

## Soil Doctor System of Land Development Department in Thailand as one of participatory methods

Kunnika HOMYAMYEN\*, Somsak SUKCHAN\* and Hiromasa HAMADA\*\*

\* Land Development Department, 2003/61 Phaholyothin Rd., Chattuchak, Bangkok, 10900, Thailand

\*\* Japan International Research Center for Agricultural Sciences,  
1-1, Ohwashi, Tsukuba, Ibaraki, 305-8686, Japan

### 1. Introduction

Thailand covers a land area of 513,115 km<sup>2</sup> and extends about 1,620 km from north to south and 750 km at its widest point from east to west. The population of Thailand is 64,765,000. The climate of Thailand is sub-tropical with long hours of sunshine and high humidity. There are three seasons, summer (February-May), rainy season (June-October) and winter (November-February) (<http://www.thaistudents.com/project/geography.html>). Mean minimum temperature of a day is 23°C and maximum is 33°C. The geographic and climatic conditions make the country suitable for the cultivation of a wide range of tropical and semi-tropical agricultural crops. Land use for agriculture in Thailand is approximately 235,161 km<sup>2</sup> (46% of the total area) (<http://www.ldd.go.th>).

Main agricultural products are rice, cassava, sugarcane, para rubber, corn, oil palm, soybean, durian, longan, lichee, mangosteen and pineapple. However, improper land utilization has resulted in soil degradation and poor living conditions of farmers (their income is lower than 500 U\$/year). Soil erosion, the most severe soil problem, of which restoration is urgently needed, is found in 214,400 km<sup>2</sup> (41% of the total area), including forest, agriculture and pasture areas. Soil with low organic matter content covers 156,800 km<sup>2</sup> (30% of the total area). Other problems about soil conditions such as saline soil, acid soil, peat soil, shallow soil and sandy soil are found in 137,552 km<sup>2</sup> (27% of the

total area) (<http://www.rakbankerd.com>).

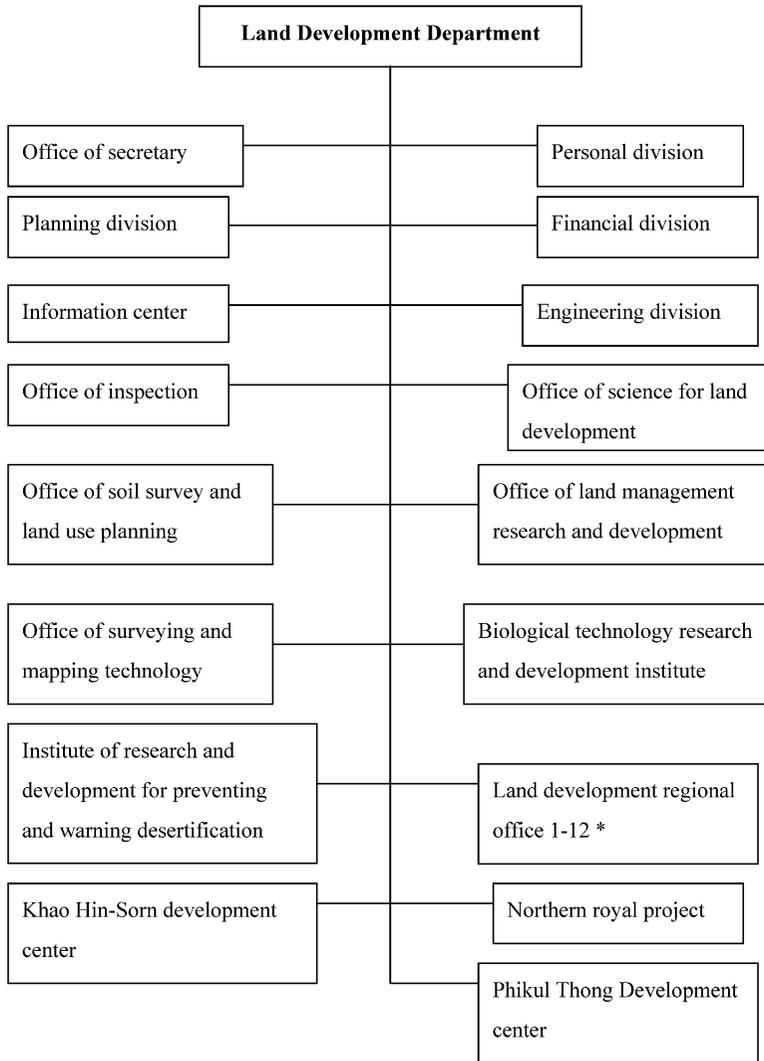
To solve these problems, the staff of Land Development Department (LDD) is searching for and implementing suitable soil management solutions.

### 2. Land Development Department (LDD)

LDD is the core organization to conserve and improve soil resources for agricultural productivity, food security, and sustainable land use. LDD was established on 23 May 1963 under the Ministry of National Development, which was later abolished. After several years, the government agencies were restructured on 29 September 1972. Then, LDD was transferred to the Ministry of Agriculture and Cooperatives. LDD has about 2,000 staff and consists of 28 major divisions (Fig. 1).

The main strategy of LDD is to improve the quality of soil and water resources for agriculture and to make their services accessible to Thai people. For example, LDD supplies Ya-Phaeg (vetiver grass) to farmers for soil and water conservation. It is a simple method to conserve soil and water that farmers can implement (Photo 1).

The activities of LDD can be estimated by various indicators such as the area of suitable land use zoning for agricultural productivity, the number of rehabilitated areas, the benefit to households, the number of irrigation ponds in rainfed agricultural areas and the percentage of satisfied people after receiving services from LDD. However, 2,000 staff is not enough



**Fig. 1** Land Development Department Organization Chart.  
 \* Land development regional office has 12 divisions.

to carry out their missions in the whole of Thailand. LDD is encouraging farmers and local people to participate in their activities.

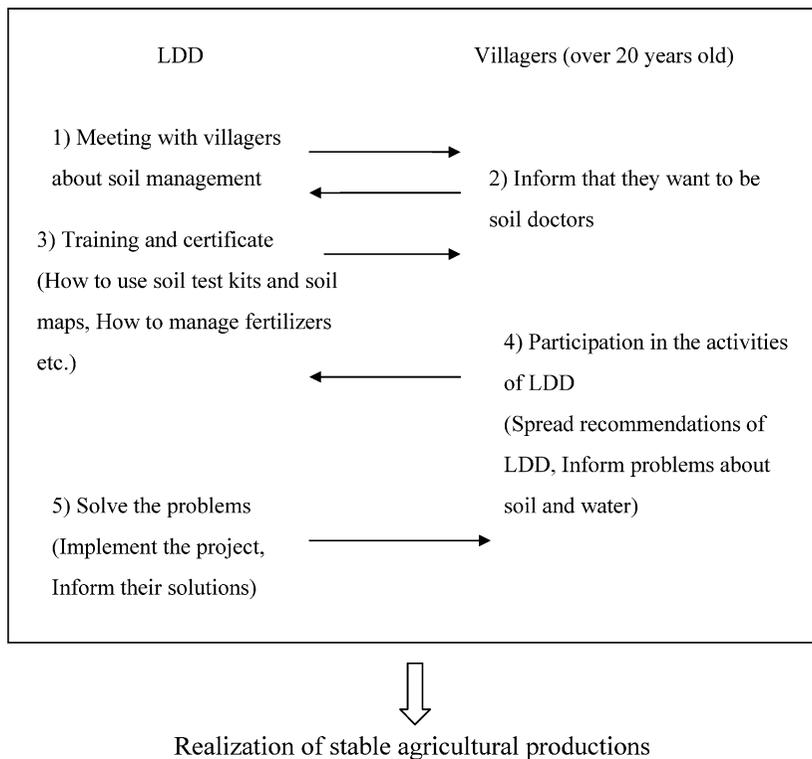
**3. Soil doctor system**

For the improvement of soil and water resources, LDD has launched some projects such as the training of agriculturalist, information technology services to small districts, the increase of agricultural productivity and the development of water sources in rural areas.

Participation from farmers and local people is required in such projects especially on the part of spreading the recommendations of LDD and information survey of household/person. "Soil doctors" have been established since 1995 in order to increase the efficiency of the activities of LDD. The soil doctors are in charge of coordinating of land development among farmers in the village, transferring new technology to their neighbors and participating in some activities of LDD. Vetiver propagation is



**Photo 1** Ya-Phaeg (vetiver grass).  
Long roots and grasses prevent soil erosion and the leaves are used for improving soil properties.



**Fig. 2** Relationship between LDD and soil doctors

one example of transferring new technologies (Photo 1).

Fig. 2 shows the relationship between LDD and soil doctors. First, LDD has a meeting with villagers about soil management and land use. After the meeting, villagers who are interested

in soil management inform LDD that they want to be soil doctors. LDD trains them to master soil test kits for the measurement of N, P, K and pH and to understand land development techniques such as how to use organic fertilizers for improving soil properties. They

are representatives of LDD in their villages who give farmers a better understanding of soil management and follow up land development practices. They also are trained how to use soil maps (1 : 50,000) by LDD and show farmers the soil distribution suitable for various crops using soil map and some posters. With the soil NPK test kit, they are able to examine soils on farms around their villages, and give local farmers basic recommendations about fertilizer management

They are the messengers in distributing the information about land development from LDD to the villagers, and sometimes transferring messages regarding land use problems from the farmers to LDD. According to farmer's requests, LDD constructed demonstration plots to solve problems of saline soil and acid soil, gave information on methods about a better use of organic fertilizer and provided some

seeds for soil conservation.

All soil doctors are volunteers. They receive no salary, but LDD offers to construct a small pond on their farms as an incentive. Now Thailand has 69,169 soil doctors (July, 2006). Before the soil doctor system was established, it took one year to spread the recommendations of LDD to the whole of Thailand. Now it takes only two or three months.

#### 4. Future

In the future, LDD has a plan to establish a center for soil doctors and to increase the number of soil doctors in order to improve the efficiency of the soil doctor network.

#### References

- <http://www.ldd.go.th>  
<http://www.rakbankerd.com>  
<http://www.thaistudents.com/project/geography.html>

## 参加型手法の一つとしてのタイ国土地開発局の soil doctor 制度

Kunnika HOMYAMYEN\*, Somsak SUKCHAN\*, 濱田浩正\*\*

\* 土地開発局, 2003/61 Phaholyothin Rd., Chattuchak, Bangkok, 10900, Thailand

\*\* 国際農林水産業研究センター, つくば市大わし 1-1

### 要 旨

タイ国の土地開発局 (LDD) は、農業生産の安定と向上、持続的な土地利用を実現するために、設立された機関である。現在、土壌や土地資源の改良と最適な管理方法に関する情報の普及に重点を置いている。しかし、これらの任務を遂行するには LDD のスタッフだけでは十分でない。そこで、農民にプロジェクトへの参加を求める Soil doctor 制度を創設した。Soil doctor は農民が LDD に申告し講習を受けるだけでなれ、LDD が推奨する最適な土壌・土地資源管理方法の普及、農民から LDD への要望を伝えるメッセンジャーの役割を担う。Soil doctor 制度の創設によって、LDD の推奨する方法が短期間でタイ国全体に普及するようになった。

キーワード：タイ国, 土地開発局, 土壌管理, 参加型手法

受稿年月日：2006年9月19日

受理年月日：2006年10月30日