

Soil-Related Laws in Thailand



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Abstract Rapid economic development and urbanization are changing land management systems in many countries, including Thailand, and climate change has emerged as a significant source of risks. These changes are having major impacts on the status of soil resources in Thailand. Therefore, the soils are under increasing pressure of intensification leading to soil degradation including erosion, contamination, the decline in nutrients, compaction, salinization, acidification, and biodiversity loss of soils. Therefore, sustainable soil management is important for maintaining the capacity of soil to function according to its potential and management strategies, which is essential for the maintenance of human well-being and the conservation of biodiversity. In addition, any assessment of soil threats, measures against soil threats, and their effects on soil functions and ecosystem services should consider local conditions, national and global strategies e.g. biophysical characteristics, economic society, policies, and laws. In Thailand, soil and land protection are regulated by legislation and land use planning document such as the Forest Act and the National Forest Act, the Law on Environmental Protection, the Law on Land Protection, and the Law on Agricultural Land. Land use planning regulations represent the basis for supervision of the land use of all types and purposes and the management of natural resources, implementing guidelines for space preservation and protection, and measures of sustainable use of land resources. Furthermore,

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there is a pressing need to determine the status of sustainable soil management efforts and raise awareness of soil in Thailand.

1 Introduction

The Kingdom of Thailand is located in Southeast Asia. The total land area is approximately 514,000 km². Thailand is a country of mountains, hills, plains and a long coastline along the Gulf of Thailand (1,875 km long) and the Andaman Sea (740 km long). According to the land use data from the Department of Land Development for the year 2010/2013, it was found that the agricultural area was 27.89 million ha (54.36% of the country's area), followed by the forest area of 3.08 million ha (34.06% of the country area), the urban and built-up land of 2.64 million ha (5.15% of the country area), and miscellaneous areas of 1.86 million ha (3.63% of the country area). The country land can be divided into two main categories: private land and public land. The land can be classified as legal forest area (42%), land with title deeds (40%), agricultural land reform area (Sor. Por Kor. 4-01) (10.7%), unclassified areas (5%), and state property land (Ratchaphatsadu land) (2.5%).¹

For public land management in the past, the Thai government had set policies to accelerate economic growth. Therefore, the direction of economic development along with solving poverty problems for a better quality of life has increased pressure on the use of both public and private lands. The rapid expansion of the agricultural sector for increasing production had been prompted deforestation for farming. In the past, the state authority concerning land management created conflicts and provoked inappropriate land use, leading to economic, social, and environmental damage. The problems in land management were caused mainly as follows: encroachment into reserved forest area, the conflict of land management laws between the government and people, the conflict of land boundaries, the distribution of land holdings, landless cultivation or naked possession, large land holdings, and associated problems in management of land.

The pattern of land use in Thailand has changed considerably from the past. Many highlands have been converted for farming and tourism causing deterioration of the land and leading to the destruction of ecosystems that are difficult to recover. In addition, there has been an expansion in the urban and industrial sectors into the lowland plain area of agricultural land. Important driving forces are the development of infrastructure, mechanization, the introduction of irrigation, and the application of agrochemicals. This has resulted in not only higher farm incomes but also soil and water pollution, soil fertility loss, soil erosion, and in the reduction of biodiversity.

“Land” is considered an immensely valuable property. People desire to own their land and this demand is increasing. Especially in areas where civilization or public utilities are readily accessible, whether for use as residential, agricultural, industrial, or commercial purposes. It is highly expedient to have a cognizance of the soil-

¹The Department of Land Development (2013); Summary of Land Use of Thailand 2010/2013.

related laws to have the right to manage land correctly and to avoid law-related problems later on. Therefore, integrated state land management by effective application the law is an important starting point to achieve sustainable and concrete management of the country's soil resources.

2 Soil Resources and Land Use in Thailand

Soils are key component of terrestrial ecosystems. To achieve the ecosystem services, soils support the productivity of the agricultural sector and ensure food security.² However, the increase in the global human population causes pressures on soil resources that are reaching critical limits. Consequently, soils are facing growing intensification pressures, which are accelerating the conversion of natural lands to croplands,^{3,4} along with competition for land use in cropping, forestry, pasture, and urbanization. It has been demonstrated that soil degradation significantly impairs potential agronomic productivity. Currently, soils worldwide are globally threatened by various forms of soil degradation, including water and wind erosion, contamination, the decline in nutrients, compaction, salinization, acidification, and loss of biodiversity (de la Rosa and Sobral 2008; FAO 2015).^{5,6} In Asia, approximately 40% of soils are classified as degraded (Cook et al. 2011). Future external factors (such as climate change, price fluctuations, and demand changes) and internal factors (such as shifting expectations, migration patterns) are expected to further exacerbate the risk of irreversible changes in these systems, potentially reaching tipping points that would have detrimental impacts on essential ecosystems services (ESS).

Thailand has a population of about 70 million, a land area of 510,890 km², and a coastline stretching 3,219 kilometers.⁷ About 51.1% of the population resides in urban areas (37 million people in 2020). Approximately 41.2% of Thailand's total land area is classified as agricultural land, with arable land comprising 30.8%, permanent crops of 8.8%, permanent pasture of 1.6%, forested land of 37.2%, and other forms of occupied land of 21.6%.⁸ The country's main agricultural products include rice, cassava, rubber, sugarcane, coconut, maize, mung beans, and soybeans.⁹ In terms of soil resources, the Land Development Department (LDD) has documented around 300 soil series in Thailand. The Thai soils are classified into

²Millennium Ecosystem Assessment (2005).

³Alexander et al. (2015).

⁴Zdruli et al. (2014).

⁵de la Rosa and Sobral (2008).

⁶FAO (2015).

⁷Worldometer (2022).

⁸FAO (2006).

⁹Office of Agricultural Economics Office (2021).



Fig. 1 Soil erosion at upland agricultural production in Thailand (a), saline soil (b), calcareous soil (c), and shallow soil (d)

9 orders based on the USDA Soil Taxonomy namely: Histosols (0.14%), Spodosols (0.12%), Oxisols (0.03%), Vertisols (0.81%), Ultisols (42.13%), Mollisols (1.17%), Alfisols (9.16%), Inceptisols (9.4%), Entisols, as well as slope complexes, water bodies and others (33.75%).¹⁰ Recent major incidents in Thailand, such as extended flooding or recurrent severe droughts, have highlighted the vulnerability of human-managed ecosystems. The transformation of heterogeneous and diverse landscapes to intensively managed monocultures has led to severe soil degradation reducing the livelihood options and food security for farming households. In total, about 75% of agricultural land in Thailand has been degraded, with the major types of soil degradation being water erosion (65.5%), chemical degradation (7.3%), physical degradation (24.3%), and biological degradation (2.9%).¹¹ Upland agricultural production on steep slopes in Thailand plays a significant role in deforestation, soil degradation through erosion, and a range of environmental problems.¹² As a result, intensive cultivation of upland crops has resulted in substantial nutrient losses through soil erosion in upland areas.¹³ The photos in Fig. 1 show the evidence of

¹⁰Land Development Department (2015).

¹¹Hongprayoon et al. (2015).

¹²Ekasingh et al. (2004).

¹³Tsubo et al. (2006).



Fig. 2 Off-site effects of soil erosion

soil degradation in Thailand. It has been reported that soil erosion affected more than 338,675 km² of the cultivated land area in 1999.¹⁴

The eroded areas, however, are still being used for subsistence agriculture year after year, while the matrix lands are intensively utilized for income generation through cash crop production. Spatial variability of soil properties, soil loss, and crop yield in the upland areas is influenced by many factors such as landscape position, local climate, land cover, soil type, and management practices.^{15,16} This is particularly evident in the intensively managed sloping lands of Northern Thailand, which are vulnerable due to their less favorable production conditions, relying on limited biophysical ecosystem resources, and suffering from a labor shortage.

This trend is associated with increasing mechanization even on steep slopes and excessive use of agrochemicals, which lead to acceleration of soil degradation and an increase in off-site effects (Fig. 2).

The assessment of soil and land degradation together with land use planning can be used to prevent land degradation and protect forests and water resources. Land degradation assessment requires two relevant parts of information: soil data and cropping system data.¹⁷ At present, the LDD is one of the government agencies that has authority on land management. Therefore, LDD has established a pragmatic and integrated land-use plan that respects the sustainable and sufficient utilization of natural resources at different levels including district, sub-district, watershed, sub-watershed, and highlands in the north of the country. The land-use plan is prepared to assist decision-makers, planners, and local administration officers in managing land resources in an integrated manner to achieve better and sustainable land management and to coordinate land and water resources development activities with the development activities of other sectors. In addition, to prevent soil erosion in critical areas, LDD also supports other land development activities such as soil improvement with organic matter, improving acidic soils by increasing soil pH

¹⁴Kunaporn (1999).

¹⁵Tesfahunegn et al. (2011).

¹⁶Zhang et al. (2011).

¹⁷Land Development Department (2002).

values to the range for optimum plant growth, providing water supply, etc., to cover the entire land. The assessment of land degradation in land development regions provides information to be used by the Land Development Regional Offices and the Subdistrict Administrative Organization to plan land use or subdivide the area according to various land use activities in the area. This management is called “zoning”.¹⁸

3 Context of the Land Use Plan in Thailand

During Thailand’s economic development in the past several decades, the land has played a crucial role in agricultural production and other sectors, including industry, real estate, and services. The demands for land in various activities has increased rapidly and inconsistently with the country’s economic expansion, leading to problems in land use and land ownership. Land use problems derive from the unsuitable use of land according to land suitability factors. Cropping practices in the forested highlands have caused soil erosion and landslides. In the consideration of land ownership, the main problems include lack of land title, insufficient land for agriculture, and land rental practices. The combination of these land use problems results in conflict between various government agencies, between government agencies and the villagers, and among villages. Moreover, institutional problems in Thailand’s land use planning system encompass three interrelated aspects at three spatial levels: policy framework, organizations, and legal and other measures for implementing the plans.¹⁹ This situation becomes more serious because of the ecological limitations of national land resources, while the demand for land use continues to rise. In principle, national land use requires both conservation and appropriately designated areas for development by establishing the “National Land Use Plan”. Even the concept of the national land use plan was introduced before the National Economic and Development Plan No. 1 (A.D. 1961–1966) and other initiatives such as land classification for forest and agricultural areas, the delineation of national parks, wildlife conservation areas, agricultural economic areas, principal city plans, specific plans and the land use plan of the LDD. There was no initiative to cover all land use classes of the country, or with the consensus of relevant agencies, and it was adopted to be implemented intensively. The reason is that many agencies are working in land management and focus on their mission directly. Although there is coordination between the agencies, there is no agreed criteria or master plan that could be utilized by them. In this regard, it is very important to have the “Land Use Plan for Thailand” address the current land situation.^{20,21} The land use plan is the

¹⁸Land Development Department (2000).

¹⁹Ratanawaraha (2016).

²⁰The Secretariat of the House of Representatives (2018).

²¹Office of the National Economic and Social Development Board (2017).

master plan for all relevant agencies on land management that could use and mainstream land management by following the plan.

Therefore, the LDD has prepared the land use plan of Thailand to be a guideline for making policy recommendations on land use and land resource management to drive the nation towards sustainable development goals to comply with the Constitution of the Kingdom of Thailand A.D.2017 and the National Reform Plans. The land use planning procedure of Thailand has adopted land suitability, land use potential, and sustainable development criteria, consistent with Thailand's 20-year National Strategy, the 20-year Agricultural and Cooperatives Strategy, and other relevant policies, laws, and plans. In addition, socio-economic conditions, production barriers, demand and supply in agriculture, and climate change and natural disaster criteria for designing land use for Thailand (Fig. 3), leading to sustainable development, have been adopted.

The land use plan of Thailand is divided into the 8 following zones (Fig. 4 and Table 1).

1. Forest zone with an area of 21,613,676 ha, or 42.12% of total land area. It is characterized by national forest goal statement and outlines the problems in forest areas including policy, strategy, measures for the use of nature in protected forest areas, cabinet resolution and a related development plan.
2. Agricultural zone with an area of 24,509,524 ha, or 47.77% of total land area, characterized by land suitability, infrastructure development of agriculture, and irrigation system as a source of agricultural and food production. This zone enables Thailand to attain food security and export products to the world market, and earn more income.
3. Community zone with an area of 2,277,776 ha, or 4.44% of total land area. It is characterized by present land use together with a country plan and state property land (Ratchaphatsadu land) as a guideline of community management, including environmental conservation in each area harmonizing with wise land use.
4. Industrial zone with an area of 313,382 ha, or 0.61% of total land area, characterized by the present land use, an urban and rural development plan, and an industrial development plan that could apply in the future.
5. Ratchaphatsadu land or state property zone with an area of 1,318,335 ha, or 2.57% of total land area, consists of Ratchaphatsadu land as the state property managed by the Treasury Department. Ratchaphatsadu land includes all types of government-owned immovable property; the land which is specifically reserved for use for the state benefit; and land which is reserved for the government's benefit under the law (Somjit 2018).
6. Water resources zone with an area of 1,264,408.96 ha, or 2.46% of total land area. It is characterized by the existing reservoirs (natural and man-made reservoirs) in present land use areas.
7. Historical zone with an area of 14,398 ha, or 0.03% of the total land area. It is characterized by the registered ancient sites and historical parks for the whole kingdom and organized by the Fine Arts Department.

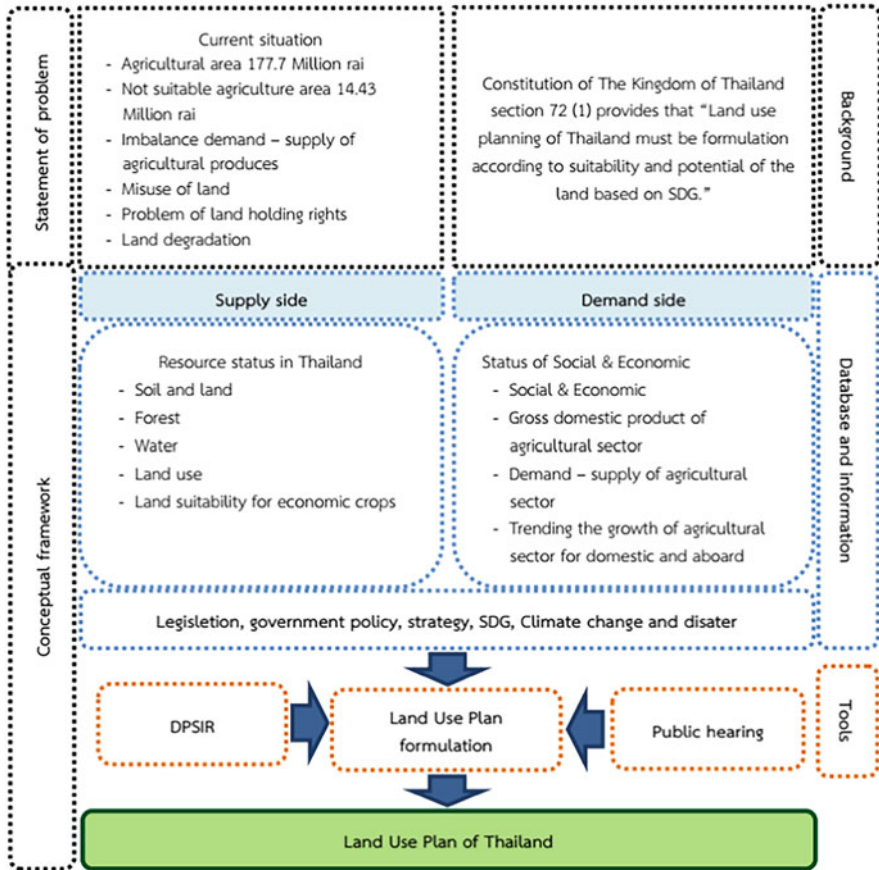


Fig. 3 A conceptual framework of land use planning of Thailand (Division of Land use Planning and Policy (2018). Reproduced from Land use plan of Thailand with permission from Land Use Planning Division, Land Development Department. The authors would like to thank the Land Use Planning Division, Land Development Department, Thailand for giving permission to use Table 1, Figs. 3 and 4 in this chapter.)

8. Recreation and open space zone, considered by the second tourism development plan (A.D. 2017–2021) that delineates the tourism development zone.^{22,23}

²²Division of Land use Planning and Policy (2018).

²³Somjit (2008).

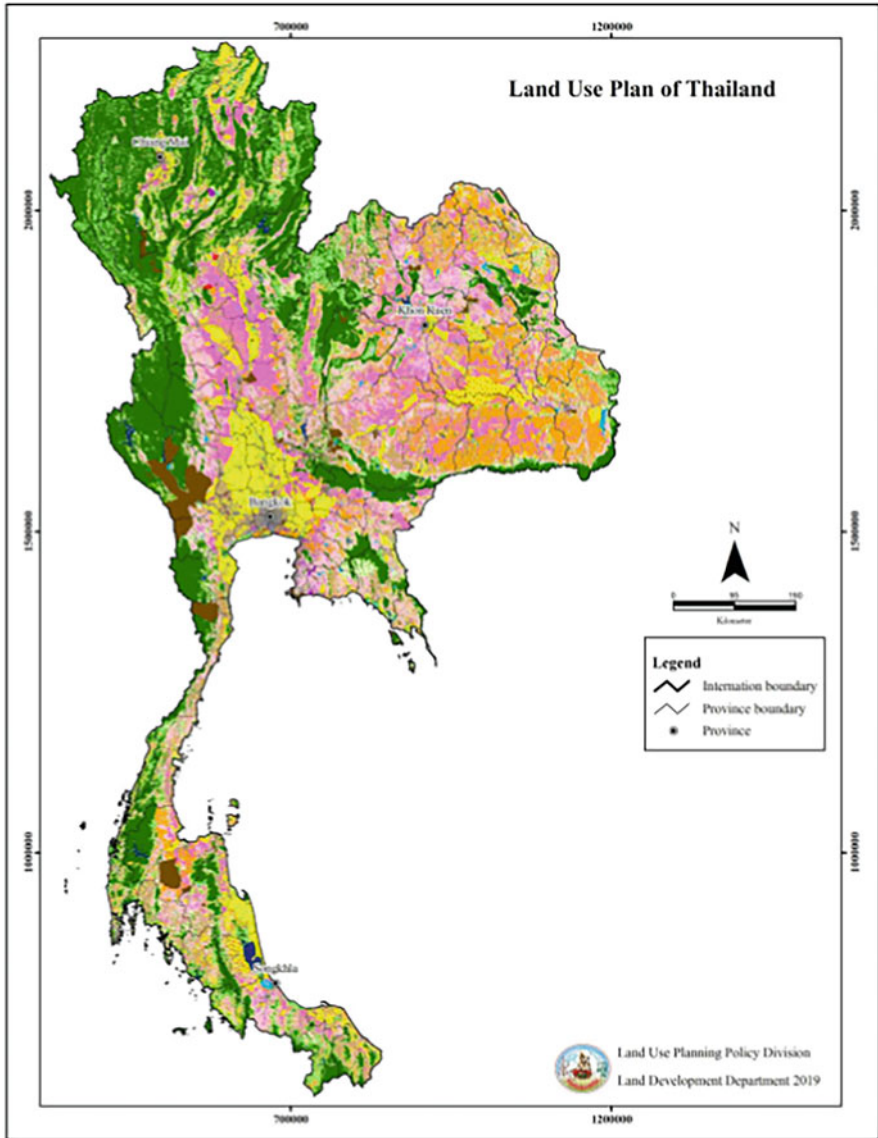
























Fig. 4 Land use plan of Thailand (Division of Land use Planning and Policy (2019). Reproduced from Land use plan of Thailand with permission from Land Use Planning Division, Land Development Department.)

Table 1 The land use plan of Thailand^a

Land Use Plan of Thailand		Regions				Total (Rai)	%
		North	Northeast	Central	South		
	1. Forest zone	69,755,770	25,375,895	20,767,972	19,185,843	135,085,480	42.12
	1.1 Conservation forest zone	60,674,935	17,266,912	16,552,393	16,079,618	110,573,858	34.47
	1.1.1 Protected forest zone	49,305,954	11,550,796	14,787,405	10,571,584	86,215,739	26.88
	1.1.2 Forest rehabilitation zone	1,389,849	793,899	334,596	375,796	2,894,140	0.90
	1.1.3 Conditional forest rehabilitation zone	9,979,132	4,922,217	1,430,392	5,132,238	21,463,979	6.69
	1.2 Economic forest zone	6,863,291	3,583,670	2,991,208	2,448,919	15,887,088	4.96
	1.2.1 Preservation forest zone	3,241,537	812,464	813,116	846,289	5,713,406	1.78
	1.2.2 Forest rehabilitation zone	313,923	341,029	73,173	60,781	788,906	0.25
	1.2.3 Conditional forest rehabilitation zone	3,307,831	2,430,177	2,104,919	1,541,849	9,384,776	2.93
	1.3 Preservation forest zone by cabinet resolution	2,217,544	4,525,313	1,224,371	657,306	8,624,534	2.69
	2. Agricultural zone	31,164,985	69,351,563	31,565,616	21,102,363	153,184,527	47.77
	2.1 Prime agricultural land	9,091,922	10,241,219	15,130,491	8,469,684	42,933,316	13.39
	2.1.1 Paddy zone	5,011,989	4,784,981	10,001,544	2,814,374	22,612,888	7.05
	2.1.2 Field crop, orchard, perennial plants	4,074,748	3,483,042	5,128,947	5,003,790	17,690,527	5.52
	2.1.3 GI plants zone (approved by EU)	5,185	1,973,196	-	651,520	2,629,901	0.82
	2.2 High potential agricultural land	17,699,488	34,313,018	12,646,643	8,534,799	73,193,948	22.83
	2.2.1 Paddy zone	10,266,785	17,329,941	3,796,275	2,333,835	33,726,836	10.52
	2.2.2 Field crop, orchard, perennial plants	7,432,703	16,983,077	8,850,368	6,200,964	39,467,112	12.31
	2.3 Low potential agricultural land	4,373,575	24,797,326	3,788,482	4,097,880	37,057,263	11.56
	2.3.1 Paddy zone	1,240,172	18,081,267	1,527,049	555,486	21,403,974	6.68
	2.3.2 Field crop, orchard, perennial plants	3,133,403	6,716,059	2,261,433	3,542,394	15,653,289	4.88
	3. Community zone	3,194,438	4,688,727	4,671,228	1,681,708	14,236,101	4.44
	4. Industrial zone	369,783	296,160	1,103,631	189,065	1,958,639	0.61
	4.1 Existing industrial zone	185,318	195,353	735,979	74,197	1,190,847	0.37
	4.2 Mining zone	184,465	100,807	367,652	114,868	767,792	0.24
	5. Ratchaphatsadu land or Royal property zone	990,556	1,328,846	4,846,437	1,073,760	8,239,599	2.57
	6. Water resources zone	1,392,317	3,232,800	1,782,285	1,495,154	7,902,556	2.46
	6.1 Water resources within forest zone	504,505	364,538	615,574	1,008,855	2,493,472	0.77
	6.1.1 Natural water reservoir	113,515	88,993	85,795	835,499	1,123,802	0.34
	6.1.2 Man-made reservoir	390,990	275,545	529,779	173,356	1,369,670	0.43
	6.2 Water resources out of forest zone	887,812	2,868,262	1,166,711	486,299	5,409,084	1.69
	6.2.1 Natural water reservoir	651,061	1,698,104	621,549	390,033	3,360,747	1.05
	6.2.2 Man-made reservoir	236,751	1,170,158	545,162	96,266	2,048,337	0.64
	7. Historical zone	79,654	8,170	2,167	-	89,991	0.03
	8. Recreation and open space zone	-	-	-	-	-	-
	Total	106,947,503	104,282,161	64,739,336	44,727,893	320,696,893	100.00

1ha = 6.25 rai

1 ha = 6.25 rai

^aDivision of Land use Planning and Policy (2019). Reproduced from Land use plan of Thailand with permission from Land Use Planning Division, Land Development Department

4 The Legal Framework of Land Regulation and Governance

The five following major pieces of legislation constitute the core of Thailand's land regulation and governance framework.

4.1 *Thailand's Constitution of 2017* in chapter VI: directive principles of state policies, section 72 provides for the state to take actions relating to land, water resources and energy as follows: (1) to plan the country's land use to be appropriate to the area conditions and potential of the land according to the principles of sustainable development; (2) to undertake town planning at every level and to enforce such town planning efficiently, as well as to develop towns toward prosperity and meet the needs of the people in the area; and (3) to provide measures for distribution of landholding's in order to thoroughly and fairly allow people to have land for making a living. (Kingdom of Thailand 2017).²⁴

4.2 The *Land Code Promulgating Act of 1954 update 2008*, as amended, is Thailand's primary land legislation. The Land Code identifies various tenure types, including ownership and use rights, e.g. in chapter 2, land allocation for the people, chapter 3: delimitation of right in land, chapter 4: issuance of documents showing rights in land, chapter 6: recording rights and legal acts, chapter 7: limitation of rights in land for religious purpose, chapter 8: limitation of foreigners' right in land, and chapter 9: limitation of rights in land of some categories of juristic persons. The Land Code, as established by a National Land Allocation Committee, is responsible for identifying land for land allocation for the people, delimitation of rights in land, issuance of documents showing rights in land, land survey, recording rights and legal acts, limitation of rights in land for religious purpose, limitation of foreigner's rights in land, limitation of rights in land of some categories of juristic persons, trade in land, fees, and penalties. The Land Code sets the limitation of foreigner's rights in the land for agriculture of not more than 1.6 ha and not more than 0.16 ha for residence per family etc. The Land Code imposes ceilings on an individual basis, allowing households to have multiple landholdings by registering various plots in the names of individual family members. Landowners have seven years from the date of the Land Code enactment to sell or otherwise dispose of ceiling-surplus land (i.e., above ceiling limits). After that point, the state has authority to purchase any ceiling-surplus land and distribute it to landless and near-landless households.

²⁴Kingdom of Thailand (2017).

The Land Code permits foreigners to hold land in lesser amounts than Thai citizens. By a 1999 amendment, foreigners investing in the country are permitted to own residential land so long as the land is used as their residence for at least three years.^{25,26,27}

4.3 *The Agricultural Land Reform Act of 1975* was established on 6 March 1975, due to the importance of the agricultural sector in Thailand and issues relating to land ownership. The Agricultural Land Reform Office (ALRO) was initially formed to provide rent assistance to farmers not owning or leasing farmland with an unreasonably high rent. All land categorized as agricultural reformed land is specifically marked as such. During the initial phase of the land reformation, ALRO relied mostly on purchased private land, the king's property, and donated land. Later, the government adopted land reformation as a solution to forest encroachment in national forest reserves, by designating swathes of this land as areas for land reformation. As a result, ALRO obtained a large amount of government land as marked by the cabinet for distribution under the Land Reform Act. Since quite a large area of land had already been encroached illegally, many previous land occupants could not meet the criteria of the land reform law, i.e., they were neither farmers nor engaged in farming activities, and held more land than was permitted. Some lands were used for non-farming purposes, such as housing and trading shops. This law also provides regulation for leasing of agricultural reformed land to Thai citizens. The ALRO can allocate land to Thai agricultural workers or agricultural institutions subject to conditions (section 30, Agricultural Land Reform Act).²⁸ In section 4, the definition of "Agricultural land reformation" is amended by the Agricultural Land Reform Act B.E. 1975. It is applied to enhance rights and the holding rule of agricultural land, including the allocation of places for living on such agricultural land. The state brings its land or the land purchased or expropriated by it from the landowner who does not utilize his/her land by himself or who has land in excess of the right under this Act, for allocating it to farmers who have no land of their own or who have little land insufficient for making a living and to farmer institutions for hire-purchase, lease or utilization with the assistance of the state in developing agricultural occupation (Agricultural Land Reform Office (ALRO) 1994).

4.4 *The Land Development Act of 2008* established a national Land Development Committee to help improve the utilization and productivity of the country's agricultural land. The Land Development Act, A.D. 2008 replaced The Land Development Act, A.D.1983. The Act authorizes the committee to engage in land use planning; develop soil and water conservation measures; support farmers; conduct surveys; create plans for the improvement of soil.²⁹

²⁵ Kingdom of Thailand Land Code (1954).

²⁶ Kingdom of Thailand Land Code Amendment Act (1999).

²⁷ Kingdom of Thailand Land Code Amendment Act (2008a).

²⁸ Agricultural Land Reform Office (1994).

²⁹ Land Development Act (2008b).

4.5 *The Land Readjustment Act of 2004* governs processes for land re-plotting and development to improve land utilization. The Act established a national Land Re-adjustment Committee charged with developing policy and identifying areas for re-adjustment. The Act also set the rules for the creation of Land Associations made up of landowners in re-adjustment areas and Provincial Committees to govern the process.³⁰

5 Laws and Policies Related to Soil and Land Resources

Soil is one of the essential components of land. It is a mixture of stone, gravel, sand, mineral, water, and other organic matters forming the texture of the soil.³¹ Land refers to the planet surface not covered by seas, lakes, or rivers. It includes the total land mass including continents and islands. In the legal context, land refers to a piece of land. It consists of rocks, soil, vegetation, animals, ponds, buildings, etc.³² Thailand is one of agricultural producers in the world. Thus, soil and land resources play a key role as the foundation of agriculture. Therefore, land quality and soil quality must be conserved. The development of agricultural land means the improvement of soil fertility to increase agricultural productivity.³³ In Thailand, the Land Development Department (LDD) under the Ministry of Agriculture and Cooperatives is the main organization with the responsibility to conserve and improve soil resources for agricultural productivity, food security, and sustainable land use.

In 1963, the LDD was established by three Acts of Parliament under the purview of the Ministry of National Development. In 1972, the LDD was transferred to the Ministry of Agriculture and Cooperatives. The LDD Act was been published in the Government Gazette in 1983.

The main purposes of the Land Development Act A.D. 1983, are as follows: (1) to define the definition of land development which means any activities on the soil or land to increase the efficiency and quality of the soil or land and to increase agricultural productivity and including the improvement of soil or land infertility because of utilization. Moreover, LDD provided soil and water conservation systems in order to maintain the natural balance for the suitability of agricultural land use; (2) to establish a land development committee. It consists of the Minister of Agriculture and Cooperatives and the chief executive of government agencies related to land development to serve as consideration for determining the land classification, land use planning, land development, the announcement of the land survey area, the establishment of soil improvement and soil and water conservation, and considering rules and regulations for requesting soil sample analysis; (3) to

³⁰USAID (2011).

³¹Needelman (2013).

³²Verheye (2010).

³³Parikh and James (2012).

survey and to analyze soil or land to know the natural fertility and suitability for land use, land classification, land development and to conduct an agricultural census.³⁴

Historically, Thailand had a problem with soil and land degradation because there was no agency with the responsibility and expertise in soil and water conservation practices. Soil erosion led to economic and social damage. The Land Development Act A.D. 1983 did not provide a provision for government agencies to prevent and maintain the risk area from landslides and severe soil erosion in order to make effective land use and maximize the benefits of the land. Under the circumstances, the Land Development Act A.D. 1983 was repealed and replaced by the 2008 Act. The Land Development Act A.D. 2008 has 25 sections in total, although all sections in this Act are based on the Land Development Act A.D. 1983. However, many aspects of the 1983 Act were substantially amended to improve their scope and jurisdiction, namely (1) improving the definition of the meaning to be appropriate; (2) increasing the number of land development committees and their expertise; (3) protecting areas of landslide risks and severe soil erosion; (4) improving the law to prevent and to ensure efficient and optimal use of the land; (5) establishing measures to survey soil fertility and suitability for land use, undertake analysis of soil samples or implement land improvements, as well as prescribing measures prohibiting any action, including contaminating the land with chemicals or any other objects.³⁵

6 Land Rights and Land Documents in Thailand

Ownership of land in Thailand is governed by the Land Code Promulgating Act of 2008, the Civil and Commercial Code, the Land Reform for Agriculture Act A. D.1975, and the regulations set forth by the Ministry of the Interior. However, the process of declaring government land and the legal pattern of Thailand land tenure causes conflicts between government officers and the people. For example, the development of the land tenure system forces many farmers to be identified as landless cultivators, and some farmers become landless or 'contract farmers' due to the Forest Plantation Act in 1992 (Pongsapich 2011).³⁶ According to Udomkerdmongkol (2020),³⁷ it was reported that about 40% of farm households in Thailand did not have the land ownership.

In Thailand, a land title deed is issued by the Department of Lands. The Department of Lands is the only competent authority to deal with land and registering and transferring private rights over land. Transfer of the land ownership claimed over titles issued by other government departments than the Department of Lands cannot

³⁴ Kingdom of Thailand, Land Development Act. (1983).

³⁵ Kingdom of Thailand, Land Development Act. (2008b).

³⁶ Pongsapich (2011).

³⁷ Udomkerdmongkol (2020).

be registered with the Department of Lands or it is restricted for transfer. The land title documents show a personal right to land and registered encumbrances such as mortgages, leases, etc. on a property. Foreigners are not allowed to own land and cannot be named as the owner of land in Thailand but they can be the holder of certain rights like lease, right of usufruct, habitation, superficies, a mortgage which can be registered in their name on the title deed. Government lands or public lands do not have any title documents and it is not open for private use. Government land or public land include:

1. Forest; The Royal Forest Department and the Department of National Parks, Wildlife and Plant Conservation supervise Thai forest under the National Reserved Forests Act, 1964, the National Park Act A.D. 1961, the Wildlife Preservation and Protection Act A.D. 1992, the Wildlife Reservation and Protection Act A.D. 2003, No. 2, the elephant ivory tusks act A.D. 2015.
2. Reformed land; The Agricultural Land Reform (Sor. Por. Gor. 4-01) has the Agriculture Land Reform Office supervise this land under the Agricultural Land Reform Act A.D. 1975
3. Self-established estate; The Department of Social Development and Welfare supervise it under the Allotment of Land For Living Act A.D. 1968
4. State property land (Ratchaphatsadu land); The Treasury Department supervise it under the Ratchaphatsadu Land Act A.D. 1975
5. Highway; The Department of Highways supervise it under the Highway Act A.D. 1992.
6. River; The Department of Marine supervise it under the Maritime in Thai Waters Act A.D. 2003.
7. Public land and vacant land; The Department of Provincial Administration together with the Department of Local Administration take care of them under the Local Administrative Act A.D. 2014.

Title Deeds in Thailand may be mainly divided into 4 categories as follows:

1. Title Deed (Chanote or Nor. Sor. 4 Jor (NS4J)) is the only land title deed certificate that offers full certified private ownership of land in Thailand. Land held under title deed, known as “Chanote” in Thai, is accurately surveyed and GPS plotted in relation to a national survey grid, and marked by unique numbered marker posts set in the ground. Chanote titles are the highest land title and are commonly found in the developed areas of Thailand. The Chanote title land is the preferred title for both buying or leasing land in Thailand. Additionally, a condominium unit title deed (similar document) provides full freehold ownership and is also issued and administrated by the provincial or local branch office of the land department.³⁸

2. Land titles Nor Sor Sam

Land title deeds Nor Sor Sam (NS3) and Nor Sor Sam Gor (NS3G) are land title deeds registered and issued by the Land Department. They show the name of person

³⁸Thailand Law Online (2021).

who has the right to possess the land and gain the benefit of the land as a private owner. However, it is not actually a full ownership title deed. The name shown on the land title deed is the person who has the right to the land and has the legal right to possess the land.

This right is recognized by law and can be used as evidence in any dispute with an ordinary person or the government. This type of land can be upgraded to a full ownership title deed, the “Chanote”.

By having Nor Sor Sam (N.S.3) without extension, it implies that the land has been confirmed possession, but not accurately surveyed and the borders of the land must be confirmed with neighboring land plots. This may cause problems in verifying the land area. This type of land may be sold subject to a 30-day notice period to see if anyone wants to contest the ownership. Disputations on the border or ownership are common with this type of land title.³⁹

Having Nor Sor Sam with the extension ‘Gor’ or ‘Khor’ means that the land is accurately surveyed, and the land area parcel points are set using aerial survey methods. There is no need to publicize any legal acts (no 30-day notice), and it is possible to partition (divide) the land into smaller plots. This document is issued by the district land officer.

It is noteworthy that rights like a registered long-term lease, superficies or usufruct must be registered with the Land Department to complete and enforceable. If the land does not have a proper land title administrated by the Land Department, it is simply not possible to register anything against the land.

3. Other land titles and claims

There are several other forms of land titles, claims, or rights of private use, some issued by the Land Department and some by other government departments. Some of those issued by other government departments offer ownership rights (similar to the Chanote) and are accurately surveyed but cannot be sold; they can only be transferred by inheritance. Some claims are merely rights of possession or use and have practically no associated rights. It is also not possible to register them for a sale, lease, or usufruct, except for local exceptions regarding building permits.

Sor Kor Nung (S.K. 1) is a notification form of land possession. This document allows the holder to occupy and utilize the S.K. 1 land, but their rights are not confirmed by the land department. Sor Kor Nung land may be transferred to another person through a process that involves the current possessor giving up their possession of the land and delivering S.K. 1 to the transferee.

Possession may also be passed on by inheritance. Depending on the land’s location, this document may be upgraded to Nor. Sor. 3, Nor. Sor. 3 Gor or Nor. Sor. 4 (Chanote). Sor. Kor. 1 has never been issued after 1972. The land with S.K. 1 can still be upgraded, however only with the court approval.⁴⁰

Nor. Sor. Song (N.S. 2) is a consent letter issued by the Land Department to the holder. This document entitles the holder to occupy and utilize the land for a

³⁹Thailand Law Online (2021).

⁴⁰Thailand Law Online (2021).

temporary period, the holder has to commence occupation and utilization on the N.S. 2 land within 6 months and complete it within 3 years from receiving the N.S. 2. The land with N.S. 2 may not be sold or transferred except through inheritance. Depending on the land's location, this document may be upgraded to Sor. 3, Nor. Sor. 3 Gor or Nor. Sor. 4 (Chanote), however, after upgrade the prohibition for sale or transfer is still effective in full force.⁴¹

4. Land documents issued by other government departments

There are several other forms of land titles, claims, or rights of private use, some issued by the Land Department and some by other government departments. Some which are issued by other government departments offer ownership rights (like the Chanote) and are accurately surveyed but cannot be sold and can only be transferred by inheritance. Some claims are merely rights of possession or use and have practically no rights associated with them, nor is it possible to register a sale, lease, usufruct or obtaining a or obtain a building permit, except for local exceptions regarding building possibilities.⁴²

Sor. Por. Gor. 4-01 is an allotment of land from the Land Reformative Committee, and under no circumstance may this land be bought or sold. It confers the right to occupy only and be transferred only by inheritance. It appears that this land may be used for agriculture only.

Por. Bor. Tor. 5 is a piece of evidence showing that the occupier of a plot of land has been issued a tax number and has paid tax for making benefit of the land. This confers no rights but was formerly used to establish that the holder was occupying a plot of land. The land with Por. Bor. Tor. 5 could be applied for changing it to a Sor Kor 1.

Nor. Kor. 3 is a utilization certificate issued under the act of land allocation for living A.D. 1968. This document is issued only for members of self-help settlements.

Gor. Sor. Nor. 5 is a utilization certificate issued under the act of land allocation for living A.D. 1968. This document is issued only for members of the cooperative settlement (Nabangchang-Srisawalak 2006).⁴³

7 Conclusion

The rapid economic expansion has led to intensive use of natural resources and land use changes. The conversion of forests into cash crop production and the utilization of unsuitable areas for agriculture are contributing to soil and land degradation, which affects agricultural productivity, human well-being, and global sustainability. Moreover, government actions can also impact people, land use and physical changes, and even the social environment. If the the government's actions lack

⁴¹Thailand Law Online (2021).

⁴²Thailand Law Online (2021).

⁴³Nabangchang-Srisawalak (2006).

effective planning, the control becomes futile. Therefore, soil and land management in Thailand still needs to update new technology, as well as the transfer of existing knowledge about soil and water conservation practices and soil development research to drive policies against poverty and land degradation. In addition, well-designed land use planning and land cover management, such as reforestation and the restoration of degraded lands, in conjunction with appropriate legal, political, social, and physical techniques, can pave the way for achieving sustainable soil and land quality controls. Simultaneously, these efforts can help to reduce conflicts over land use between government officers and the people.

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