



A soil doctor giving advice to a group (Supranee Srithanboon)

The soil doctor network for integrated farming (Thailand)

DESCRIPTION

A “soil doctor” network in Khon Kaen province has transformed saline areas previously dedicated to rice cultivation into sustainable, integrated farming systems.

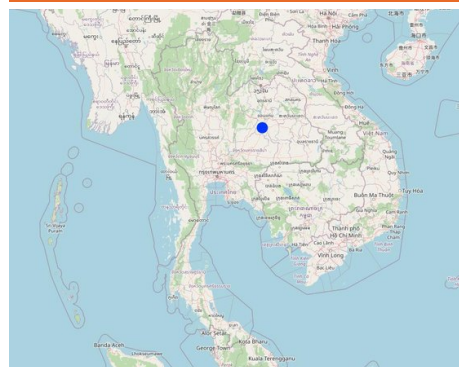
Most agricultural areas in Northeast Thailand rely on rainfall, and some face the added challenge of saline soils. Rice is the dominant crop, cultivated primarily under rain-fed conditions. However, climate variability has intensified, leading to changes in rainfall distribution and creating further uncertainty for farmers. Additionally, labour shortages have emerged due to an ageing population and rising labour costs. In response to these challenges, adjusting the agricultural system from monoculture rice cultivation to integrated farming offers a viable alternative for enhancing sustainability. Integrated farming promotes product diversity and food security, helping farmers reduce risks associated with climate variability and market fluctuations.

The Soil Doctor Network, a community-based initiative supported by the Land Development Department, plays a pivotal role in promoting sustainable land management. The program trains and empowers local farmers to become volunteer “soil doctors” who serve as local experts and advisors. These soil doctors undergo extensive training in soil management, integrated farming techniques, and sustainable agricultural practices. They assist fellow farmers in improving soil health and adopting more resilient farming methods. Soil doctors are organized into local networks at the village or sub-district level. Experienced soil doctors lead these networks, acting as coordinators to ensure effective communication and collaboration among members. They also liaise with government agencies to secure technical support, financial assistance, and up-to-date information on sustainable farming practices.

A Soil Doctor Network’s impact can be witnessed in Ban Doo Noy, Non Daeng sub-district, Non Sila district, Khon Kaen province. This area, previously dedicated to monoculture rice cultivation conducted once a year, has undergone significant transformation through the adoption of integrated farming. Farmers have leveled fields, widened levees, dug ponds, drilled artesian wells, and diversified their crop production. Today, the farms in Ban Doo Noy feature a variety of crops, including rice, papaya trees, bananas, and grass for livestock grown on the levees, alongside vegetable cultivation. Post-harvest crops such as sunn hemp, sweet corn, sugar cane, and cattle raising have been incorporated, further enhancing productivity and resilience. The integrated farming system has also effectively addressed the issue of saline soils by improving soil structure, preserving moisture, and reducing salinity accumulation. The use of cover crops, crop rotation, and organic matter enrichment has played a crucial role in mitigating soil salinity and preserving the natural ecosystem. These sustainable practices have improved soil fertility and water retention, enabling farmers to maintain long-term agricultural productivity.

Through the sustained efforts of the Soil Doctor Network, local land users in Northeast Thailand are now better equipped to manage their land sustainably. By fostering knowledge-sharing and community-driven initiatives, the network has empowered farmers to reduce their reliance on external support while ensuring long-term productivity and resilience in the face of climate and economic challenges.

LOCATION



Location: Non Daeng sub-district, Non Sila district, Khon Kaen province, Thailand

Geo-reference of selected sites

- 102.67696, 16.01623

Initiation date: 2017

Year of termination: n.a.

Type of Approach

- ☐ traditional/ indigenous
- ☐ recent local initiative/ innovative
- ☒ project/ programme based



Planting papaya trees, bananas and grasses for feeding animals on the ridge after being enlarged (Supranee Srithanboon)



Sunn hemp and sweet corn are planted after the rice is harvested. (Supranee Srithanboon)

APPROACH AIMS AND ENABLING ENVIRONMENT

Main aims / objectives of the approach

- 1.To establish a network of soil doctors who apply integrated farming techniques for the sustainable use of saline soil areas.
- 2.To disseminate knowledge on creating food diversity for households located in saline soil regions.
- 3.To facilitate access to support from both government and private sectors.

Conditions enabling the implementation of the Technology/ ies applied under the Approach

- **Availability/ access to financial resources and services:** Volunteer soil doctors and government agencies provided assistance and resources, including funding and knowledge.
- **Collaboration/ coordination of actors:** A group of volunteer soil doctors with knowledge and expertise in the area and surrounding areas lent their assistance and collaboration.
- **Knowledge about SLM, access to technical support:** The Soil Doctor Network emphasizes educating local farmers and community leaders on SLM principles, including soil health management, erosion control, and sustainable farming practices. By equipping soil doctors with this knowledge, they can provide guidance and support to other farmers, ensuring the effective application of soil management technologies.

Conditions hindering the implementation of the Technology/ ies applied under the Approach

PARTICIPATION AND ROLES OF STAKEHOLDERS INVOLVED

Stakeholders involved in the Approach and their roles

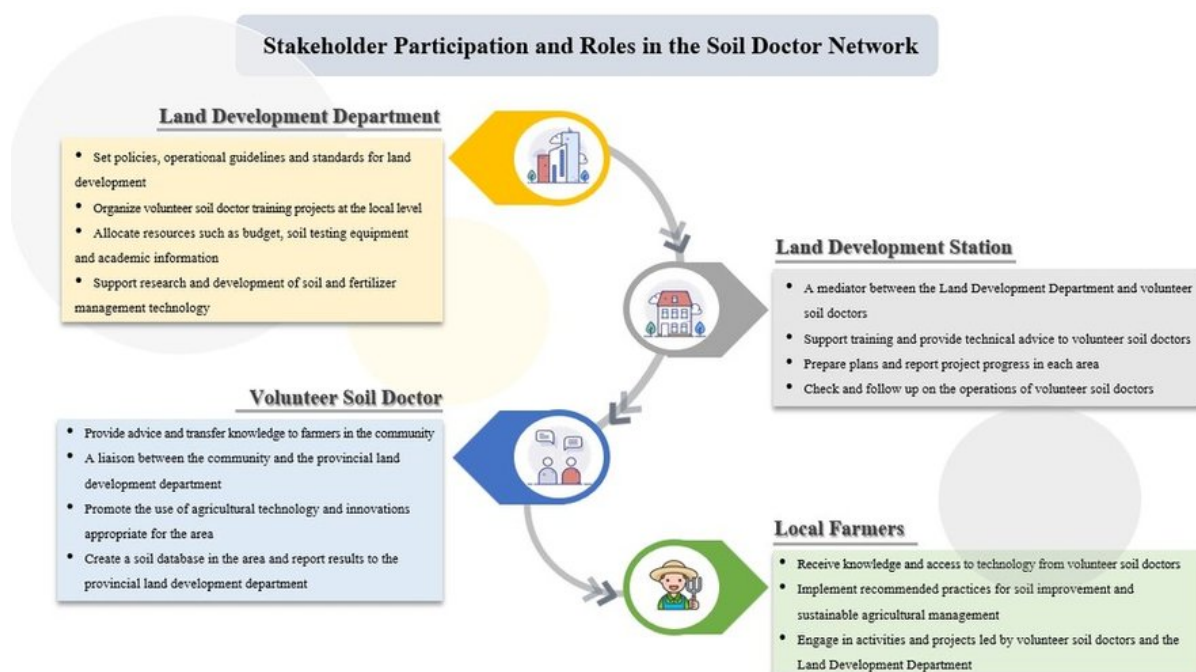
What stakeholders / implementing bodies were involved in the Approach?	Specify stakeholders	Describe roles of stakeholders
local land users/ local communities	The group of farmers of the soil doctor network	It is the one implementing the approach of using the integrated farming technology in its own agricultural areas. There are 10 members participating in the network.
SLM specialists/ agricultural advisers	Land Development Department officers	They are the ones who transfer knowledge, support production factors such as Sunn hemp seeds etc., including giving advice regarding putting in use correctly, suitably and mutually studying changes occurring in areas with saline soil.
local government	Government agencies and local agencies	Government agencies and local agencies are the ones supporting in terms of knowledge of other related areas.
local land users	Farmers and the interested general public	Applying knowledge to develop their own agricultural areas due to the fact that production factors can be made locally with prices not so high

Involvement of local land users/ local communities in the different phases of the Approach

	none	passive	external support	interactive	self-mobilization
initiation/ motivation				✓	
planning				✓	
implementation				✓	
monitoring/ evaluation				✓	

Focusing on creating awareness and building interest among local land users, SLM specialists, together with representatives from the Soil Doctor Network, engage local leaders, farmers, and landowners through meetings, workshops, and demonstrations to introduce the concept of integrated farming and its benefits. They emphasize raising awareness of the benefits of sustainable land management, such as improved soil health and increased productivity. Land users are motivated by the potential for higher yields, cost reduction, and long-term sustainability. Local land users are actively involved in the development of customized plans tailored to their specific needs and environmental conditions. The implementation phase involves hands-on application of the planned activities, with local communities taking the lead. Local land users are actively involved in the development of customized plans tailored to their specific needs and environmental conditions. Participatory monitoring, data collection, and community feedback are conducted periodically to review progress, share experiences, and discuss challenges. Adjustments and Scaling Up based on the evaluation, necessary adjustments are made to improve practices. Successful methods are scaled up, and new farmers are encouraged to join the network.

Flow chart



Decision-making on the selection of SLM Technology

Decisions were taken by

- ☐ land users alone (self-initiative)
- ☐ mainly land users, supported by SLM specialists
- ☐ all relevant actors, as part of a participatory approach
- ☒ mainly SLM specialists, following consultation with land users
- ☐ SLM specialists alone
- ☐ politicians/ leaders

Decisions were made based on

- ☒ evaluation of well-documented SLM knowledge (evidence-based decision-making)
- ☐ research findings
- ☐ personal experience and opinions (undocumented)

TECHNICAL SUPPORT, CAPACITY BUILDING, AND KNOWLEDGE MANAGEMENT

The following activities or services have been part of the approach

- ☒ Capacity building/ training
- ☒ Advisory service
- ☒ Institution strengthening (organizational development)
- ☒ Monitoring and evaluation
- ☐ Research

Capacity building/ training

Training was provided to the following stakeholders

- ☒ land users
- ☒ field staff/ advisers

Form of training

- ☐ on-the-job
- ☒ farmer-to-farmer
- ☒ demonstration areas
- ☒ public meetings
- ☐ courses

Subjects covered

Advisory service

Advisory service was provided

- ☒ on land users' fields
- ☒ at permanent centres

Institution strengthening

Institutions have been strengthened / established

- ☐ no
- ☐ yes, a little
- ☐ yes, moderately
- ☒ yes, greatly

at the following level

- ☐ local
- ☒ regional
- ☒ national

Describe institution, roles and responsibilities, members, etc.

Institution roles and responsibilities: 1. Policy Formulation: Develops national policies, guidelines, and standards for sustainable land management.

2. Technical Support: Provides training, tools, and materials to local soil doctors and communities. 3. Capacity Building: Organizes training programs to enhance the skills of local soil doctors. 4. Monitoring and Evaluation: Oversees the implementation of the Soil Doctor Network and ensures that land users follow SLM practices effectively.

5. Research and Innovation: Conducts research on innovative farming technologies and sustainable practices and disseminates findings to local communities.

Type of support

- ☐ financial
- ☒ capacity building/ training
- ☒ equipment

Further details

The approach fosters collaboration between institutions at different levels—government, local communities, research bodies, and the private sector, to ensure sustainability and scalability. Strengthening these institutions enhances local capacity, promotes shared responsibility, and ensures the continued success of the Soil Doctor Network for Integrated Farming.

Monitoring and evaluation

FINANCING AND EXTERNAL MATERIAL SUPPORT

Annual budget in USD for the SLM component

- ☒ < 2,000
- ☐ 2,000-10,000
- ☐ 10,000-100,000
- ☐ 100,000-1,000,000
- ☐ > 1,000,000

Precise annual budget: n.a.

Farmers and landowners spent their own money.

The following services or incentives have been provided to land users

- ☐ Financial/ material support provided to land users
- ☐ Subsidies for specific inputs
- ☐ Credit
- ☐ Other incentives or instruments

IMPACT ANALYSIS AND CONCLUDING STATEMENTS

Impacts of the Approach

Did the Approach empower local land users, improve stakeholder participation?

- No
- Yes, little
- ☒ Yes, moderately
- Yes, greatly

Did the Approach improve coordination and cost-effective implementation of SLM?

- ☐ No
- ☒ Yes

Main motivation of land users to implement SLM

- ☒ increased production
- ☒ increased profit(ability), improved cost-benefit-ratio
- ☐ reduced land degradation
- ☐ reduced risk of disasters
- ☐ reduced workload
- ☐ payments/ subsidies
- ☐ rules and regulations (fines)/ enforcement
- ☐ prestige, social pressure/ social cohesion
- ☐ affiliation to movement/ project/ group/ networks
- ☐ environmental consciousness
- ☐ customs and beliefs, morals
- ☐ enhanced SLM knowledge and skills
- ☐ aesthetic improvement
- ☐ conflict mitigation

Sustainability of Approach activities

Can the land users sustain what has been implemented through the Approach (without external support)?

- ☐ no
- ☒ yes
- ☐ uncertain

Land users can form local groups or cooperatives to share resources, exchange knowledge, and collectively address challenges. This reduces the need for external intervention by fostering peer-to-peer support. They can use locally available resources such as produce organic fertilizers (e.g., compost, manure) and soil amendments, reducing reliance on external inputs. Using simple soil-testing tools and techniques learned through the network, land users can periodically monitor soil health and adjust practices accordingly.

CONCLUSIONS AND LESSONS LEARNT

Strengths: land user's view

- Having an opportunity to see managing the integrated farming area which has been achieved and being able to adjust it in their own areas.
- Having points of exchanging learning in the community, being able to access them easily.
- Having an opportunity to receive advice and exchange knowledge both from officers and the soil doctor network.
- Having an opportunity to receive support from government agencies and local agencies.

Strengths: compiler's or other key resource person's view

- Transferring the technology of the soil doctor network about self-reliance, family labor and factors in the farm. This helps reduce production costs.
- Prototype soil doctors always provide knowledge data regarding production and give advice regarding suitable practices. This helps bring about security in occupation of the network group using integrated farming technology.

Weaknesses/ disadvantages/ risks: land user's view how to overcome

- Requiring a period of time for at least 3 years until changes can be seen in areas of saline soil.

Weaknesses/ disadvantages/ risks: compiler's or other key resource person's view how to overcome

- Agricultural areas are still affected from water qualities for agriculture from artesian wells in terms of receiving brackish water during the dry season. Some farmers solve the problem by digging a pond in the field to pull water from the artesian well to be stored before using it in the agricultural plot.

REFERENCES

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Full description in the WOCAT database

https://qcat.wocat.net/af/wocat/approaches/view/approaches_7279/

Linked SLM data

n.a.

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