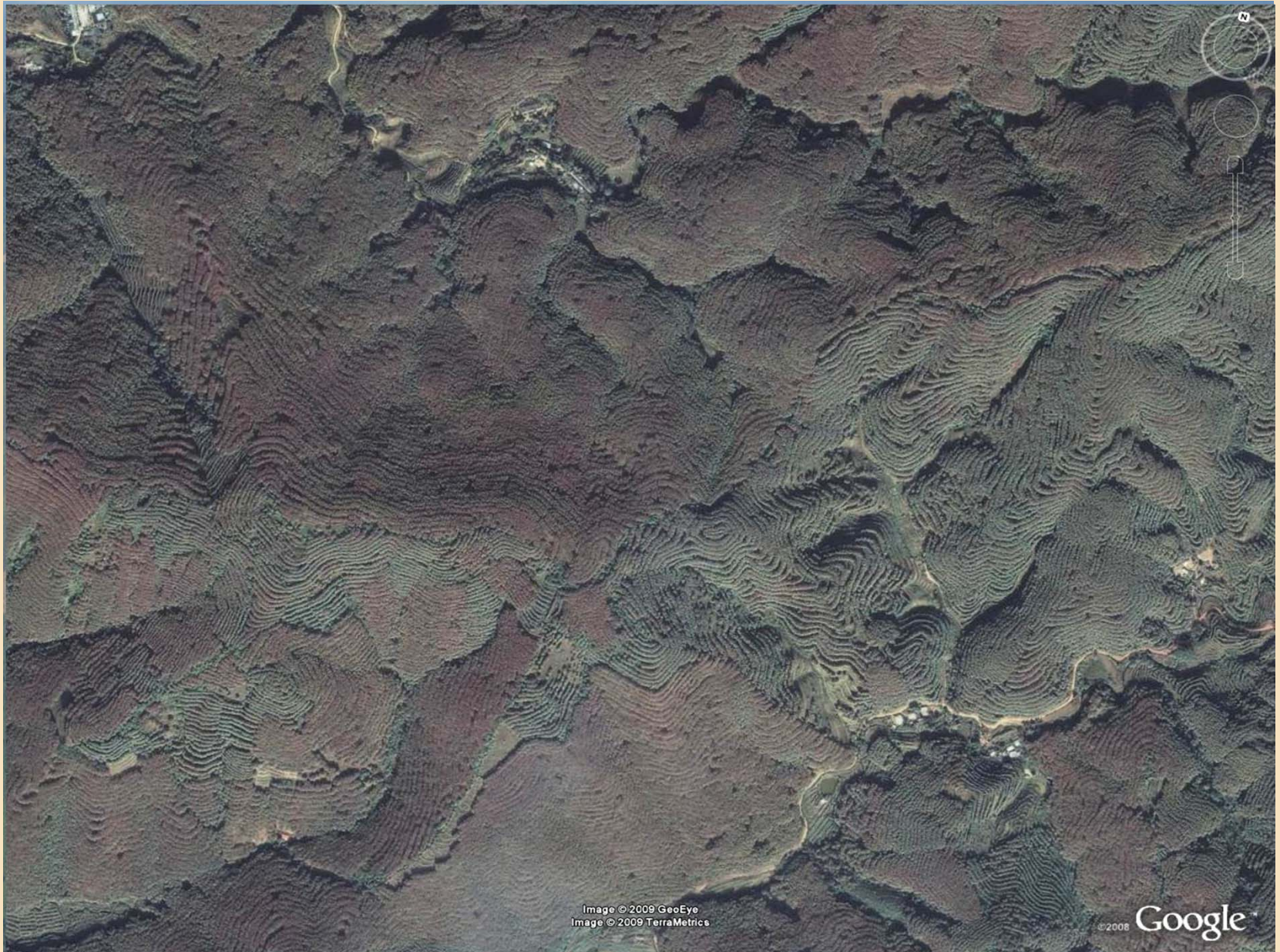
Viengkham district, Luang Prabang Province

	1950s	1970s	2000
% of respondents reporting fallow periods of more than 10 years	100%	83%	0%

Dynamics : Subsistence to cash crop



Landscape transformation: commercial tree plantations

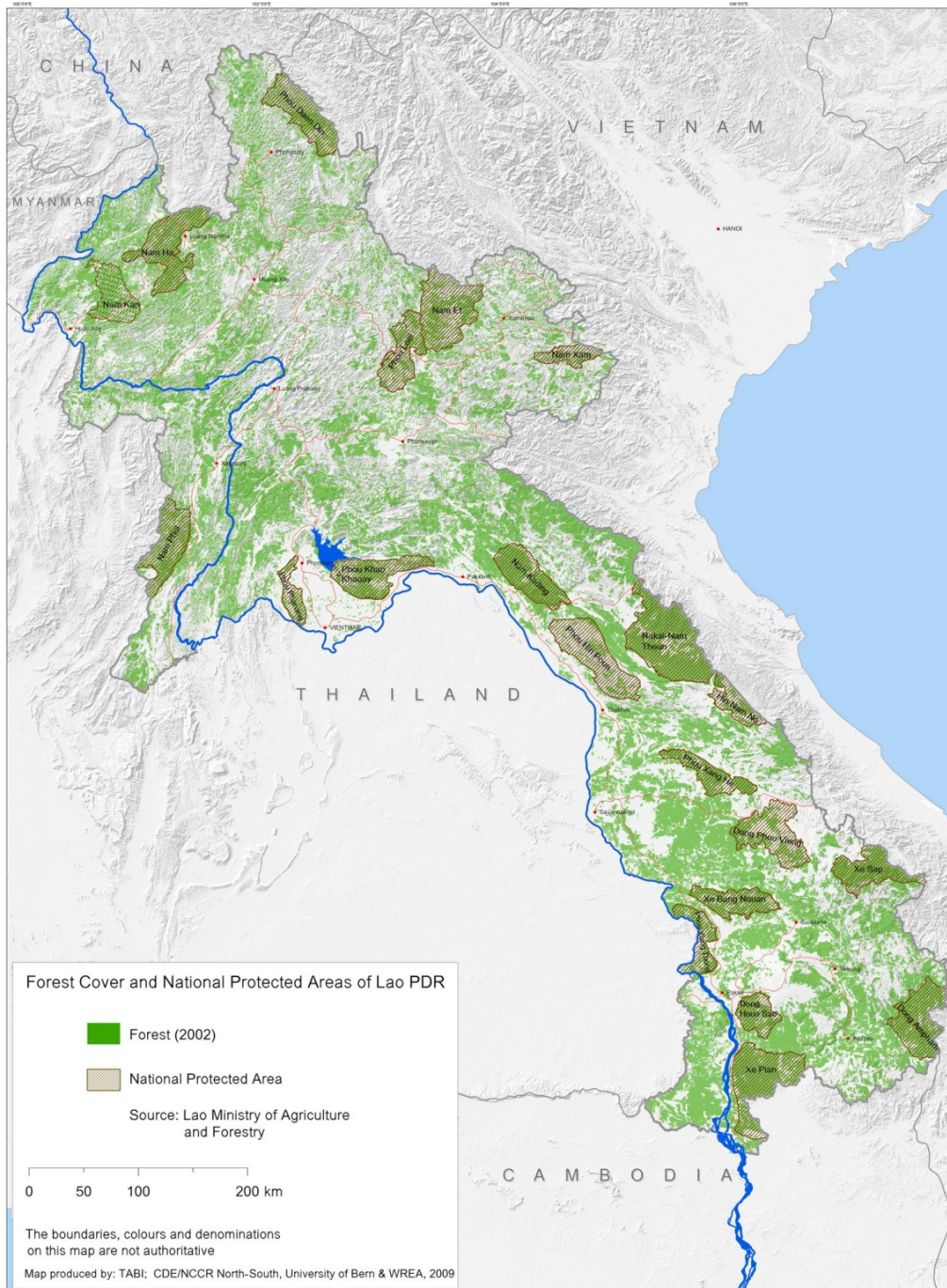


NCCR north
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Image © 2009 GeoEye
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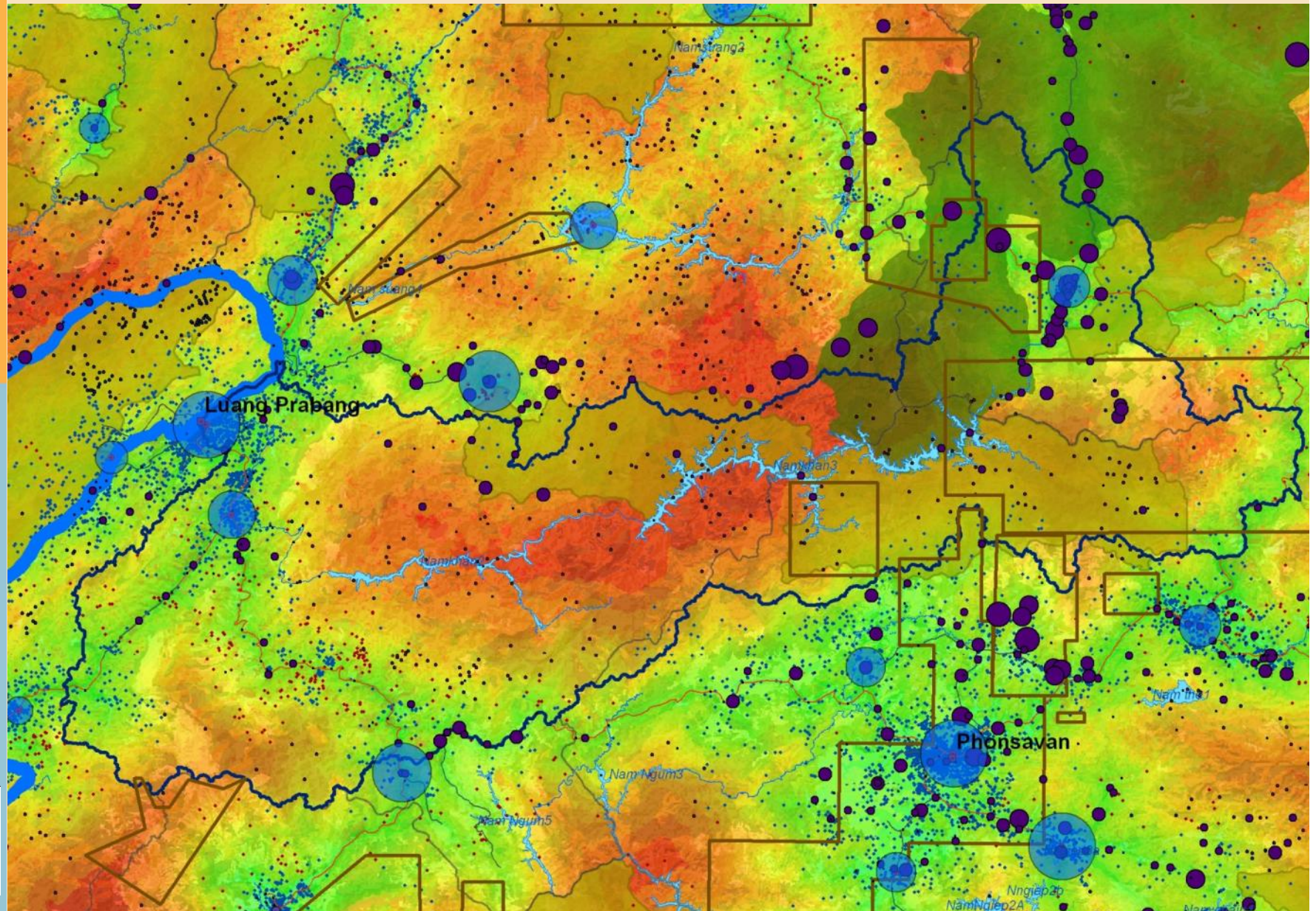


Claims and potential opportunities (i.e. PES) from international level (e.g. CBD, REDD)

?



Rural transformation is leading towards heterogeneity of landscape



The Agrobiodiversity Initiative (TABI) - Shifting Cultivation Mapper - Mozilla Firefox

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TABI x The Agrobiodiversity Initiative (TABI) ... x +

www.tabi.la/shiftcult/?Itemid=44

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The Agrobiodiversity Initiative
in the Lao PDR

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Perform a search in the case study articles.
The following fields are searched: Title, Author, Co-Author and Organization

Enter keyword:

Minimum fallow length:

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Layers

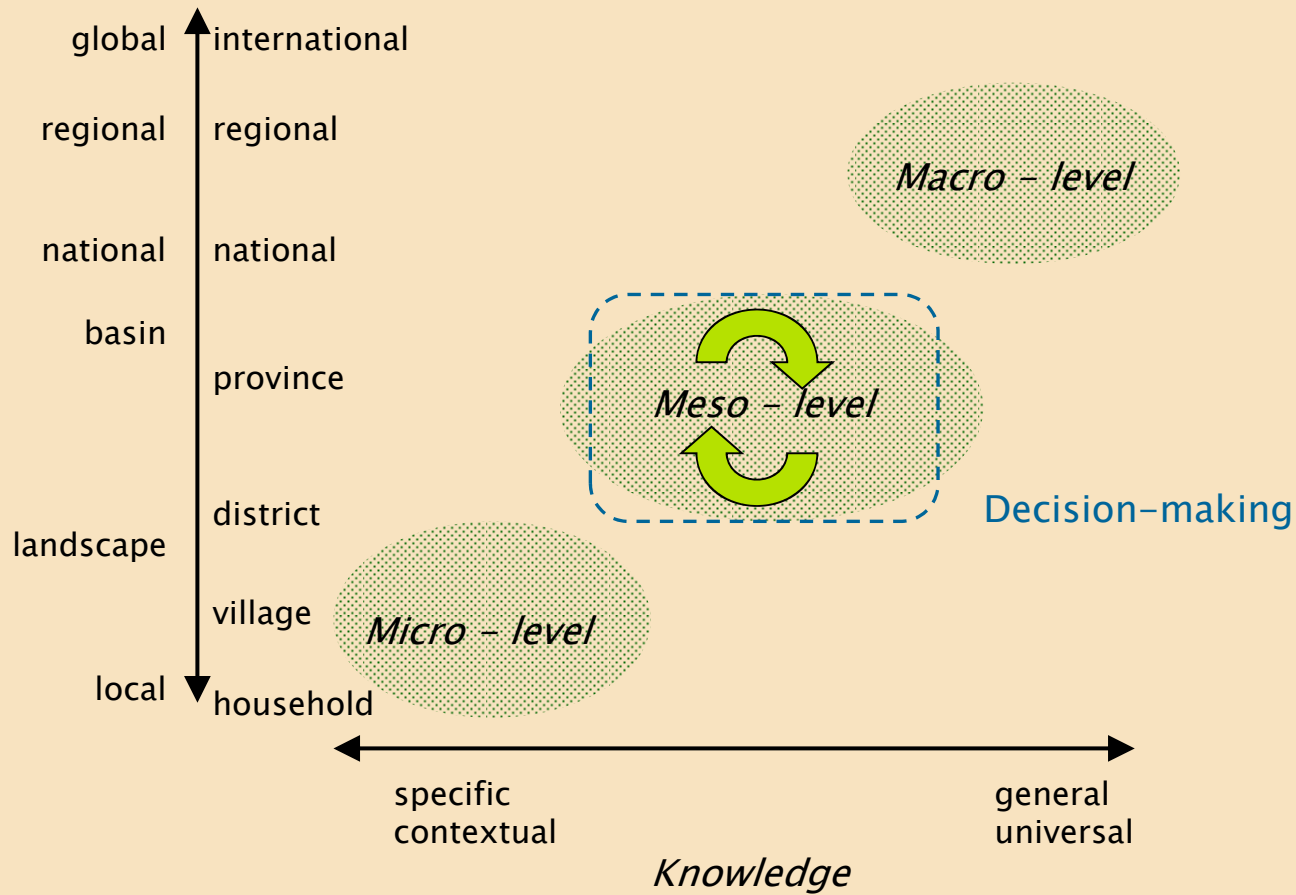
Legend

Pa... Title Author Year Organization(s) Fallow Length Sustainable Fallow Length

Information sources:
frequently case studies
e.g. shifting cultivation)

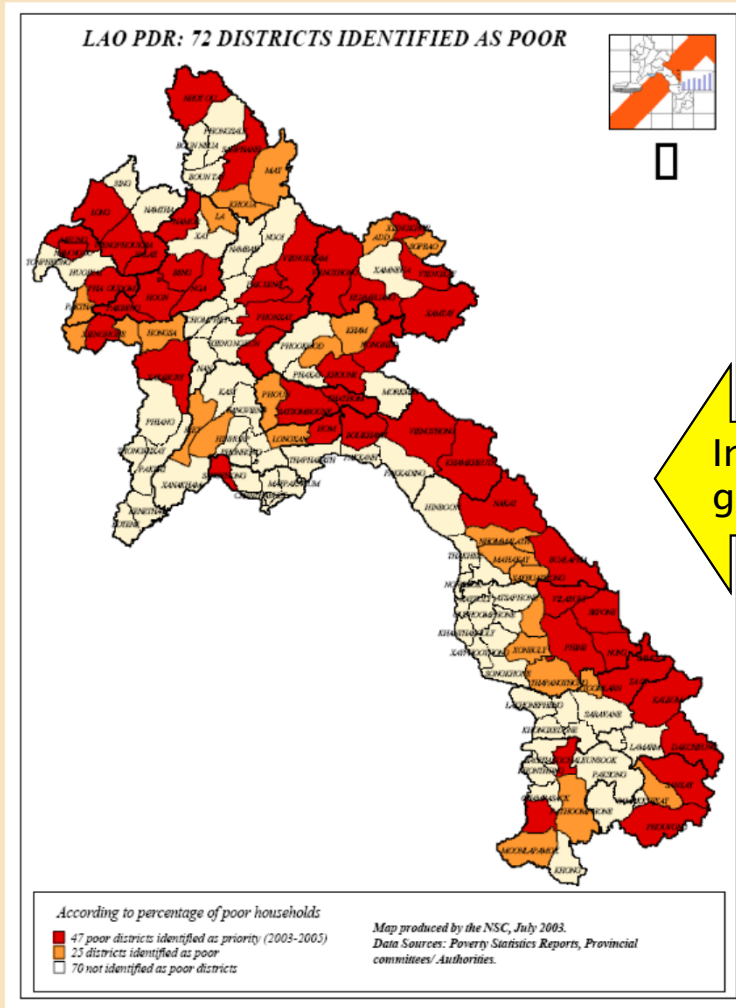
Scale challenges for informed decision-making

Spatial / political

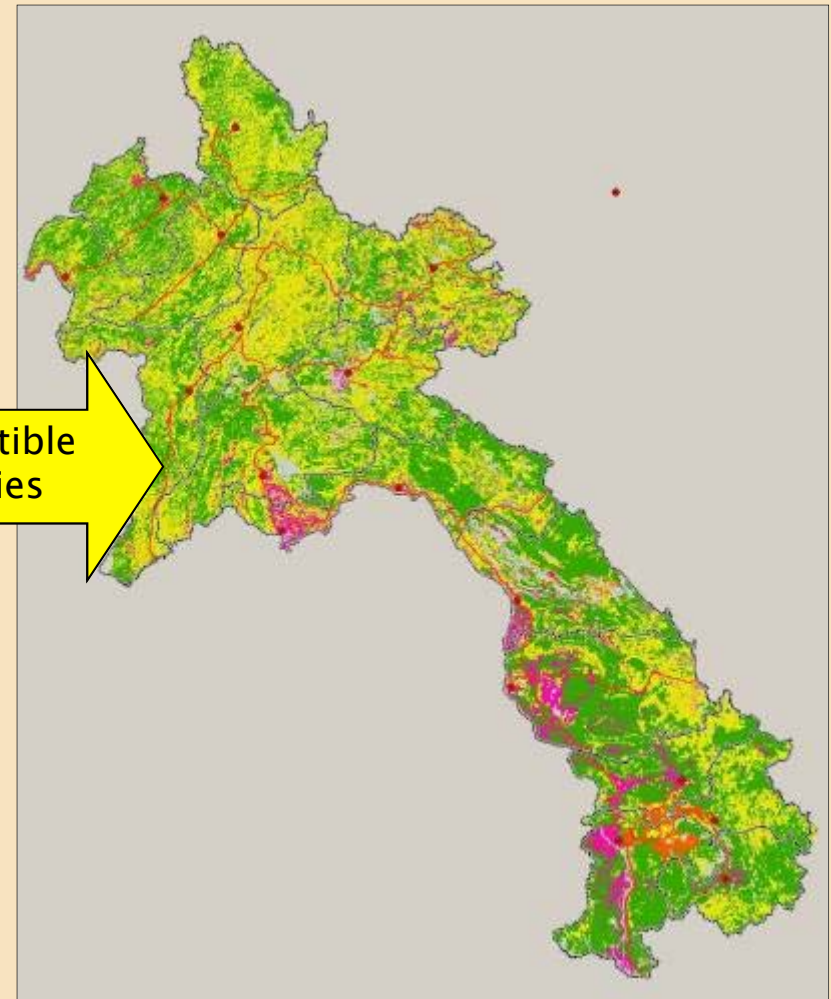


Information gaps at mesoscale

Poverty information (NGPES)



Forest Cover 2002



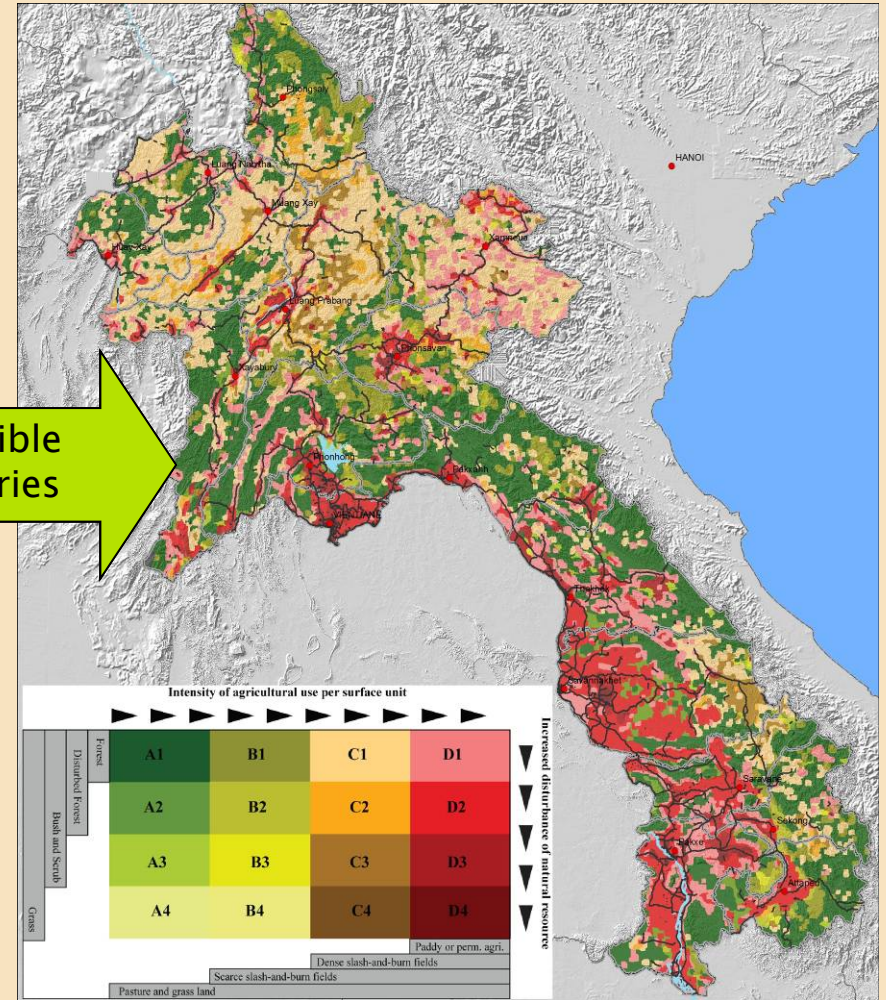
Incompatible geometries

Describing the Poverty–Environment Nexus in Laos

Creating high-resolution poverty maps

www.decide.la

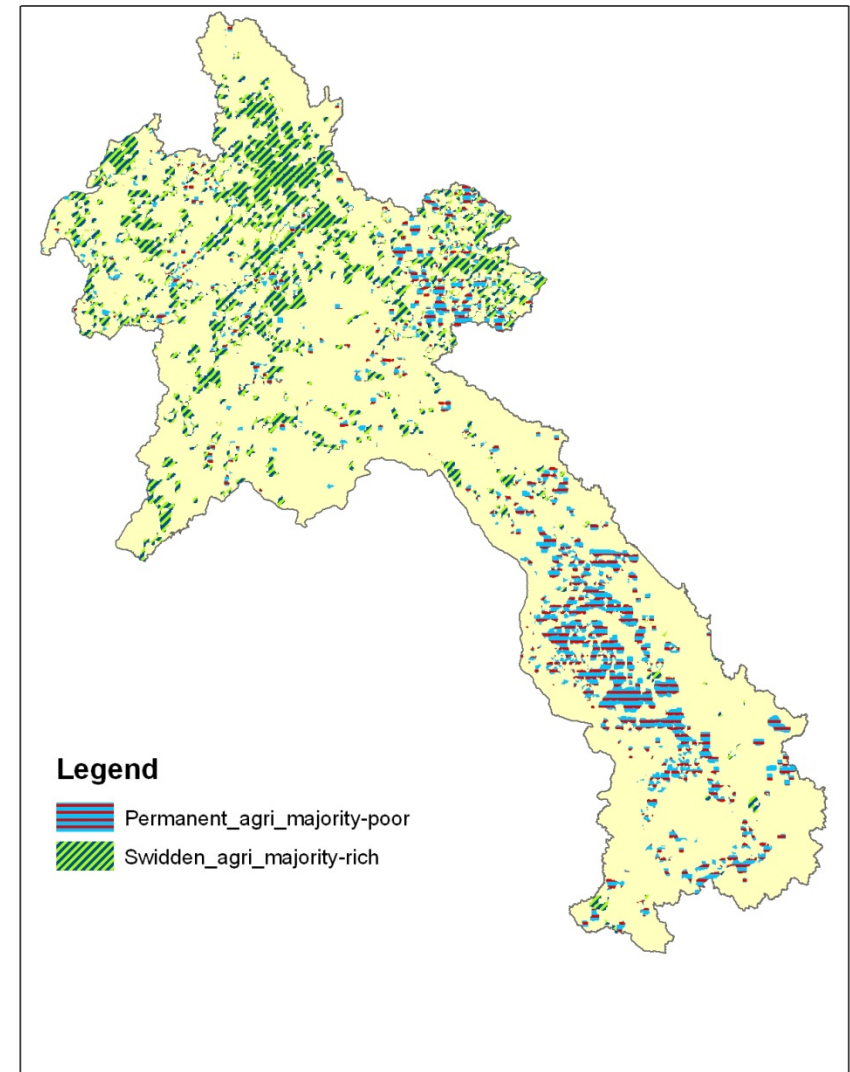
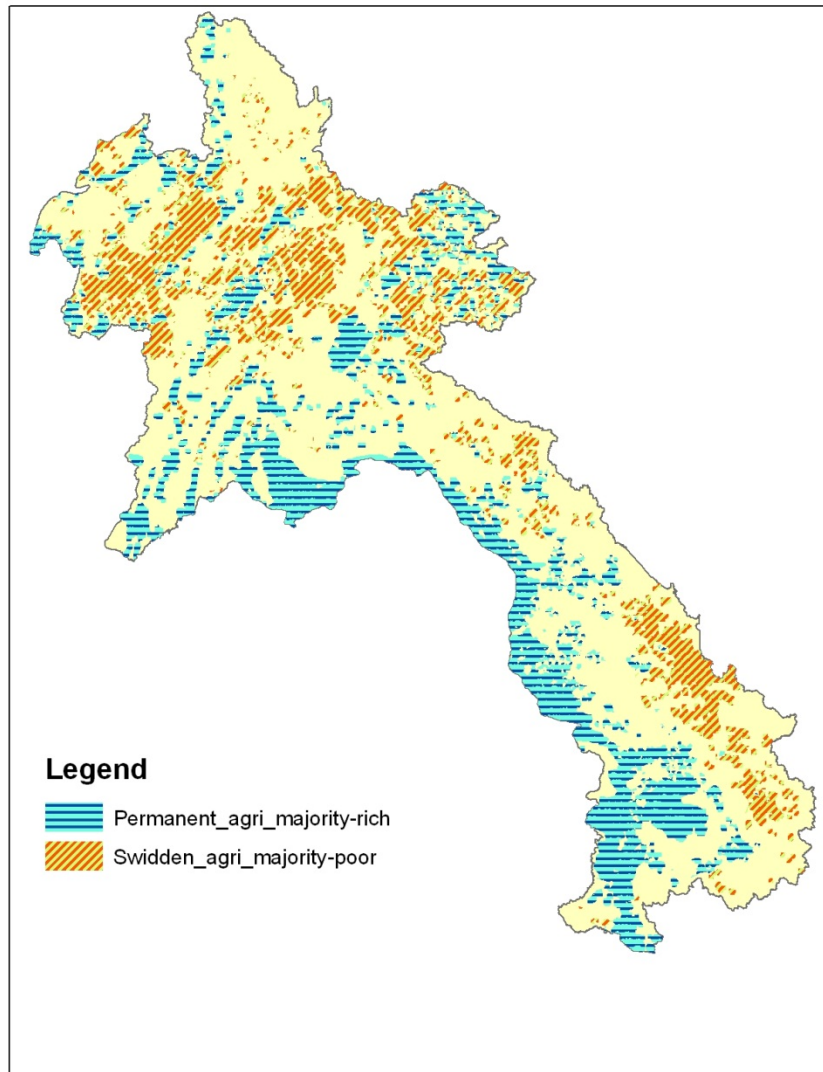
Creating a generalised landscape mosaic



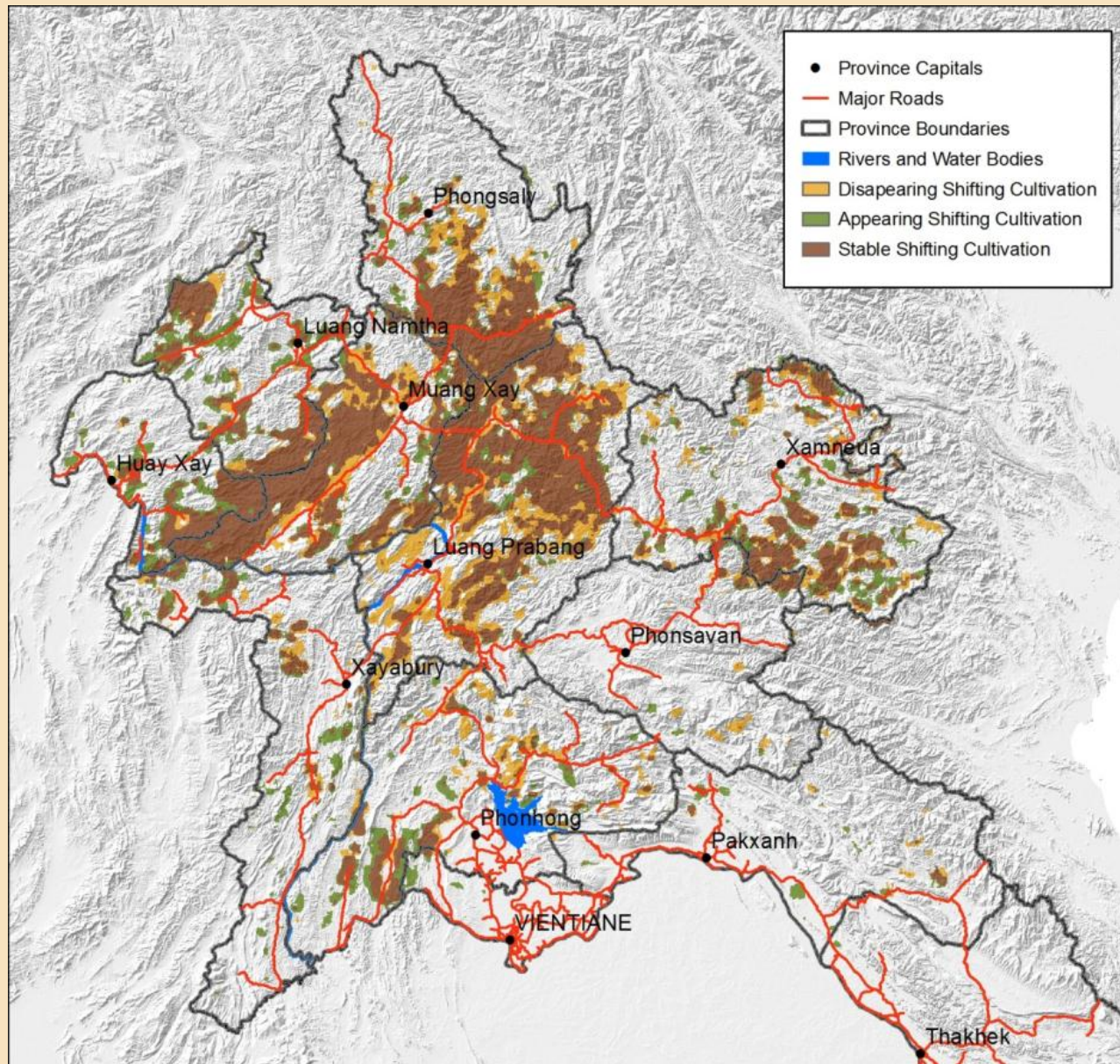
Incompatible metrics

Informing key policy debates:

Agricultural intensification and poverty alleviation: mainstream thinking and crucial exceptions



Dynamics of shifting cultivation landscapes (based on MODIS (2001 – 2009) and Landsat

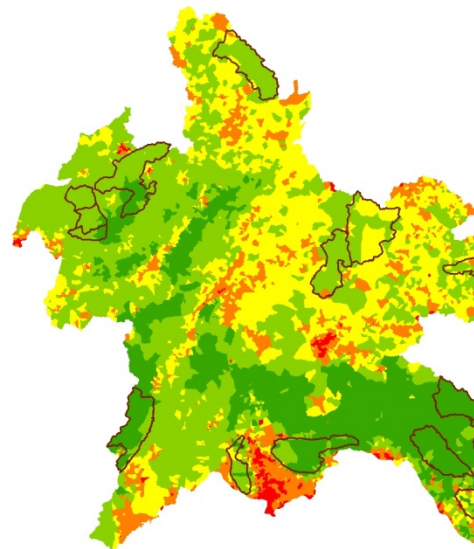


Hurni , et al, in prep

Basic socio-economic characteristics of shifting cultivation landscapes

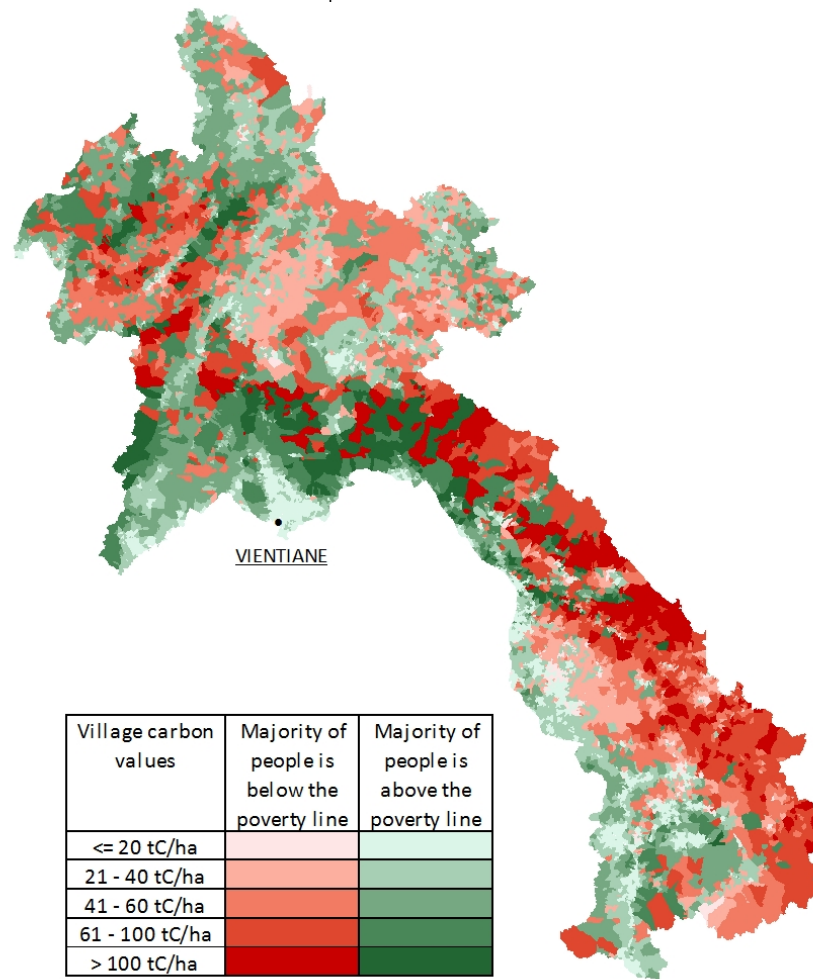
Landscape	Swidden agricultural landscapes				Other landscapes			
% of total Lao population	12.2				87.8			
% of territory	15.7				84.3			
Poverty	Better than poverty line		Worse than poverty line		Better than poverty line		Worse than poverty line	
% of above population	22.3		77.7		60.3		39.7	
mean travel time to district capital	2h 45min		4h 20min		2h 10min		4h 35min	
Accessibility to district capital	Within day trip	Beyond day trip	Within day trip	Beyond day trip	Within day trip	Beyond day trip	Within day trip	Beyond day trip
% of above population	92.3	7.7	70.5	29.5	99.3	0.7	88	12
Ethnic composition:								
- Lao-Thai %	56	67	11	10	88	60	50	23
- Mon-Khmer %	29	16	66	67	7	4	34	43
- Sino-Tibetan %	9	17	8	8	1	17	3	10
- Hmong-Mien %	6	0	15	15	4	19	13	24

Carbon Pools and Poverty Peaks

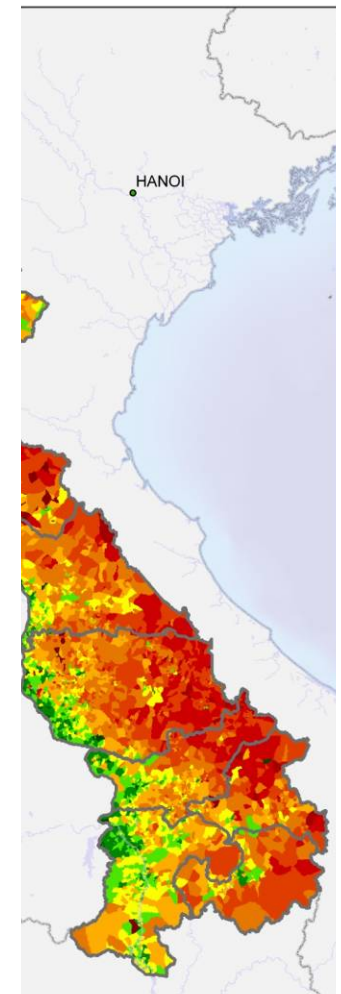


Village average carbon values

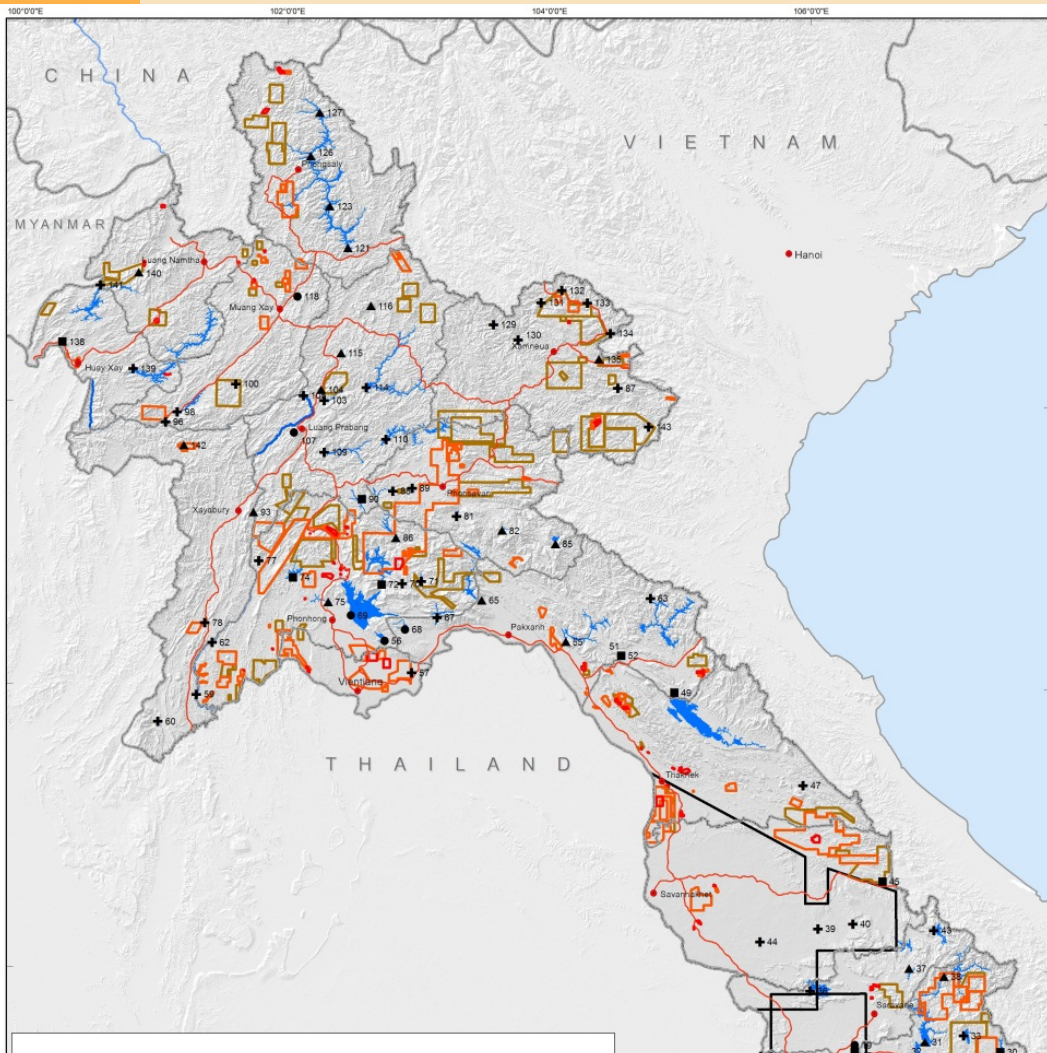
- Very low
- Low
- Medium
- High
- Very high
- Protected areas



Village carbon values	Majority of people is below the poverty line	Majority of people is above the poverty line
≤ 20 tC/ha		
21 - 40 tC/ha		
41 - 60 tC/ha		
61 - 100 tC/ha		
> 100 tC/ha		



Hydropower & Mining in Laos



Hydropower projects, reservoirs and mining tenements

Mining Projects

- Exploitation Concession
- Exploration Concession
- General Survey Concession
- Petroleum Exploration

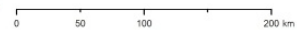
Hydropower Projects

- Operational
- Under construction
- In planning (PDA)
- Feasibility study (MoU)
- Planned & Existing Reservoir Areas

Mining data received from Department of Mines December 2009

Project location, status and reservoir area based on MEM, December 2009

Note: Only ~50% of the dam projects have actual reservoir area approximations

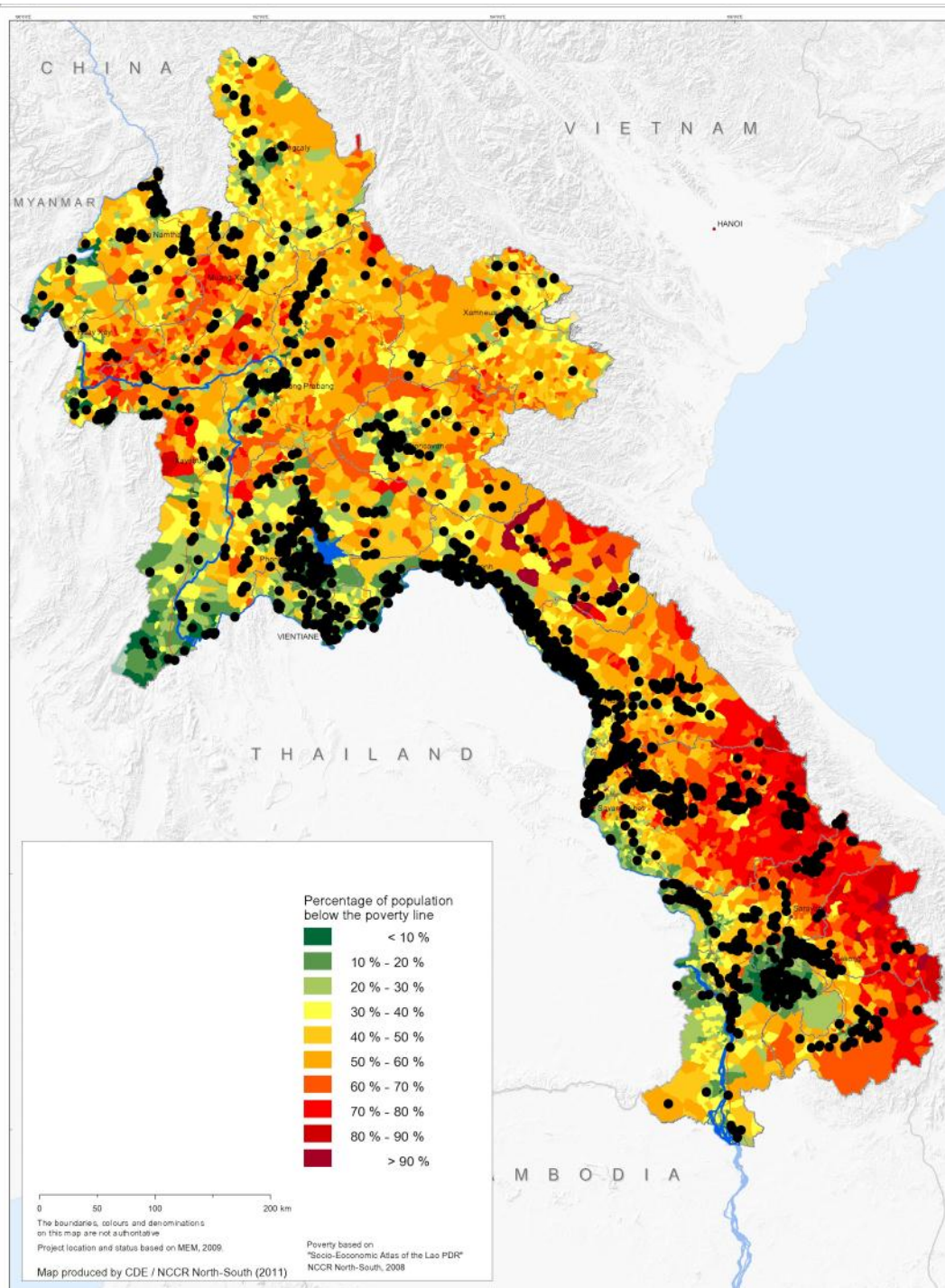


The boundaries, colours and denominations on this map are not authoritative

Map produced by CDE / NCCR North-South and Mekongmaps (2010)

	Projects
Operational	9
Under construction	9
In planning	26
Feasibility study	46
Status unclear	63
Total	153

	No. Villages	Population	Poverty rate	Dependents per 100 non-dependents	Literacy rate
Under construction	31	12,583	41	86	68
In planning	86	27,438	45	88	61
Feasibility study	176	64,941	49	91	58
Total	293	104,962	47	90	60
National level			34.7	76	73



Land concessions – mainly FDI

- 3,500 concessions inventorized in 2009
- Agri: 350,000 ha (180,000 rubber...)
- ~13% of all villages have at least 1 concession
- Av. poverty rate in concession areas significantly above nat. average
- Many concession on officially classified “unused lands”

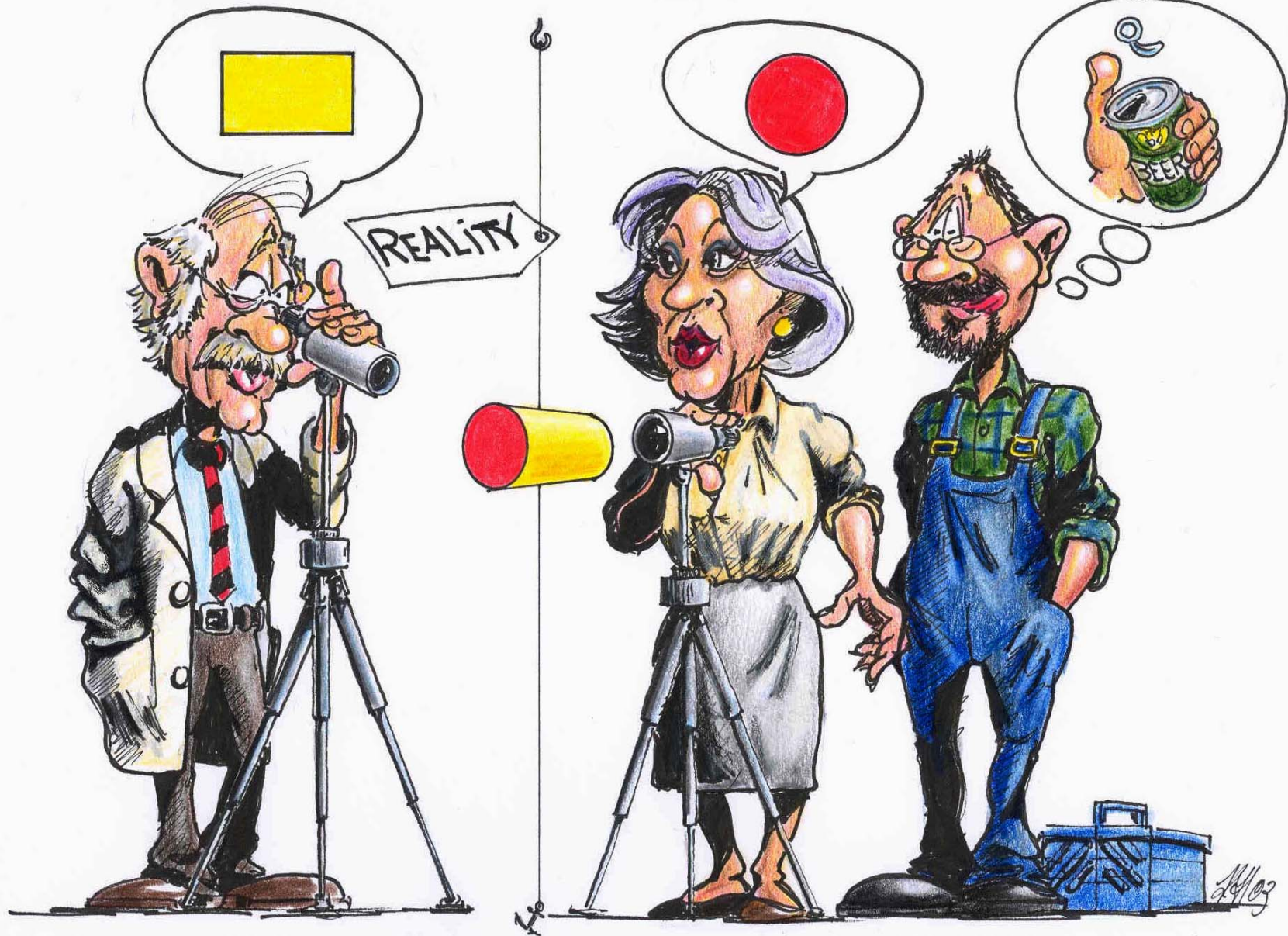




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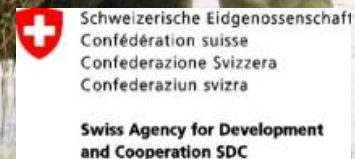
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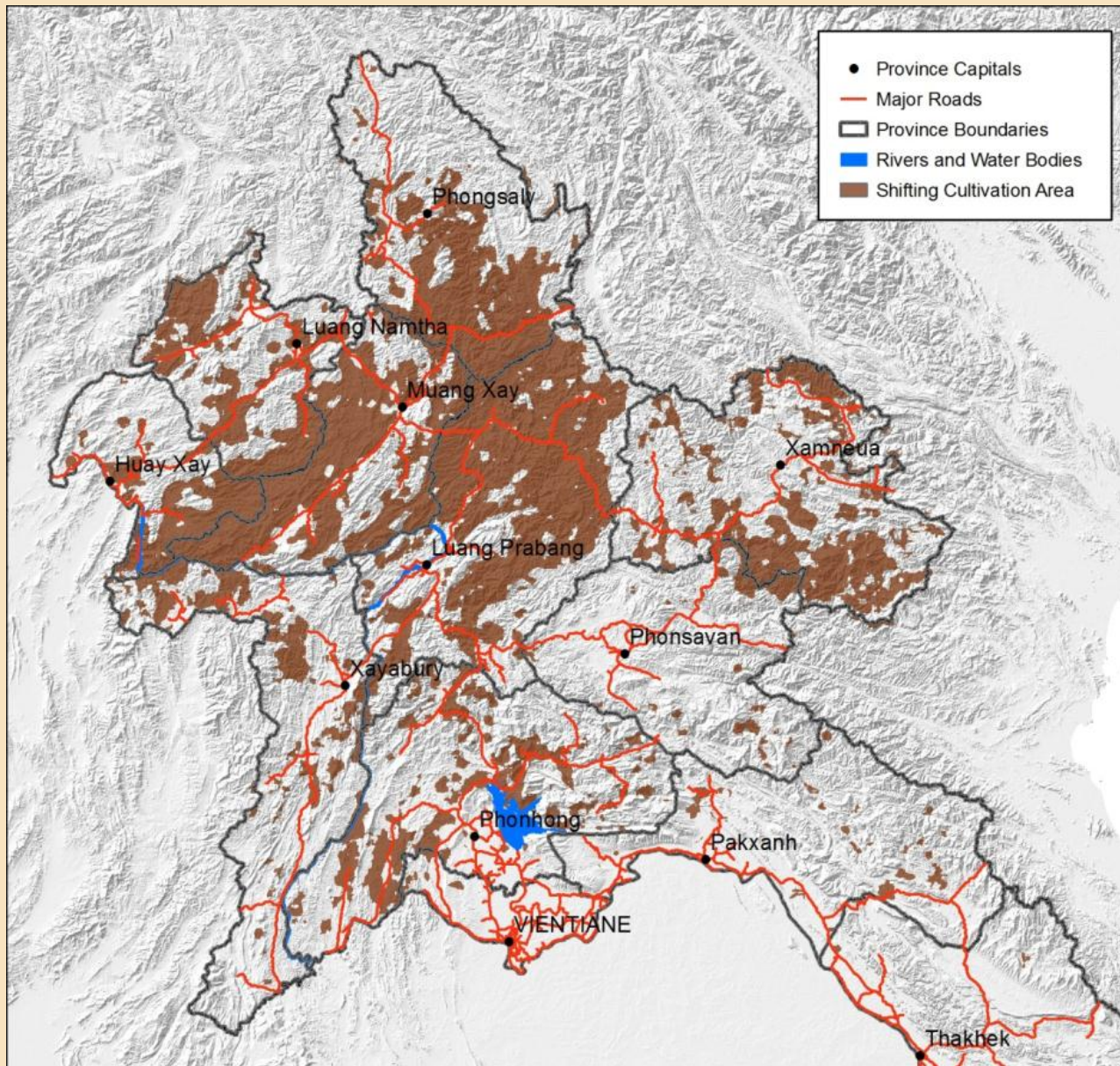
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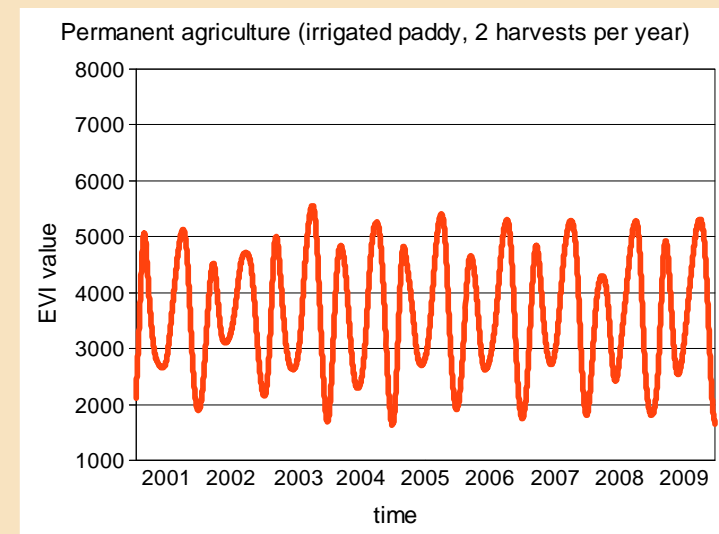
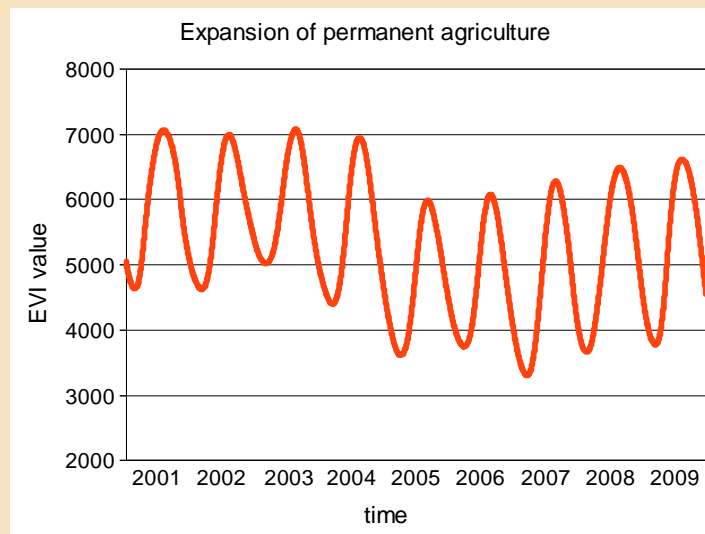
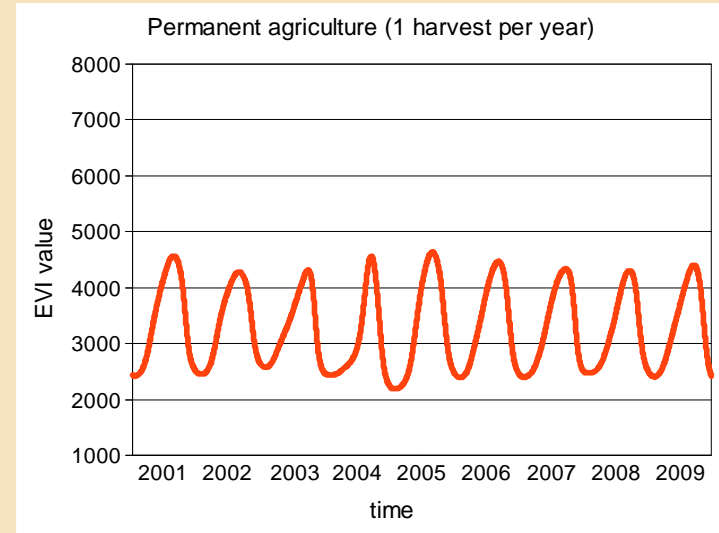
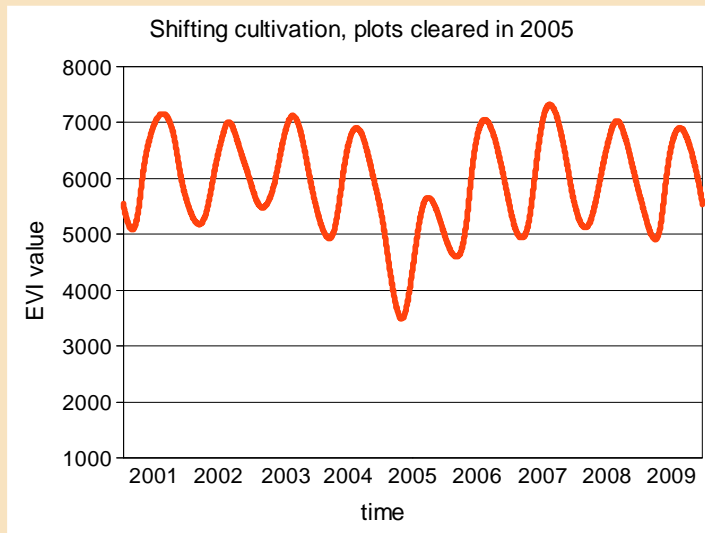


Shifting cultivation landscapes based on MODIS (2001 – 2009) and Landsat

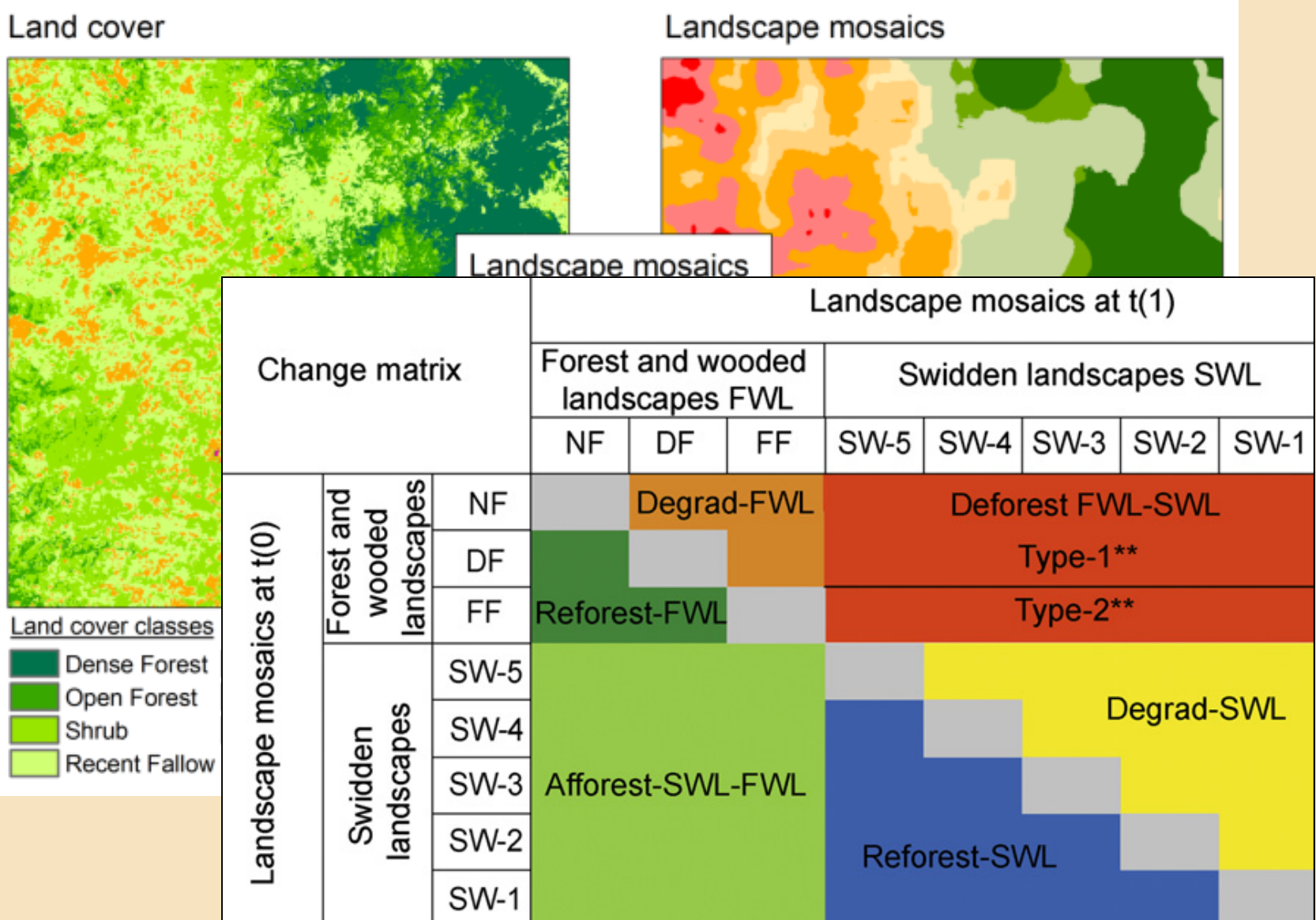


Hurni , et al, in prep

Hyper temporal signatures of main LU systems (MODIS)



Linking shifting cultivation and REDD+



Hett, et al, 2011

Towards New Knowledge Platforms for CPL Governance on Global & National level

Commercial Pressures On Land

Number of reported cases and nature of investments

