

The expert consultation and workshop on the development and implementation of soil doctors program in Lancang-Mekong Countries

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Extension Models towards Sustainable Soil Management in Cambodia



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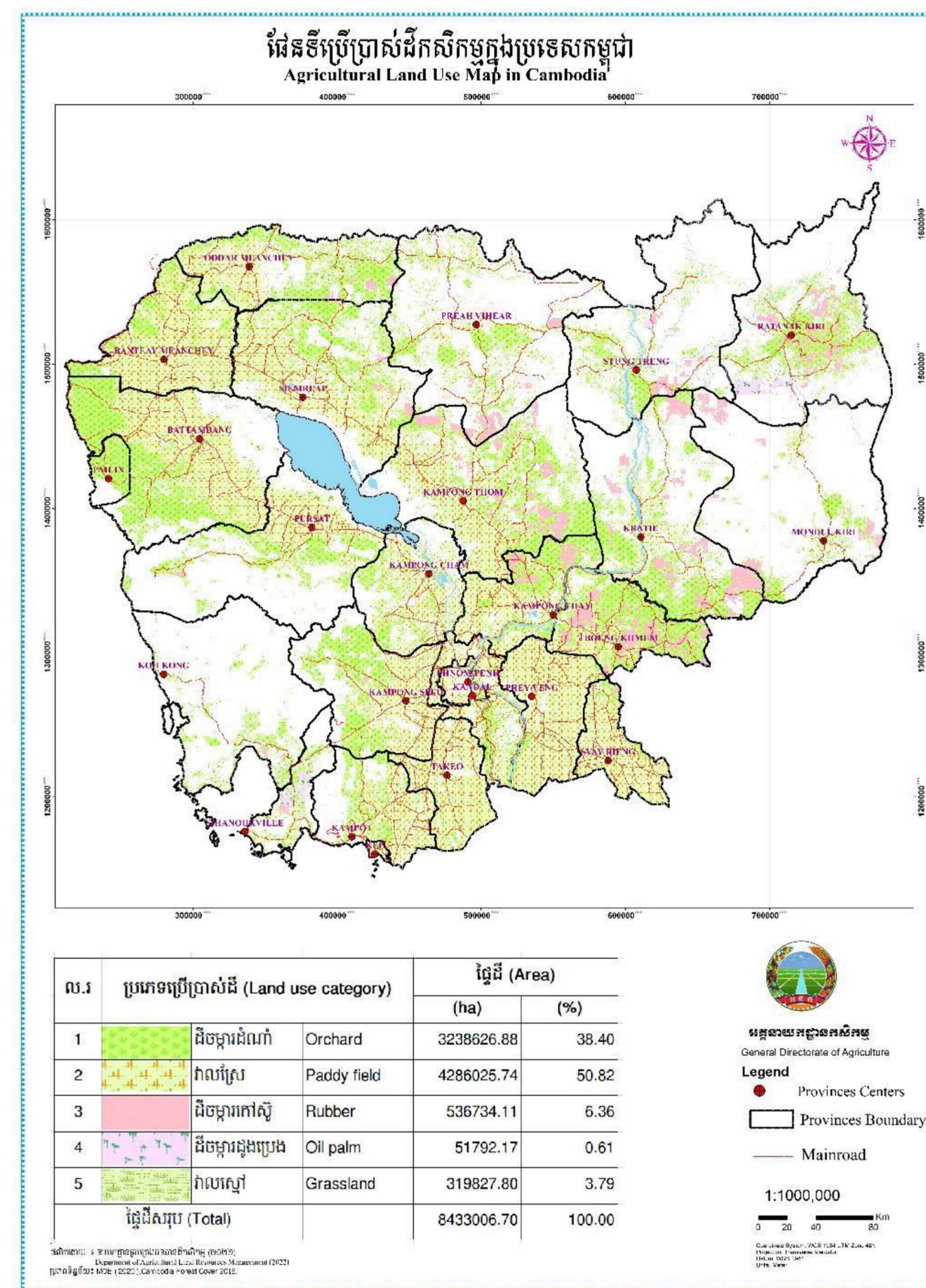
**Department of Agricultural Land Resources Management
General Directorate of Agriculture
Ministry of Agriculture, Forestry and Fisheries**

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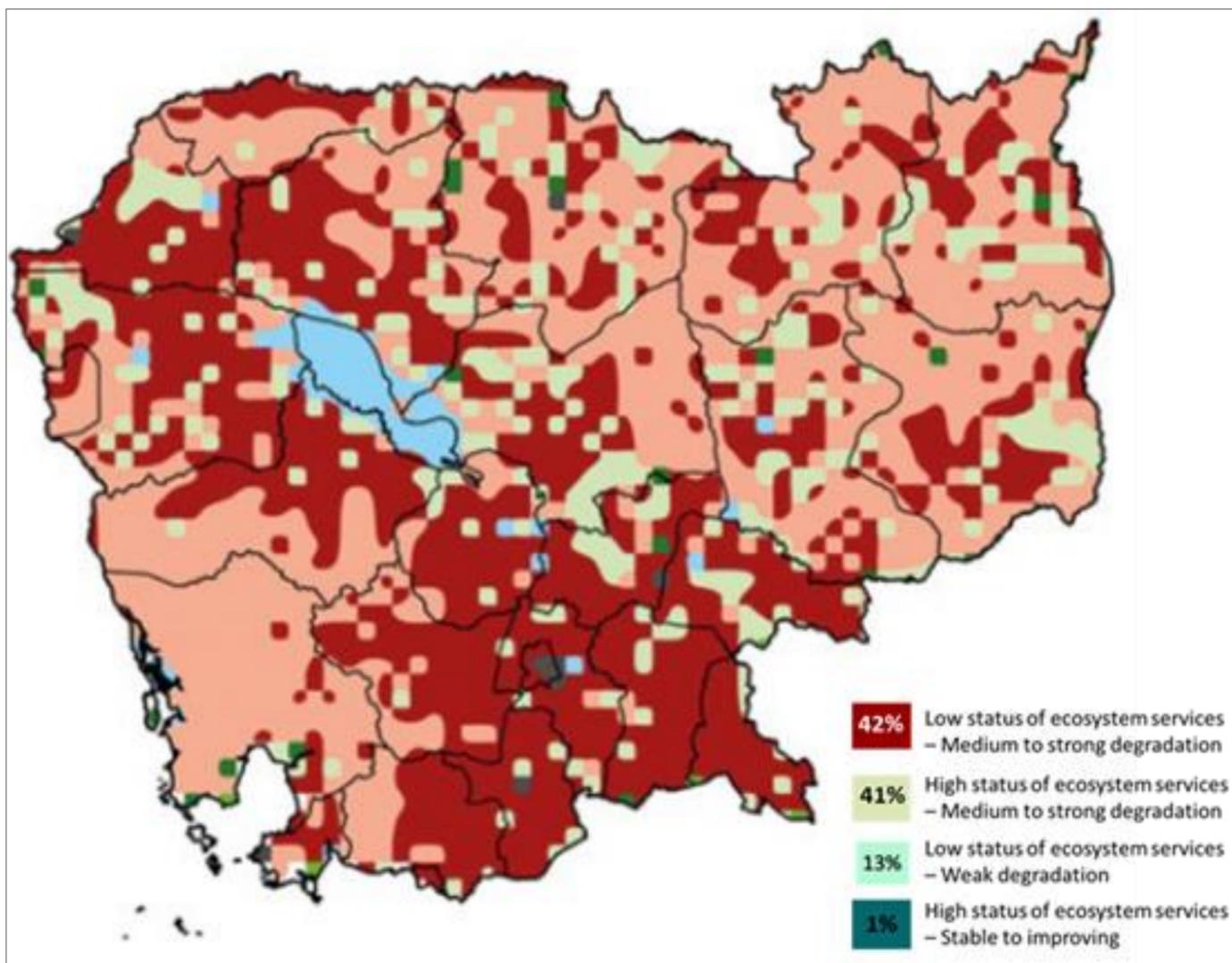
Cambodia's agricultural land use (ALU)

- Cambodia commits to achieve an economic growth rate of 7% per annum to reach an upper-middle income country by 2030.
- Agriculture is a key driver for economic development (23% of GDA in 2020).
- Achieving a sustainable agricultural growth at 5% per annum is essential to achieve the Royal Government of Cambodia's economic development goal by 2030.



Land degradation - Impact

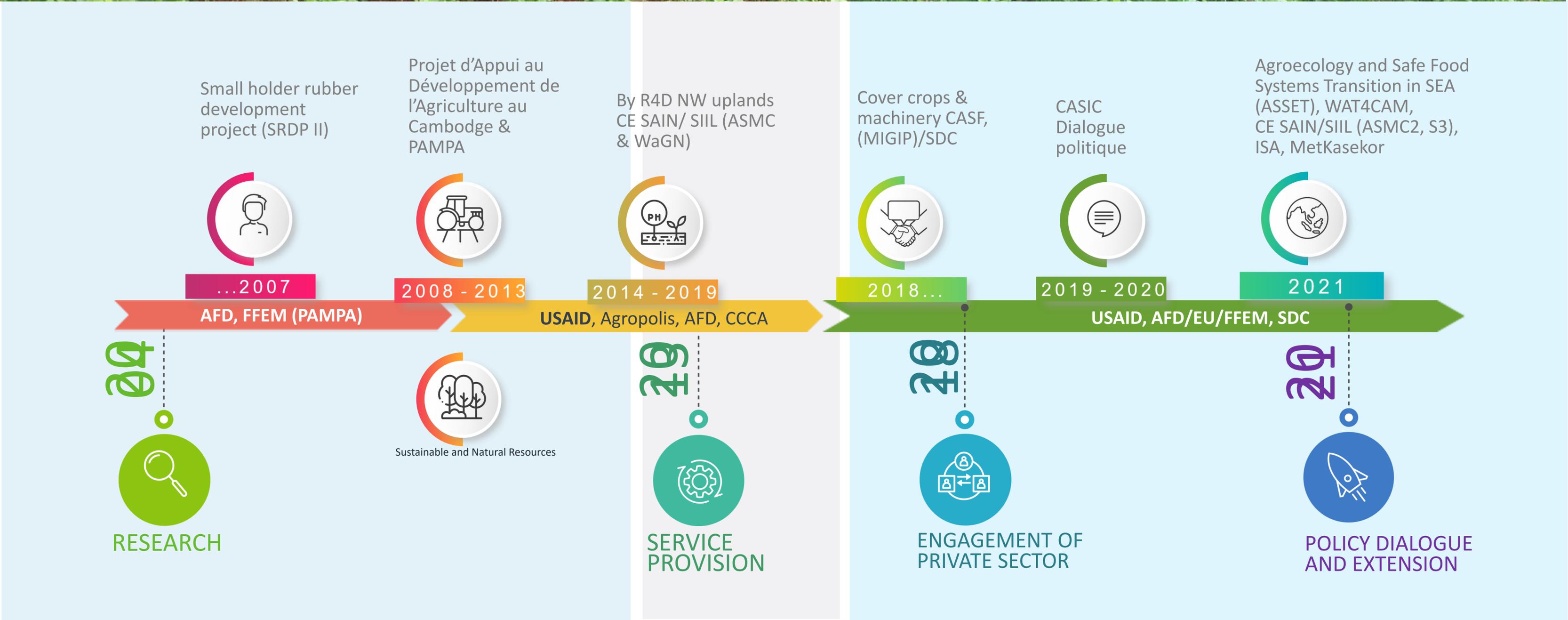
There is a need for the Cambodian agriculture sector to reinvent itself by shifting from increased production through land expansion and excessive use of inputs towards sustainable intensification.



Land Degradation Source: GLADIS-FAO16

- Annual cost of land degradation is estimated at USD 677 million or 3% of the country's GDP (GM/UNCCD, 2018)
- Conventional tillage practice (Maize) increased soil loss by 13 times more than CA practice on 5% slope (DALRM, 2020).
- Soil erosion resulted in losses of SOC (870 kg/ha), N (90 kg/ha), P (0.42 kg/ha), K (10 kg/ha) (DALRM/GDA 2020, unpublished data)

2. Initiatives towards the agroecological transition



3. MetKaseKor Model (Extension)



ម៉ែតកេសិករ
MetKaseKor

An “opening the market”
early adopters led extension model



MetKasekor Supports Sustainable Intensification



MetKasekor is an innovative extension model. MetKasekor focuses on opening the market for private sector investments. The model is a government resource for the future with the intention to improve the public agricultural extension service system in Cambodia.

មិត្តភក្តិស៊ីកា



Unique Features



PUBLIC SECTOR

Involved in “opening the market” for the private sector

PRIVATE SECTOR

Accompany the public sector during the sensitization of the farmers and provide the services on a commercial basis

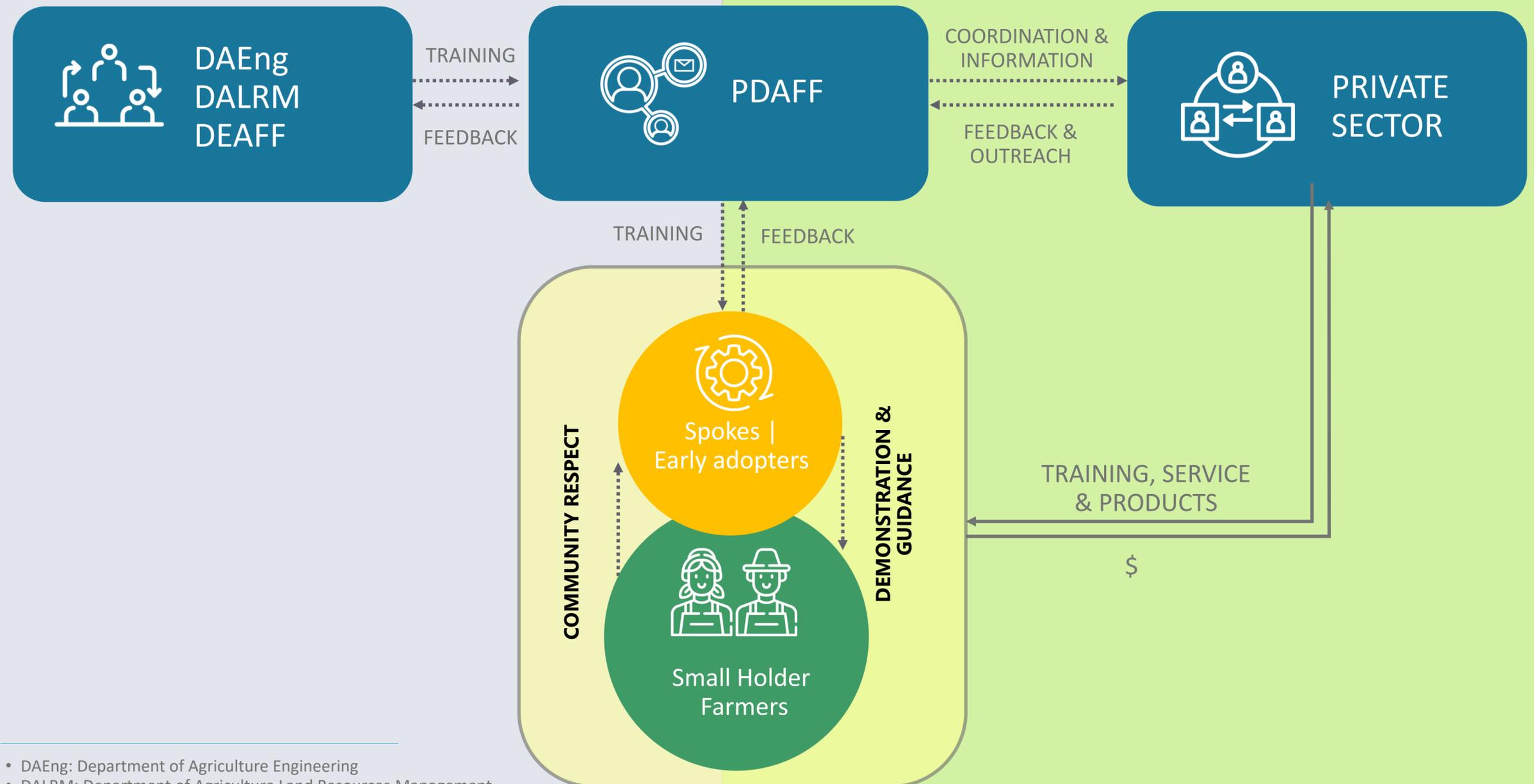
EARLY ADOPTERS

Agree to take the SI services and use their land to showcase the results to other farmers

GOVERNMENT EXTENSION

EMBED MetKasekor into the Government Extension System

Model

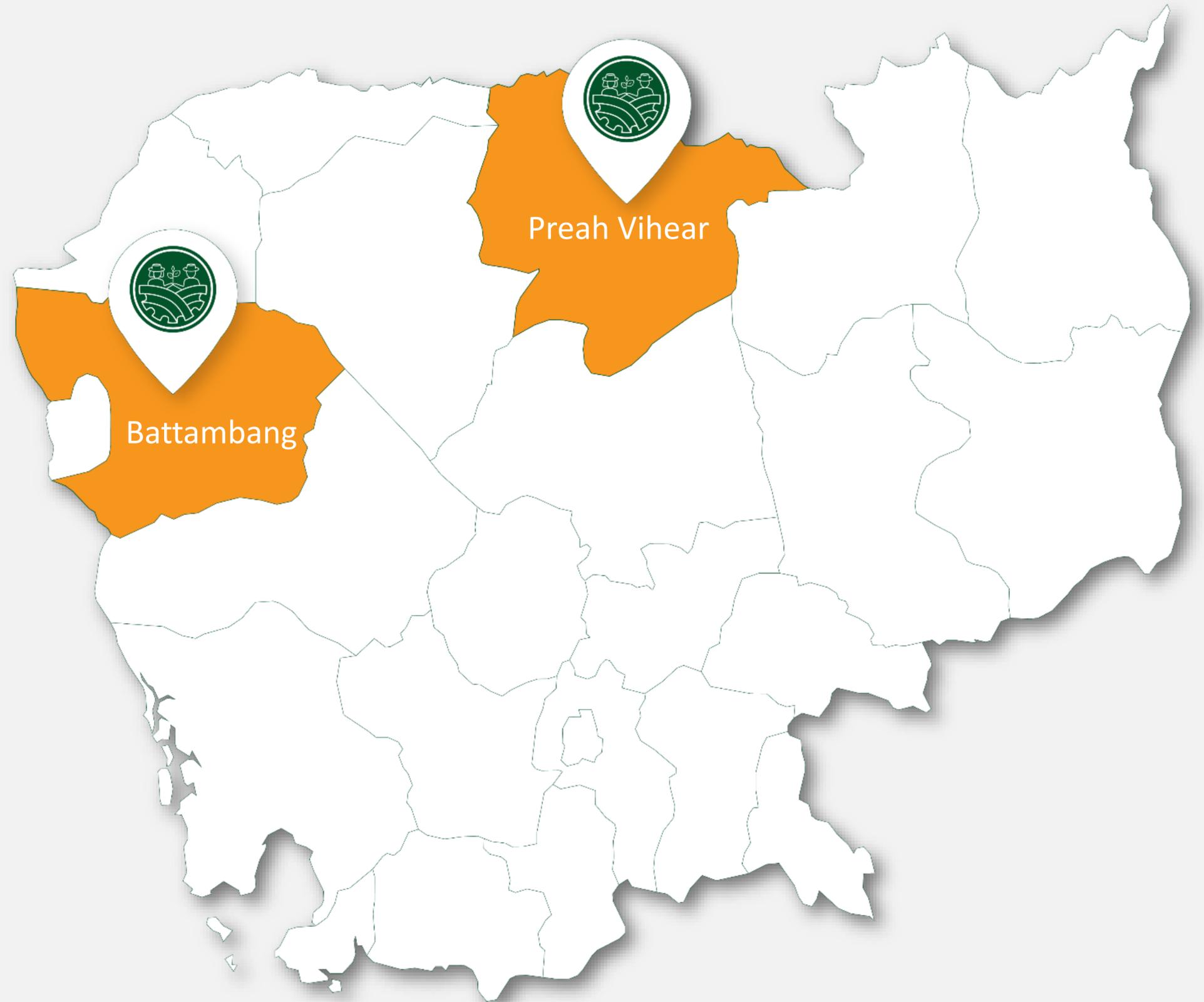


- DAEng: Department of Agriculture Engineering
- DALRM: Department of Agriculture Land Resources Management
- DEAFF: Department of Extension of Agriculture, Forestry and Fisheries
- PDAFF: Provincial Department Agriculture, Forestry, and Fisheries

Current Status

MetKasekor will be piloted in two provinces: Battambang and Preah Vihear (2021-24)

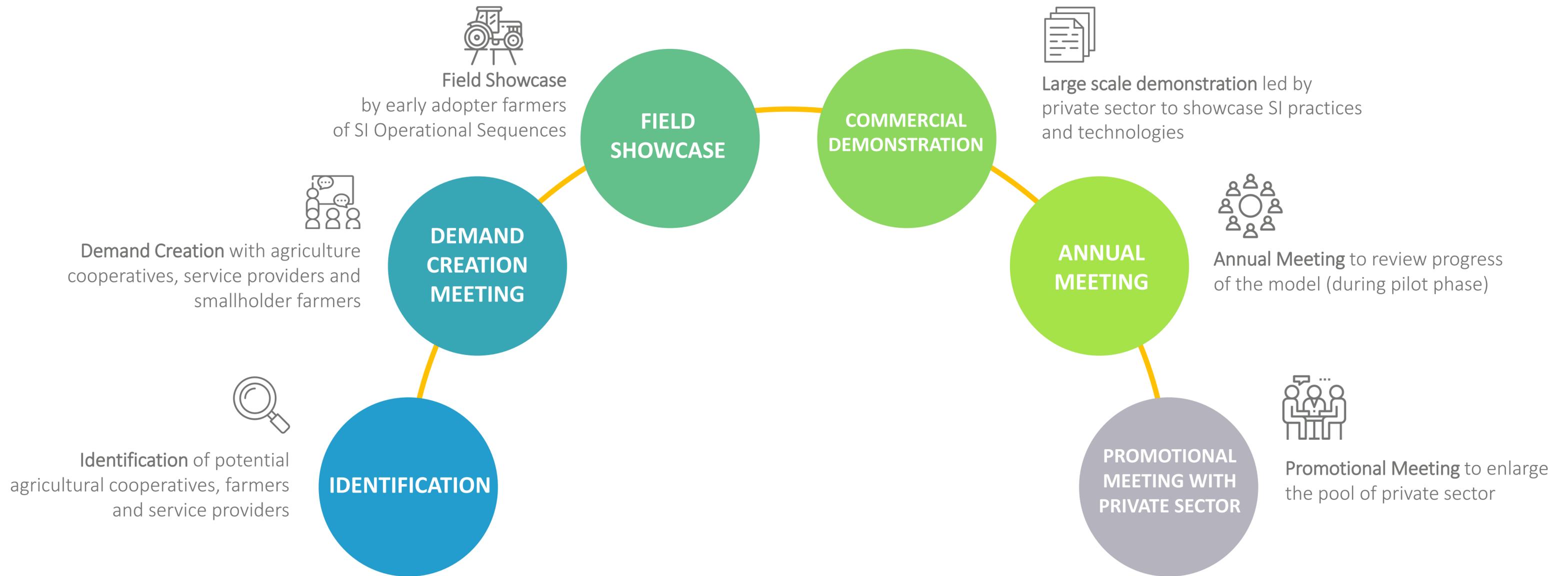
The pilot will be monitored by a Steering Committee within the Ministry of Agriculture, Forestry and Fisheries (MAFF)



MetKasekor Technologies



Metkasekor Steps



Results to Date



1000
farmers



25
machinery sold



4
private sector involved



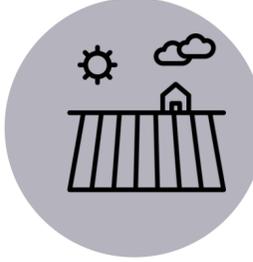
15
service providers



17
tons of cover crop produced



2
provinces



1000
ha of land covered

4. Dei Meas Initiative

DEI MEAS - ដីមាត់
“Golden soil”

A TRANSITIONING SYSTEM FOR A CHANGE TOWARDS
AGROECOLOGICAL PRACTICES



Agro-ecology in Cambodia: Impacts and co-benefits



Impacts and co-benefits:

- Improve soil fertility,
- Restore ecosystem services,
- Sequester and store carbon in the soil,
- Reduce pests and diseases pressure,
- Diversify food production,
- Preserve soil biodiversity,
- Reduce soil erosion and restore degraded land,
- Increase soil water retention,
- Reduce methane emissions,
- Improve water use efficiency.

DEI MEAS - ដីមាស

A TRANSITIONING SYSTEM FOR SMALLHOLDER FARMERS' CHANGE
TOWARDS AGROECOLOGICAL PRACTICES
(GOLDEN SOIL)

1

CREATING A
TRANSITIONING SYSTEM
THAT INCENTIVIZE SMALLHOLDER FARMERS FOR
SUSTAINABLE PRACTICE ADOPTION

QUANTIFYING CARBON AND ECOSYSTEM
SERVICES PRODUCTION WITH AN
EFFECTIVE AND INEXPENSIVE
MRV SYSTEM

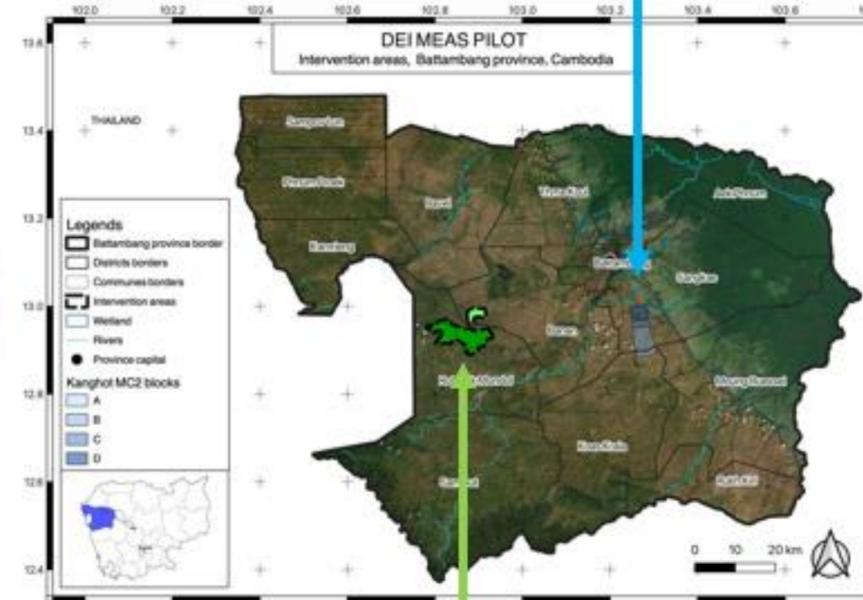
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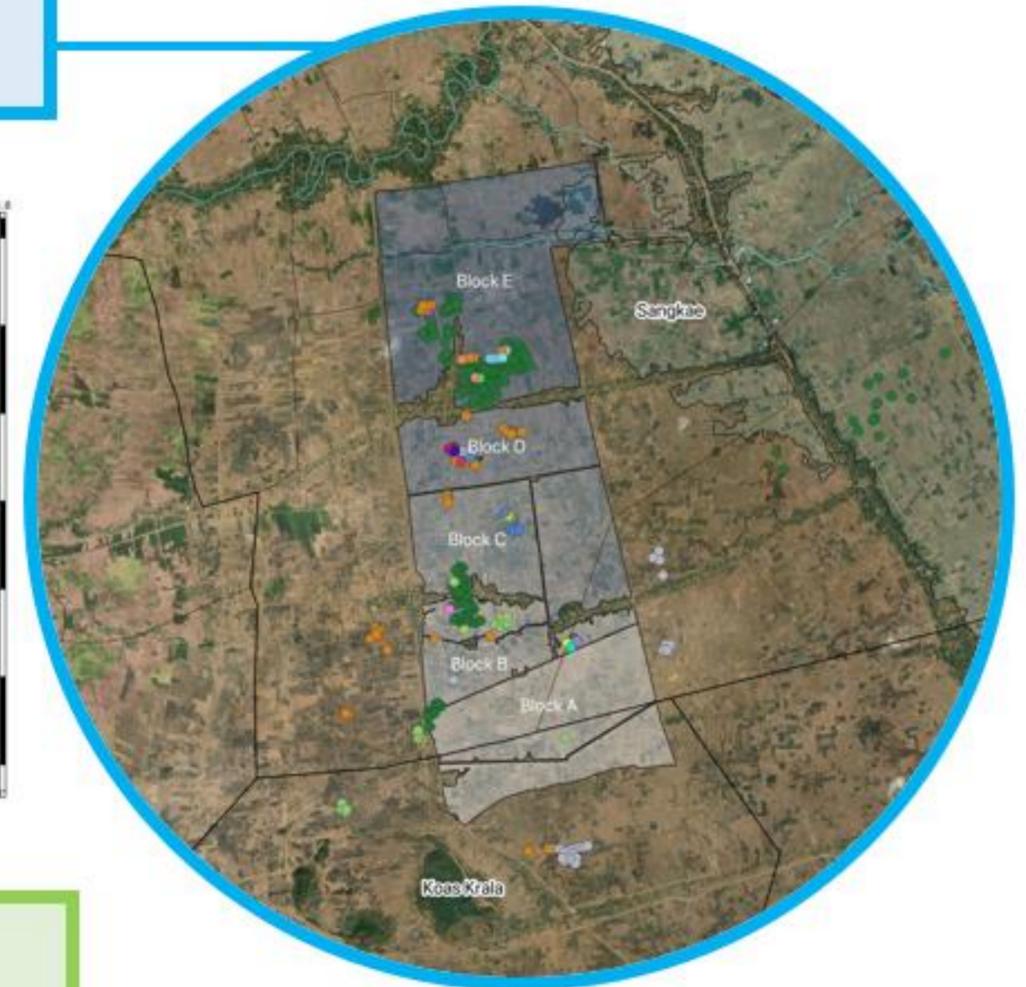
DEI MEAS: 2 pilot locations in Battambang province (NW)



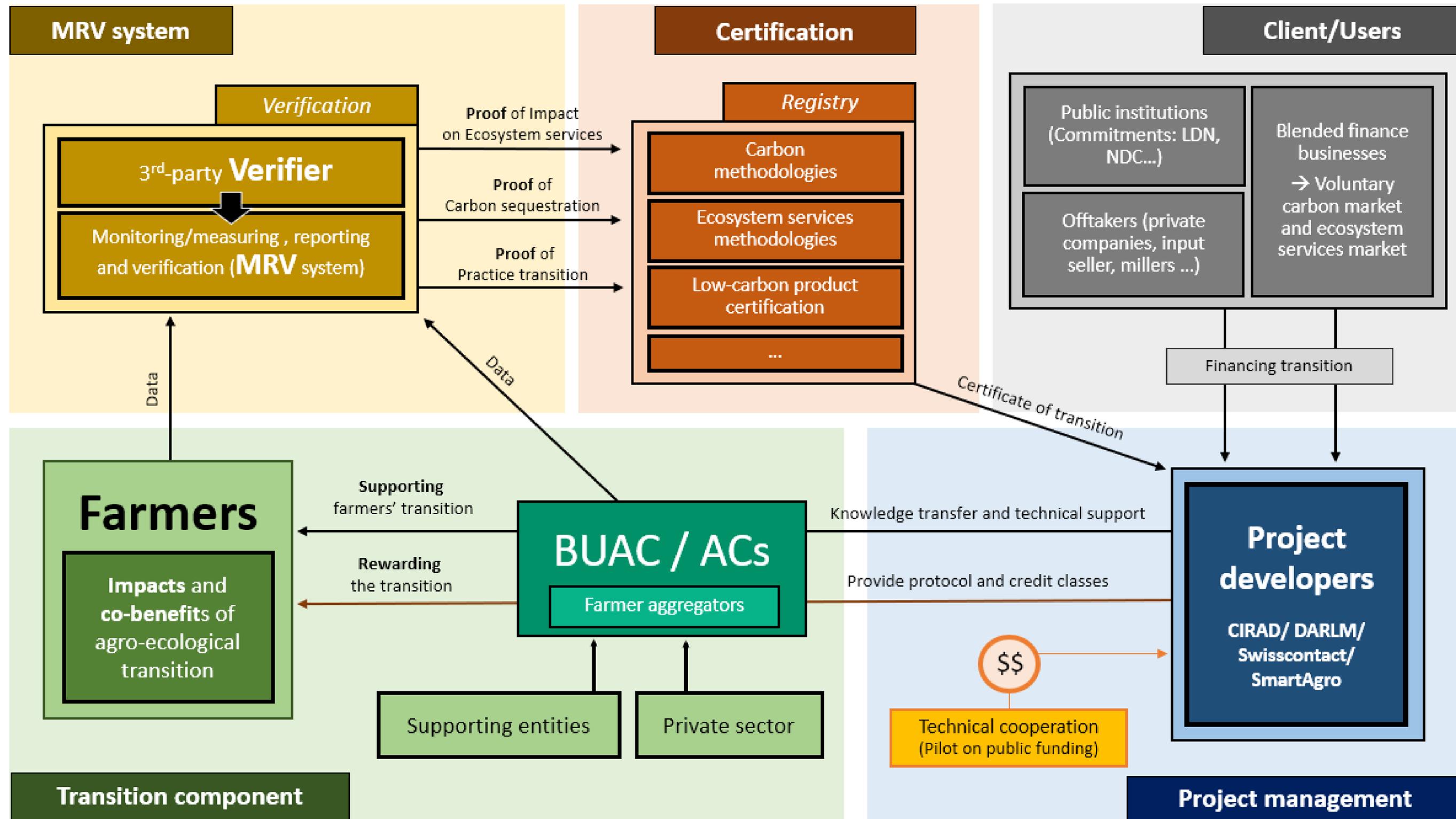
Lowland:
Kanghot irrigation scheme
→ 200 Households on ~400ha



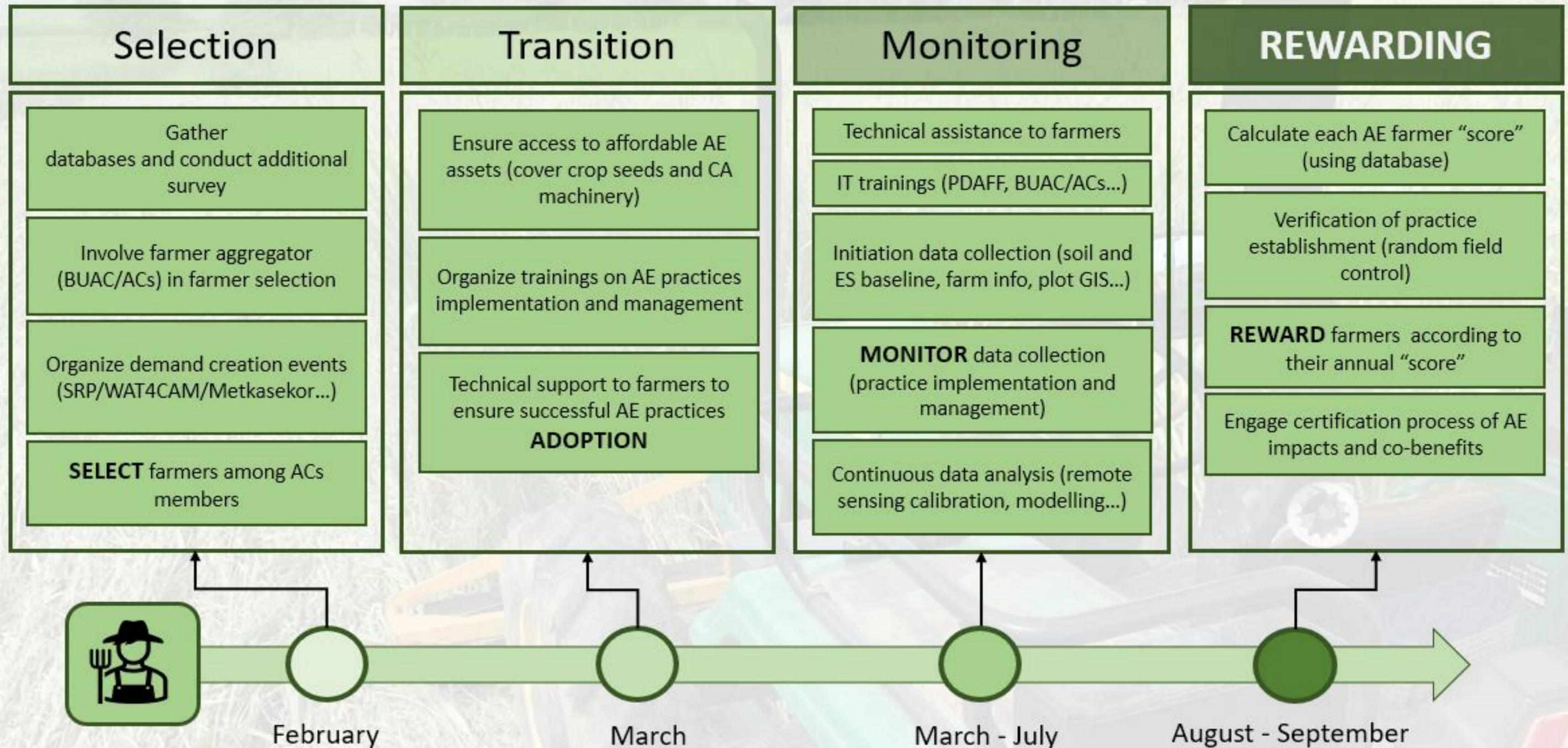
Upland:
Pech Changvar and Sangha villages
→ 80 Households on ~150ha



The DEI MEAS system



Supporting farmers transition



Scoring system

Rewarding farmers for practice implementation

Rewarding system DEI MEAS: Scoring system			
Practice	Parameter	Scoring	Reward (\$/ha)
Land preparation	Ploughing	0	0
	Subsoiling	1	5
	Land leveling	2	10
Cover crop establishment	Bare land	0	0
	Short cycle	1	25
	Long cycle	1	30
Residue management	Exporting or burning biomass	0	0
	Green manure	1	5
	Green sowing	2	10
Sowing method	Broadcasting	0	0
	No-till planter Cereals	1	10
	No-till planter Cassava	2	20
Crop diversification	Monocrop	0	0
	Other grain crop	1	10
	Cover crop seed production	2	20
	Pulse crop/ Mungbean	2	20
Water management	Rainfed	0	0
	Flooding	0	0
	AWD	1	30

Example:

~45\$ reward

To be adapted to each cropping system (maize, cassava...)

Key points and outcomes of DEI MEAS pilot

The creation of a detailed **transitioning system**, incentivizing smallholder farmers to access and implement agro-ecological practices.

The quantification of carbon and ecosystem services production, with efficient and cost-effective **MRV protocols**, allowing international certification and recognition of practices impact.

Recognizing smallholder farmers as contributors of natural resources conservation and climate change adaptation and mitigation.

Co-benefits of the pilots

- Sustainably increasing agricultural productivity and incomes;
- Improving smallholder farmers' resilience to climate change;
- Maintaining or enhancing soil fertility, water resources, and other ecosystem services;
- Sequester carbon and reduce greenhouse gas emissions.



***Thank you for your
attention!***

