



Land Degradation Assessment and Identification for SLM practices in Thailand

on

DS-SLM Project to achieve Land Degradation Neutrality (LDN)

during

UNCCD COP14 New Delhi, SIDE EVENT
3 September 2019





Module 2 National/Sub-National Level Assessment



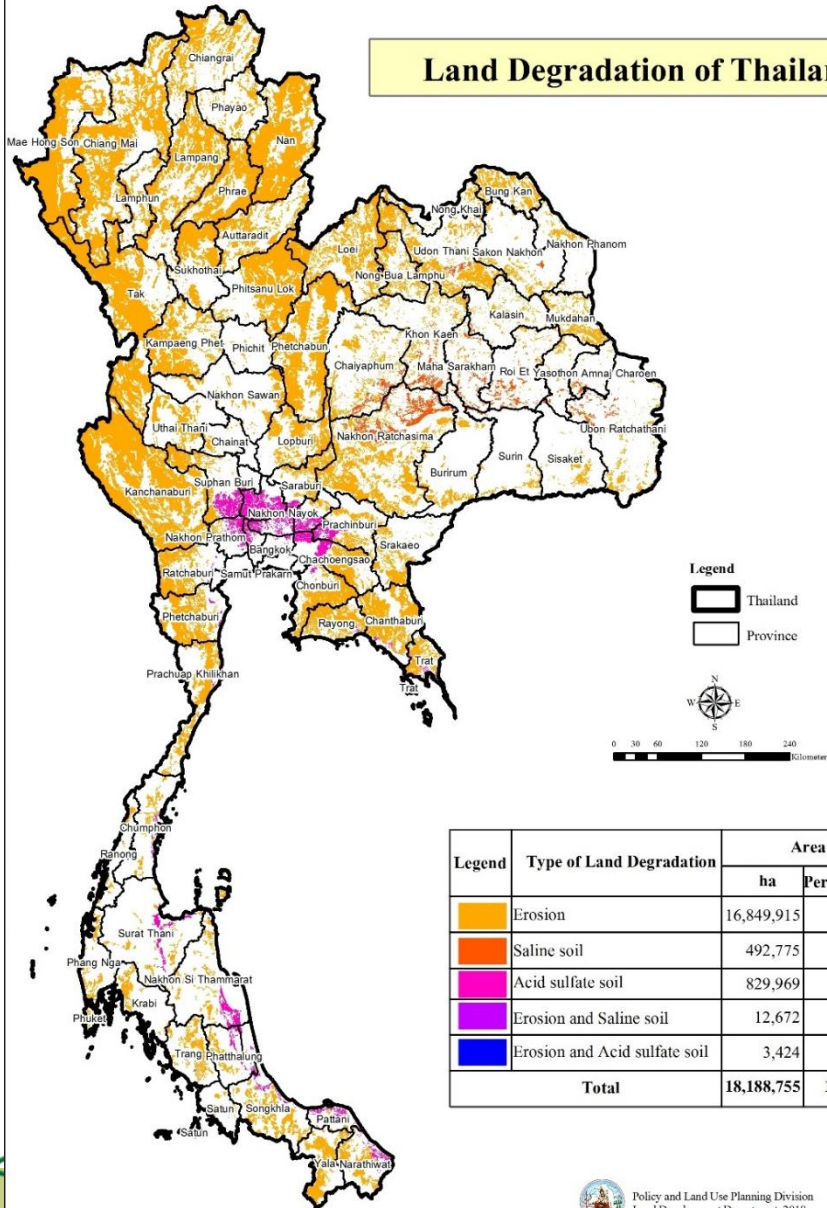
Land Use Systems Land Degradation Assessment of Thailand

Base maps for LUS

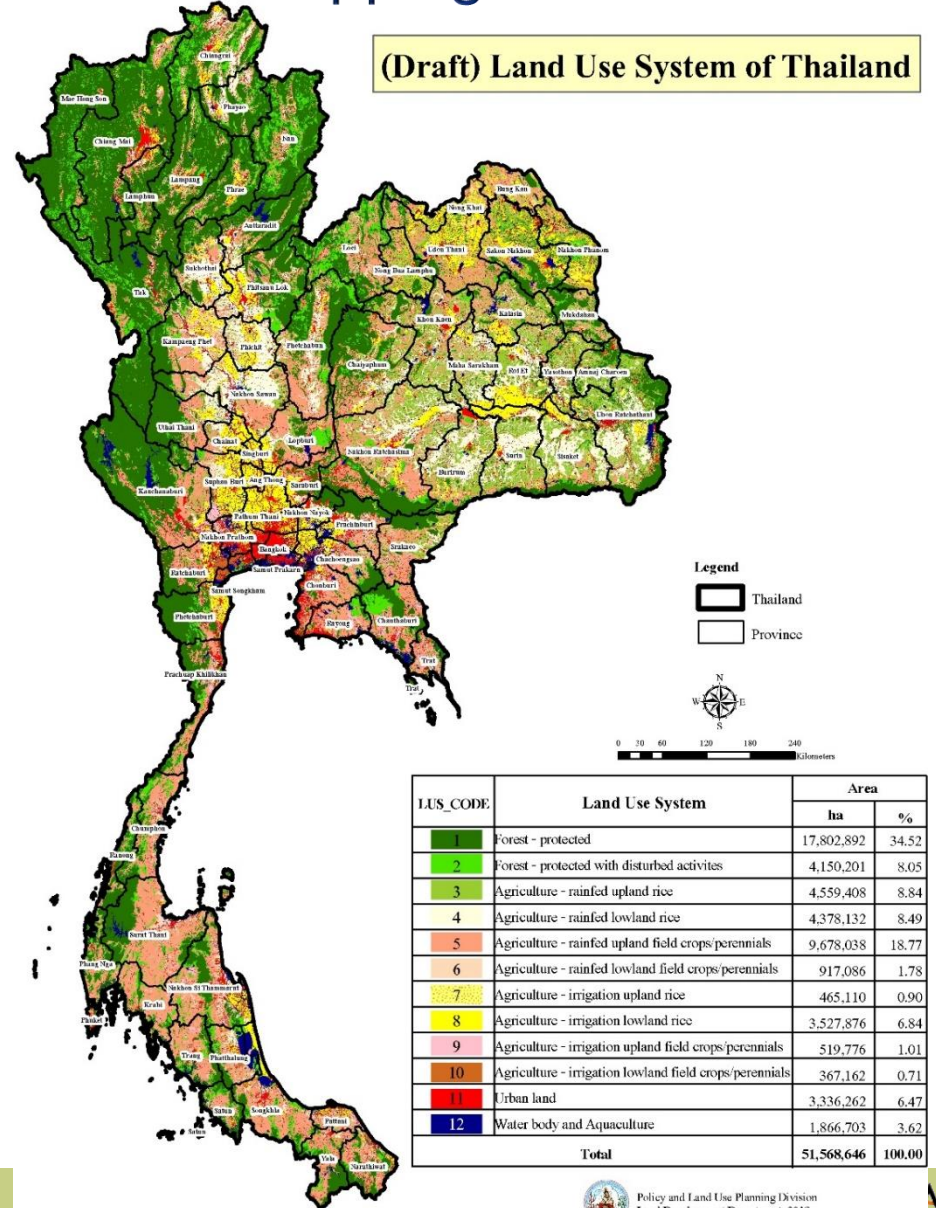
1. Land use map
2. Soil map
3. Irrigation map
4. Protected area map
5. Ag-land map
6. Administration boundary

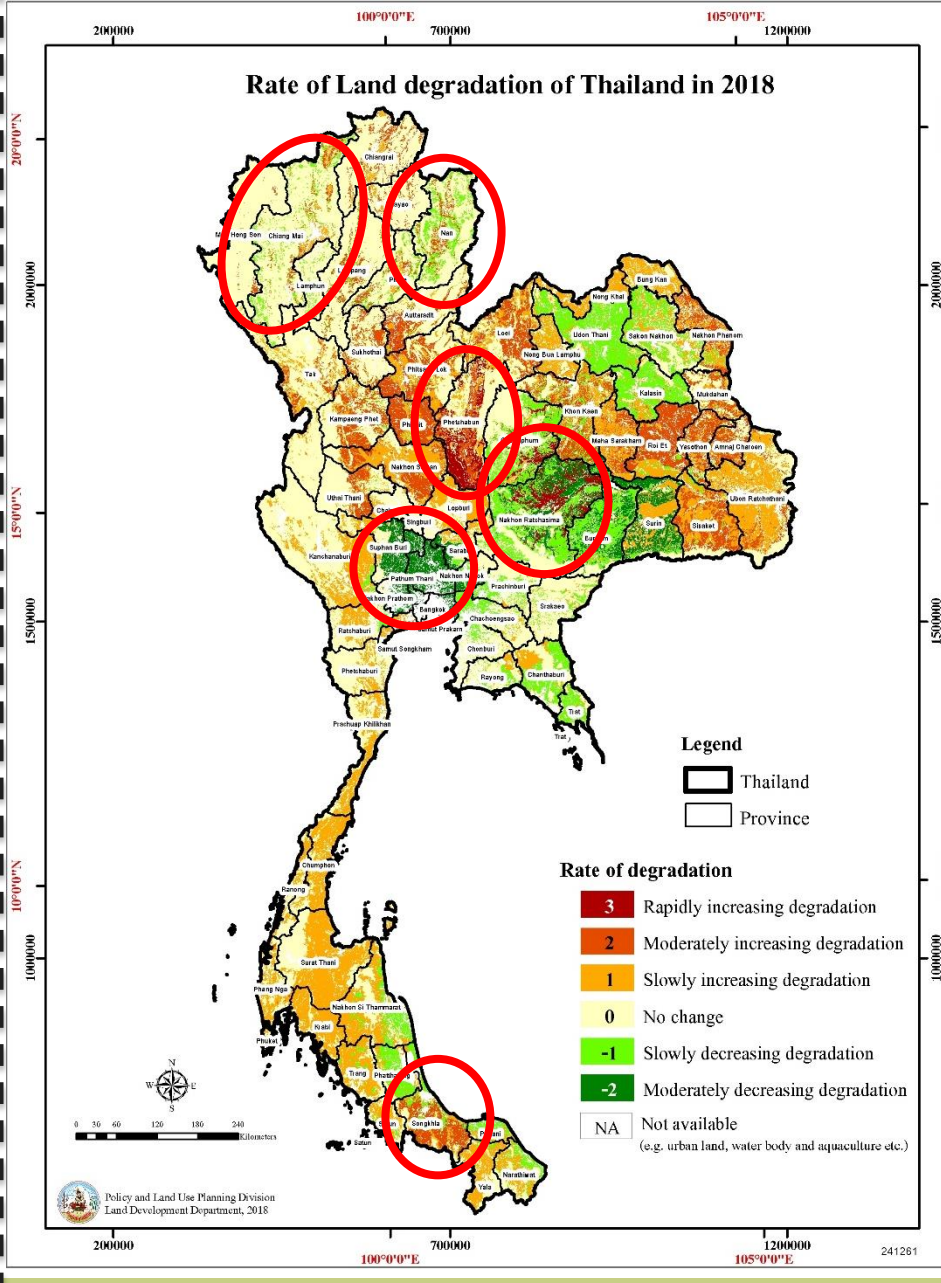
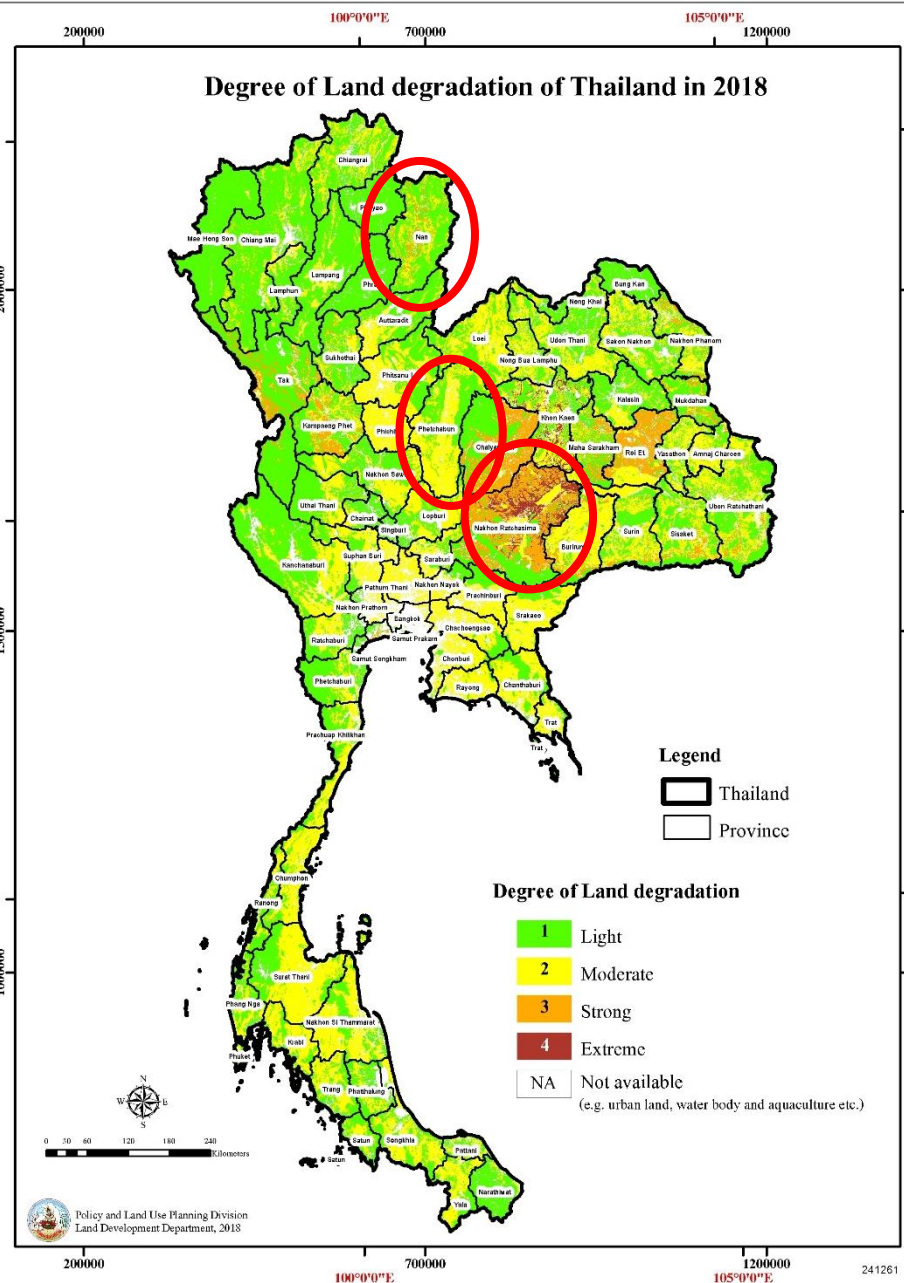
Land Degradation VS Land Use System Questionnaire mapping

Land Degradation of Thailand



(Draft) Land Use System of Thailand







**Module 3 Selection of Priority Landscape
&
Module 4 Landscape Level Assessment**



Transect 1 Lowland with irrigation infrastructure

- Sub-urban communities
- Income comes mainly from farming
- Intensive farming practice
- A portion of the households no longer hold land



Transect 2 Upland rainfed

- Rural communities
- Income comes mainly from farming
- On site erosion problems / causes flash flood to immediate downstream farmland.



Transect 3 Highland rainfed

- Marginal community
- Income comes mainly from off-farm activities
- Severe erosion problems / farm repeatedly on the same piece of land for more than a decade.
- Gradually switching to agro-forestry system



Module 4 Selection of Best Practices (SLM)



Planting Eucalyptus on rice bands for lowering shallow saline groundwater level in the Northeast Thailand, (Thailand)

Planting perennial salt tolerant trees in the salt affected areas in the Northeast Thailand

DESCRIPTION

Eucalyptus camaldulensis variety 144 which is salt tolerant and has ability to lower shallow saline groundwater level in a small salinized area is cultivated. Planting *Eucalyptus camaldulensis* on two sides of bands along East West direction with single or cross-rowed row at the spacing of two meters are most effective technique and accepted by the farmers.

Eucalyptus camaldulensis cultivation on rice bands to lower shallow saline groundwater level in the low lying areas is a protection measure on salt affected land. The project has been implemented since 1987. The selected land user to be intervened of moderately salt affected rice field at Ban Muang Pa District, Chon Kae Province. The land is used for rice production both glutinous variety 80-11 and non glutinous fragrant rice (Jom Mook 105). The average yield of rice is 200-250 kg/ha (1 ha = 0.25 acre). The other farmers planted *Eucalyptus* on the rice bands of the areas about 10,000 ra with the objectives of remedy and preventing salinization by lower shallow saline groundwater level as well as increasing income and more utilization of rice lands.

The technology of *Eucalyptus* cultivation on rice band has been implemented in the farmer's fields of the low lying discharged salt affected rice area through the joint partnership among the Land Development Department, Sam Forest Co., Ltd. and local (BOKRI) administration. The Land Development Department perennial tree planting project promotes the technology of planting *Eucalyptus camaldulensis* on rice bands. The seedlings were planted in a single or cross-rowed row only on two sides of the rice bank along East West direction (quadrilateral) (double effect) the spacing of the plants is 2 meters, the rice band is 1.5 meters wide and 0.5 meter high. This provides more space and convenient access to the fields. The mentioned the Land Development Department project provides free seedlings and labor costs for farmers. However, many farmers outside the project grow their own seedlings on the rice bands of 50 meters or more in width. Farmers buy the seedling at 1 baht cost and planted in the pit of 30x30x30 cubic centimeter with 1 kg compost and 1 kg rice husk application and remaining spacing of 2 meters. This technology is well accepted by the farmers because of the effective control of salinization in the rice field as well as higher income from trees. Farmers observed the steady patchy spots of rice with salt crust before planting *Eucalyptus* after 2 cutting cycles, no salt patches have been found and rice yield increased resulting more income from selling logs every 4 years. The average yield of *Eucalyptus* trees of 2.5-3.0 meter diameter was 16 tons per ha for the first cutting.

Based on 7 years 12 crops of *Eucalyptus* cuttings, the average additional income was 1,048 baht/year (according to the farmer's and team local information). The main investment was in the first year of planting later year on, the maintenance cost was on labor for weeding, pruning and thinning for 3 times after sapped with 15-15.5 Baht/acre application. The average income will be higher with more crop year calculation. The benefits of the technology are creating cooler microclimate and changing in biodiversity resulting in more species of flora and fauna such as grasses, wildflowers, dragonfly, earthworms, etc. Some farmers wanted more trees by planting at closer spacing of 1 meter resulted in bus denser trees thus consumed more surface water competing with the for water consumption use.

LOCATION



Location: San Phu, Khon Kaen, Thailand

No. of Technology sites analyzed: single site

Geo-reference of selected sites

- 152 68876, 14 10822

Spread of the Technology: evenly spread

near an area (approx. 1-10 km²)

Date of implementation: 2012; 10-50 years ago

Type of introduction

- by local government officials
- by national government officials
- by international organizations
- through project's external interventions
- by other land users



SLM and Scaling Out

Team I: Northern Region

- Slope complex
- Soil conservation

Team III: Central & South Region

- Acid sulfate soils
- Organic soils



Team II: Northeastern Region

- Salt-affected soils
- Saline soils

Team IV: Western & Eastern Region

- Sandy soils
- Shallow soils
- Lateritic soils

- ❑ Each team consists of consultants, central & regional administrative staffs, stakeholders, companies, partners, etc.
- ❑ Each team will collaborate with Soil doctors, farmer groups, and other teams supporting by FAO, NPCU, and Committees
- ❑ 40 SLM will be documented in WOCAT and LDD Website.

Volunteer Soil doctor network: a driving force for Sustainable Land Management (SLM) in Thailand

- To transfer agricultural knowledge, and research work.
- To support the soil technology to farmers.
- To promote and prepare farmers as volunteer soil doctors for community



Volunteer Soil Doctors teaching the bio fermentation production among the member of the villa (Parichat Paipakvan)

Volunteer Soil Doctor Network: a driving force for sustainable land development (Thailand)

Mor Din Ar Sa , Soil Volunteers Doctor

DESCRIPTION

The volunteers soil doctor networking at Tam bon Ram Pan, Tamal District, Chantaburi province is a grouping of lead farmers who have been assigned to be volunteer soil doctors ,applied the new theoretical agriculture and Sufficiency Economy Philosophy of His Majesty King Bhumibol Adulyadej (Rama 9). The management of land and water of their own small scale farming land as the concept of the theory is make them get the maximum efficiency and self-reliance.

The volunteers soil doctors are the farmers who coordinate of the land development activities such as consultation and advice on the land management, soil improvement, suitability land use, provided soil test services, including the activities related to Department of Land Development. Currently, Thailand has more than 80,000 volunteers soil doctors in villages, sub-districts, districts and province, cover nationwide.

The volunteers soil doctors network is a grouping of the lead and volunteer farmers who have been assigned to be a "soil doctor" and working together as the networking. This grouping of soil doctors is worked together in the networking system as to support each other's and Land Development Department to achieve the goals set.

The volunteer soil doctors network was aimed to be a forum among volunteer soil doctors, and Land development Department working together closely as their set up the roles. The facilitation, work connection, supporting each others among them are the roles of the network.

The volunteer soil doctors network is the network of farmer who have a duties to a soil doctors. They have to facilitate the knowledge exchange, learning and supporting the technology transfer to their communities. The networking structure is cover the nationwide ranking means, there are the networking at the village level, tambon or subdistrict level, district and provincial level.

The operations of the volunteer soil doctors network are the Land Development Department selected and appointed 80,000 volunteer lead farmers in the village level, covering the whole country to be as soil volunteer Doctors. The Department of Land Development and lead farmers who work as the volunteers soil doctors in the village level will select the representative in the village to be the president in the district level and the president of the district level will choose the representative in the provincial level. President of the volunteer soil doctors at various levels will work together in the network pattern. A knowledge exchange forum for the volunteer soil doctors in each network hierarchy was set up. The network of volunteer soil doctors in each level will provide information, news and public relation to their members. The volunteer soil doctors network will provide extension, promotion and technology transfer to their communities. Land Development Department will provide the training program for volunteer soil doctors. Finally, the monitoring supervising evaluation and reporting will be done by Department of Land Development.

The stakeholders who related to the volunteer soil doctors network are the volunteer soil doctors who applied new theory agricultural and transfer the technology to the farmers, students, university students and anyone who are interested. The farmers, students, university students, the general people and the government officers who come to study and practice in the authentic area. Department of Land Development and the Office of

LOCATION



Location: 47 Moo3 Tambon RamPan, Thamai District, Chantaburi province, Thailand

Geo-reference of selected sites
• 101.91912, 12.64957

Initiation date: 2007

Year of termination: n.a.

Type of Approach

- multi-stakeholders
- multi-actors
- project/ programme based



Module 5 & 6 Territorial planning & SLM Implementation

- Identify demonstration site and implement 2 demonstration sites

Site 1 : Improvement of acid sulfate soils for rice production

Site 2 : Development of Saline Soil Areas Using Perennial Crops (Eucalyptus)

by using Ts from QA/QT

- Scaling up of Ts strengthening SLM roles of **volunteer soil doctors, farmers, NGOs, and MOAC**



Module 7 Knowledge management platform , for informed decision making

SLM best practices
mainstreamed into national
and/or sub-national agricultural
and environmental plans and
investment frameworks, policies
and programs to address DLDD



Upscaling of **SLM** best practices
catalyzed in countries through
targeted actions on the ground
and strategic decision making
from local to national levels



Barriers

- Farmers are lack of knowledge, understanding and recognition of sustainable land management, so they use land improperly.
- Policies and measures of relevant agencies are not integrated.
- Farmers still have not had suitable agricultural technologies

Opportunities

- Capital, investment and bonds to support land development and combating land degradation
- Training, knowledge management of SLM technologies

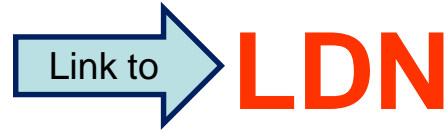
+ Entry point

recommendations

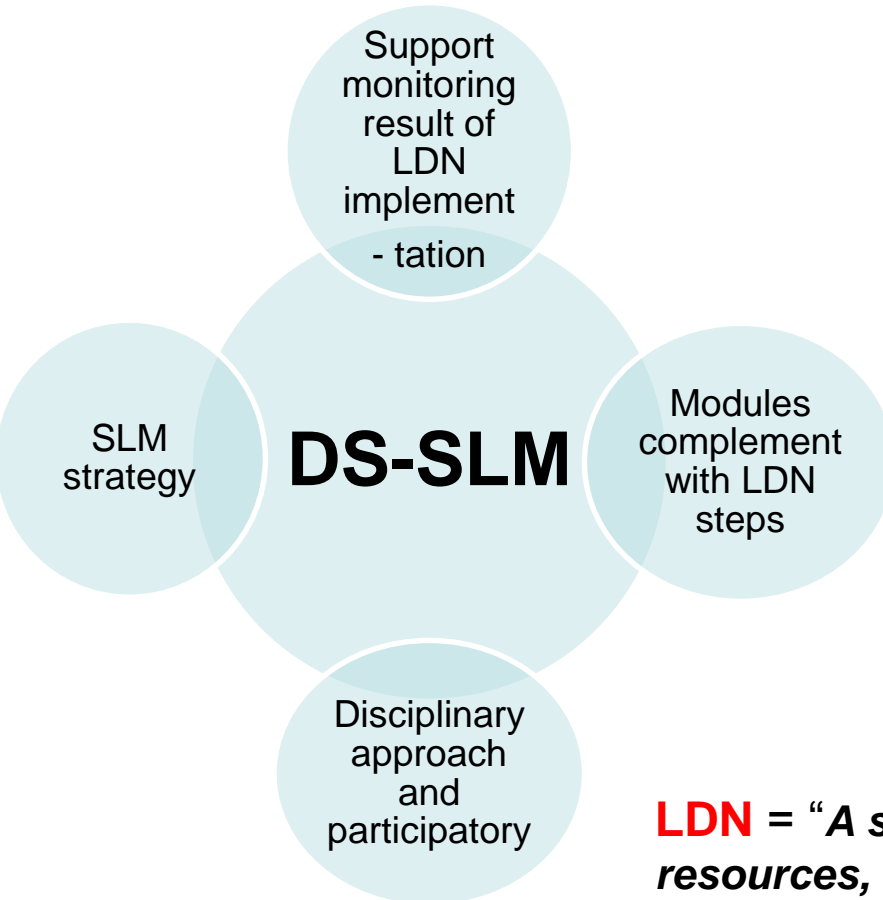
Operational strategy for mainstreaming and Scaling out SLM



DS-SLM



LDN



Building blocks for LDN target setting



Source: UNCCD, 2016

LDN = “A state whereby the amount and quality of land resources, necessary to support ecosystem functions and services and enhance food security, remains stable or increases within specified temporal and special scale and ecosystems (*The Parties to the UNCCD convention, 2019*) “



Thank you

