

# Country situation on estimation of carbon stock change in mineral soils

**Country: Lao PDR** 

Name of presenter: Saysongkham Sayavong

Names of contributors: Xaysatih Souliyavongsa, Vikham Mektakoul, Sorlaty Sengxeu

### Introduction:

- Lao People's Democratic Republic (Lao PDR), located in the heart of the Greater Mekong Sub-Region (GMS).
- Divided into seventeen provinces, and one municipal province of Vientiane Capital with total area of 236,800 km<sup>2</sup>.
- Population is around 7.28 million people and is expected to increase to 9.4 million people by 2050.
- 2018-2020, Laos had finished the WRB classification and digital soil map of Lao PDR.
- 2020-2021, produced the soil organic carbon and salt-affected soils maps.



#### 3) What are the soil organic carbon data/maps available at national level?

We have:

Land cover map;

Soil map;

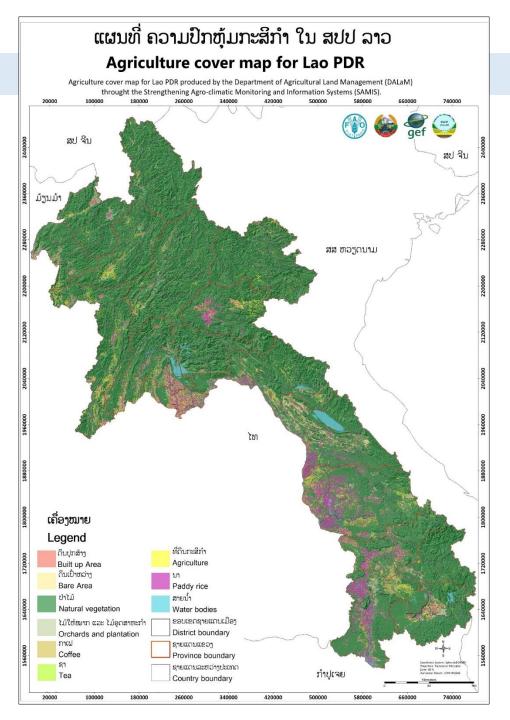
SOC map

Produced and developed by DALaM.

DOF is working for SOC maps in the forest areas.

#### Agriculture land cover map of Lao PDR

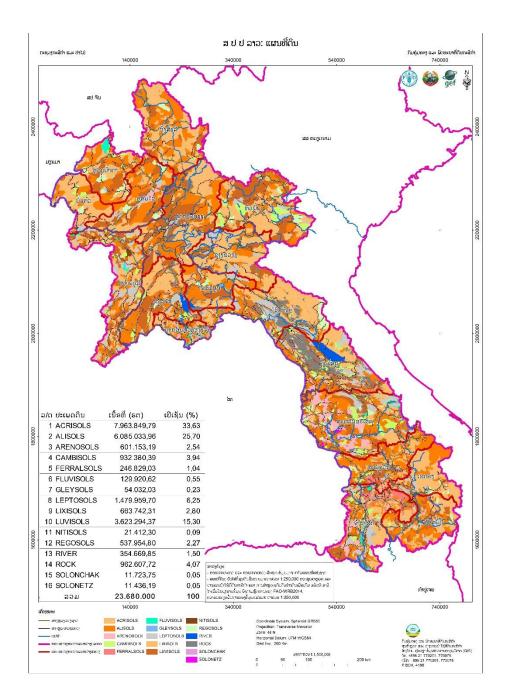
LEVEL1 Definition	LEVEL1 – Map	LEVEL2 Definition	LEVEL 2 – Map code		
	code				
Built-up	BU	Built-up non linear	BU		
		Built-up linear	BUL		
Bare Areas	BA	Bare Areas	BA		
Natural	VG	Dense natural vegetation	VGD		
vegetation		Sparse natural vegetation	VGS		
Orchards and	OP	Orchards and plantations	ОР		
plantations					
Coffee	СР	Coffee plantations	СР		
plantations					
Tea plantations	TP	Tea plantations	TP		
Agriculture	AG	Annual crops	AC		
		Cassava	CS		
		Sugarcane	SC		
		Maize	MA		
		Steep slope agriculture	SSA		
Paddy rice	RC	Irrigated rice	IR		
		Rainfed rice	RR		
		Double rice	RIR		
Water bodies and wetlands	WT	Perennial water	WTP		
wettanus		Seasonal water	WTS		
		Natural vegetation on water	WET		



#### Soil map (WRB2014)

- 1,341 geo-referenced soil profiles and augers with 4,608 horizons
- 14 Soils unit
- Metadata of the national soil profile databases

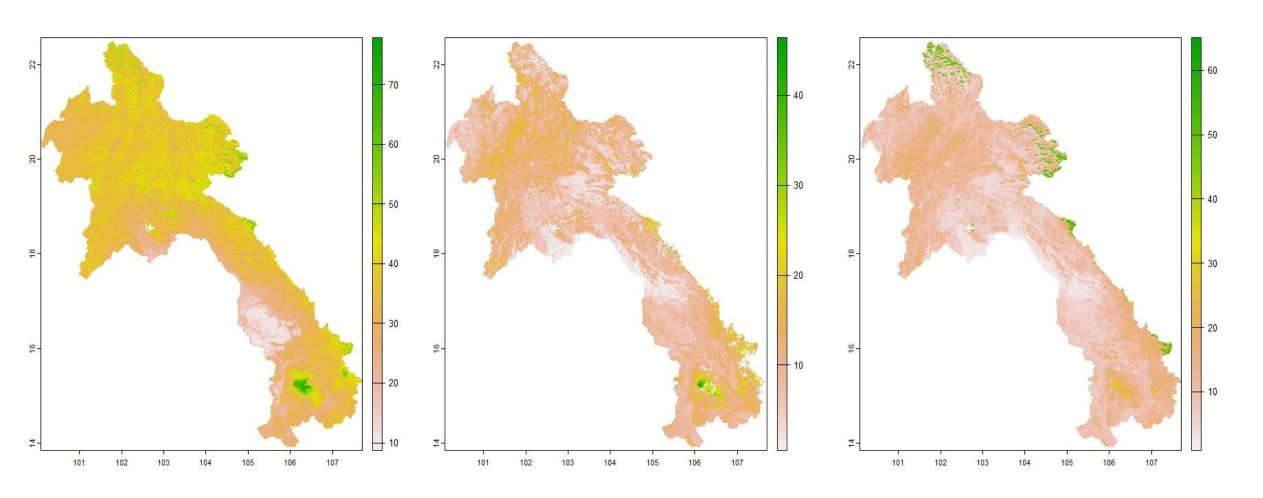
pid	DESCRIBE	Sample	Pits	DEPTH	Upper	Lower	Horizon	THICKNES pl	Н	pHKCL EC	E:	SP O	0	BDGrigal1 OM	l
AT001	NEW	1		1 12	0	12	1	1 12	5.12	4.61	0.1	15.8	0.68	1.55	1.1
AT001	NEW	2		1 35	12	35	2	2 23	5.58	4.82	0.1	1.59	0.19	1.59	0.3
AT001	NEW	3		1 70	35	70	3	35	4.36	3.92	0.1	2.89	0.31	1.58	0.5
AT001	NEW	4		1 130	70	130	4	60	5.43	4.62	0.1	1.71	0.14	1.6	0.2
AT002	NEW	5		2 18	0	18	1	18	5.16	4.65	0.1	1.24	0.96	1.52	1.6
AT002	NEW	6		2 50	18	50	2	32	5.28	4.94	0.1	1.69	0.38	1.57	0.6
AT002	NEW	7		2 90	50	90	3	3 40	5.27	4.89	0.1	2.33	0.16	1.59	0.2
AT002	NEW	8		2 130	90	130	4	40	5.21	4.89	0.1	2.73	0.08	1.6	0.1
AT003	OLD	9		3 14	0	14	1	14	5.16	4.15	0.1	3.51	1.32	1.49	2.2
AT003	OLD	10		3 43	14	43	2	2 29	5.6	4.21	0.1	2.23	0.84	1.53	1.4
AT003	OLD	11		3 85	43	85	3	42	6.2	4.22	0.1	2.9	1.02	1.52	1.7
AT003	OLD	12		3 115	85	115	4	30	6.3	3.8	0.1	0.52	0.44	1.57	0.7
AT004	OLD	13		4 18	0	18	1	18	4.7	2.15	0.1	14.12	1.08	1.51	1.8
AT004	OLD	14		4 45	Va	riables		Description					Units		
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AT005	OLD	17		5 16	PROFILE		pro	profile full name					3		
AT005	OLD	18		5 45	SOILUNIT		abb	abbrevation of soil unit							
AT005	OLD	19		5 80			£.11	full name of soil unit					8		
AT005	OLD	20		5 110	SOILNAME		Tull	Tull name of soil unit							
AT006	OLD	21		6 16	DISTRICT		dist	district name							
AT006	OLD	22		6 40	PROV	PROVINCE		province name							
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AT007	OLD	26		7 50	Sampl	le	sam	ple identif	ier						
AT008	OLD	27		8 18				<u> </u>					99		
AT008	OLD	28		8 43	Pits		nun	iber of sam	iple				25		
AT008	OLD	29		8 70	DEPT	н							Cm		
AT008	OLD	30		8 110	Upper								Cm		
					Lower								Cm		



#### **SOC of Lao PDR**

• SOC of 0-30, 30-60, and 60-100 Cm

#### by using Quantile Regression Forest



## 4) Are you aware of any nation-wide efforts to establish an MRV system for SOC? If not what are the challenges in establishing it?

There is no MRV system for SOC in Laos.

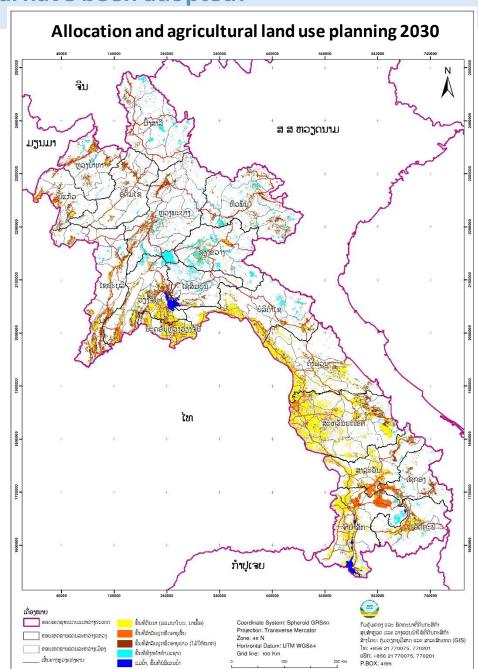
What are the challenges:

- 1. capacity building;
- 2. action/ master plan;
- 3. fund

#### 5) What national policies targeting SOC sequestration potential have been adopted?

- ➤ MAF has clear defined in the agriculture development strategy to the year 2025 and vision to the year 2030:
- ➤ Forest cover 70% in 2025;
- ➤ Agricultural land 19% in 2030

Main types	Area (ha)			
Paddy rice	2,000,000			
Annual crop	1,000,000			
Perennial/fruit tree	800,000			
Grassland	700,000			
Total:	4,500,000			



#### 5) What national policies targeting SOC sequestration potential have been adopted?

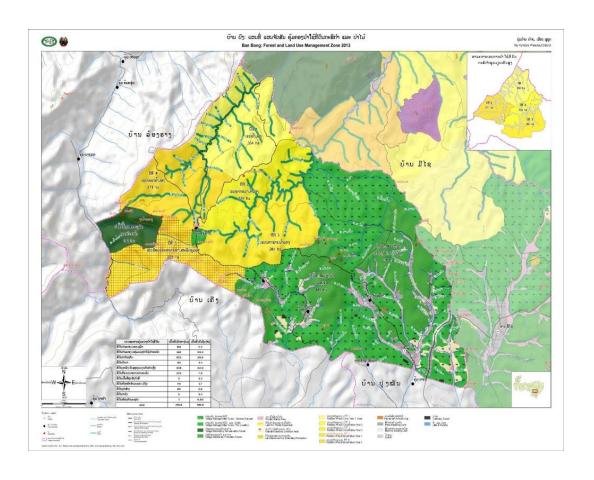
➤ Agriculture land use planning at village level

(Participatory Forest and Agriculture Land Use Planning,

Allocation and Management + vulnerability analysis and

climate change adaptation planning + foresight analysis

using climate scenarios to the methodology);



#### 5) What national policies targeting SOC sequestration potential have been adopted?

- Agro-ecological zoning map and storymaps (Use alternative futures scenarios in agriculture planning policy preparation);
- Promoting fertilizer uses for agriculture activities

