

**The Study of Land Use Planning Process
under the collaboration project of Ayeyawady-Chao Phraya-Mekong
Economic Cooperation Strategy (ACMECS) in Myanmar**

1. Introduction

Sin Thay Sub-watershed is located in the middle part of Myanmar and occupies the area around 23,205 hectares, The main area is in Nay Pyi Taw and some area in the northern part is in Mandalay. The topography in the east and the west of the sub-watershed is a steep-mountain. Therefore, the middle of the sub-watershed is consisted of upland and lowland area. Sin Thay River is a main river of the sub-watershed (fig.1). The main land use is agriculture under rainfed condition, usually field crop with legumes rotation (fig.2).

2. Objectives

- 1) To study the physical information of the study area for database making to use in land use planning process within the Sin Thay sub-watershed.
- 2) To conduct a soil suitability assessment for economic crops that can use as the alternative crops for suitable land utilization.
- 3) To make a preliminary land use plan of the sub-watershed which can use as a guideline on land management and development and synchronize with the national development policy.

3. Scope of the area

Sin Thay Sub-watershed covers an area of 23,205 hectares

4. Methodology

- 1) The evaluation of land unit, which is related to the current cultivated crops in this area, was classified by the 4 levels of the suitability; for example, high-, medium-, low-, and non-suitability.
- 2) The spatial datasets were overlaid and analyzed using GIS software in order to study the spatial relationship of the datasets.
- 3) The suitability conditions was created depend on land potential and the principle of sustainable land utilization.
- 4) Data evaluation for a preliminary land use plan was performed and a land use planning map was created.
- 5) The preliminary land use plan was examined by field checking in the Sin Thay sub-watershed. In addition, the socio-economic data was collected in order to use as an auxiliary data for land management suggestion in each land utilization zone.

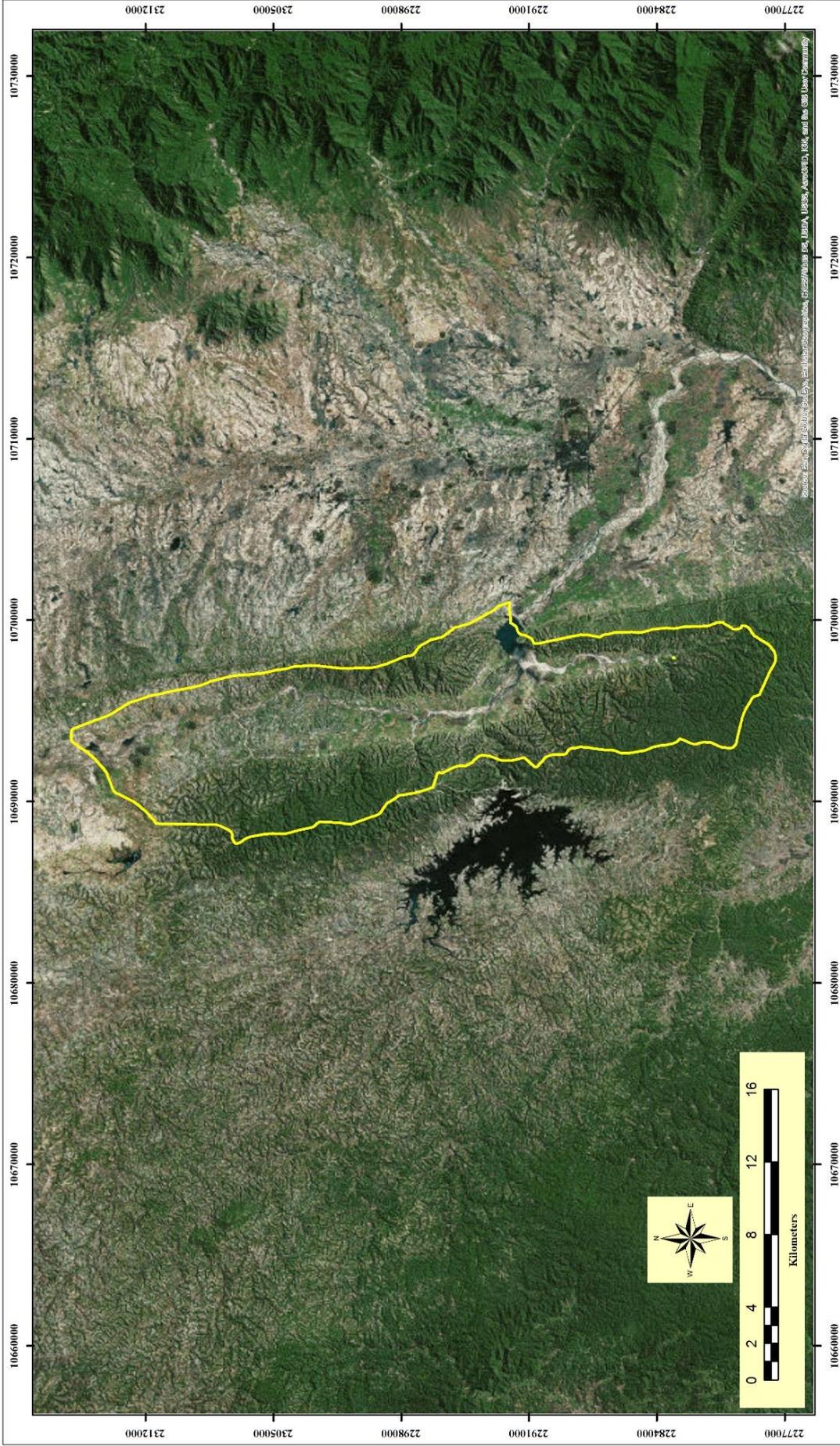


Fig.1 Topology of Sin Thay Sub-watershed

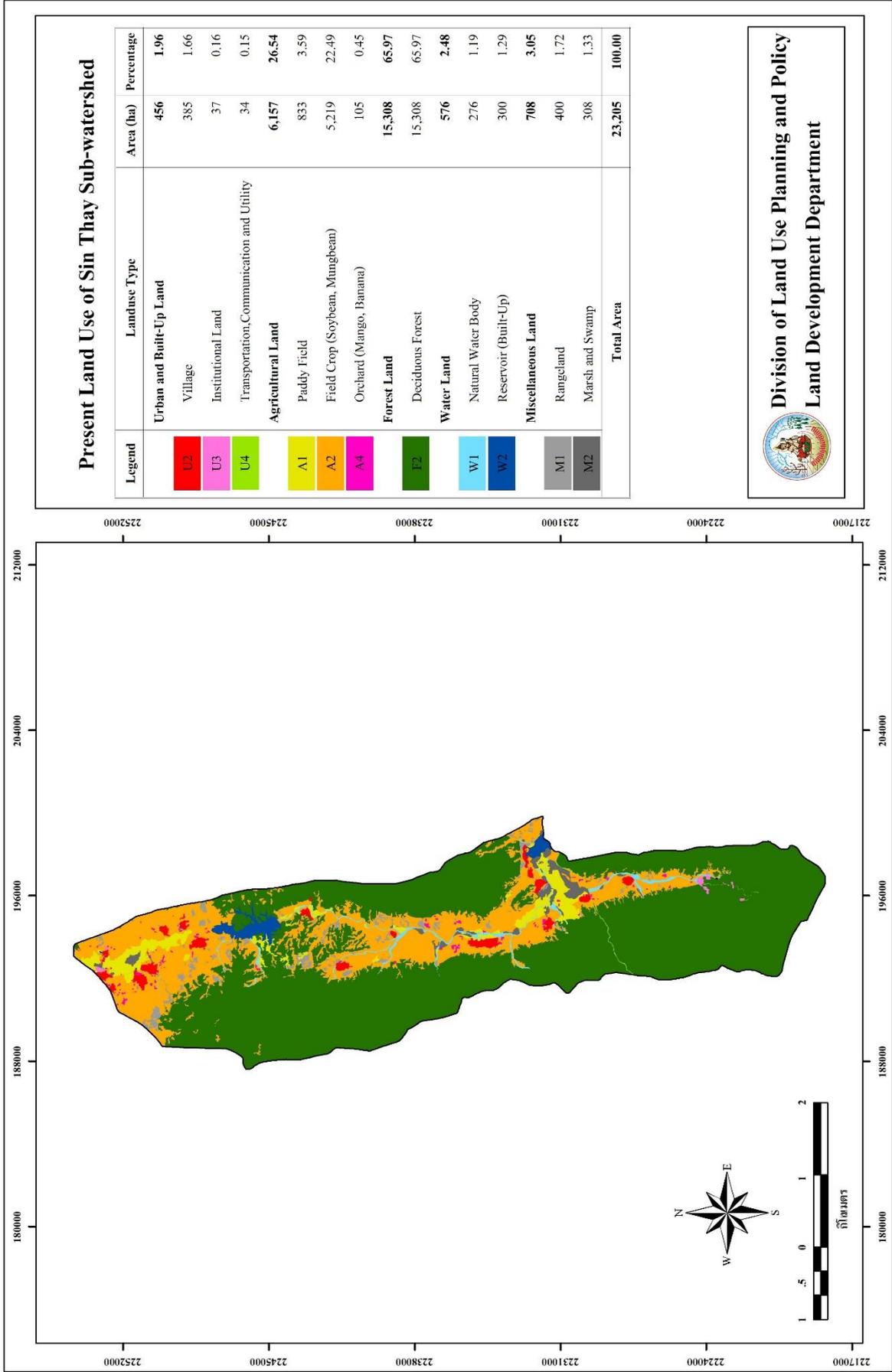


Fig.2 Present Land Use of Sin Thay Sub-watershed

5. Results

The results of the study for making a preliminary of land use plan in Sin Thay sub-watershed, which occupy an area of 23,205 hectares, has details as following;

5.1 Land quality assessment

Land quality assessment of current important economic crops of this area shows that the majority of the area is low-suitable for soybean, rice, and maize, medium-suitable for mung bean, and non- suitable for mango. The issue for crop cultivation of this area is soil moisture deficiency because in some area soil is sandy soil that is low water holding capacity. In addition, in this area is low rain fall. Consequently, it is the obstacle for crop cultivation; especially, fruit crops.

5.2 Land utilization zoning

From the physical study within the Sin Thay sub-watershed we can determine the zones for land utilization into 5 main zones. The details as follows (fig. 3);

1) Forest Zone is the most of areas in this sub-watershed covers 15,305 hectares or 65.95 percents of sub-watershed area. This zone is determined by present land use that is current forest. It is deciduous forest that covers in the east and the west.

2) Agricultural Zone covers 6,153 hectares or 26.51 percents of sub-watershed area. This zone is separate into 2 sub-zones; for example, the progressive agricultural zone and the accelerate development agricultural zone. The details are following;

- The progressive agricultural zone covers 4,802 hectares or 20.69 percents of sub-watershed area. Most of area is in the northern part of the area. This zone is determined by present land use situation, soil properties; including, soil texture, medium or high soil fertility, deep soil, low-slop, and medium- and high-suitable for important cash crops of the area. It is divided into ; several zones; paddy field , field crop , orchard or perennial crop.

- The accelerated agricultural zone covers 1,351 hectares or 5.82 percents of sub-watershed area. This zone is determined by present land use situation, soil properties; including, soil texture, low fertility, shallow soil, high slope, and low and non-suitable for important cash crops of the area. It is divided into paddy field , field crops and orchards/perennial crops.

3) Villages and built-up area covers 456 hectares or 1.96 percents of sub-watershed area. Most of them are rural villages.

4) Water resource covers 594 hectares or 2.5 percents of sub-watershed area. It is including natural water bodies and manmade water bodies.

5) Miscellaneous covers 698 hectares or 3.01 percents of sub-watershed area. This zone is determined by present land use situation. It is including marsh, swamp, and shrubland that is specific for each area.

6. Summary

From the study, the most of areas within the sub-watershed is forest zone and follow by agricultural zone. In addition, from the field survey result, many farmers are growing crops as commercial. They use chemical fertilizers, herbicide and pesticide, purchase seeds for cultivation. Furthermore, the farmers rotate crops throughout the year; such as, they grow cotton and follow by legumes, sesame, or maize; especially, in rainy season. Most of farmers divide their land use for variety crops in their field; particularly, legumes.

Land Use Planning Classification System of Sin Thay Sub - watershed

Map unit	Land use planning zone	Condition		
		Soil type	Present land use type	Others
1	Forest zone			
1.1	Preservation forest zone	-	Forest	
2	Agricultural zone			
2.2	Progressive agricultural zone			
2.2.1	Paddy zone	lowland /pd	Active paddy field	} land suitability
2.2.2	Field crop zone	upland /wd	Field crop	
2.2.3	Orchard /Perennial crop zone	upland /wd	Orchard /Perennial crop	
2.3	Accelerated agricultural zone			
2.3.1	Paddy zone	lowland /spd	Active paddy field	} land suitability
2.3.2	Field crop zone	upland /mw , lowland/pd	Field crop	
2.3.3	Orchard /Perennial crop zone	upland /mw , lowland/pd	Orchard /Perennial crop	
3	Urban and built-up land zone			
3.1	Rural community zone	-	Village, Institutional land, Road	
4	Water resource zone			
4.1	Natural water resources zone	-	River, Canel, Reservoir,	
		-	Farm pond	
5	Special zone			
5.1	Environmental preservation zone	-	Marsh and Swamp	
			Shrub land	

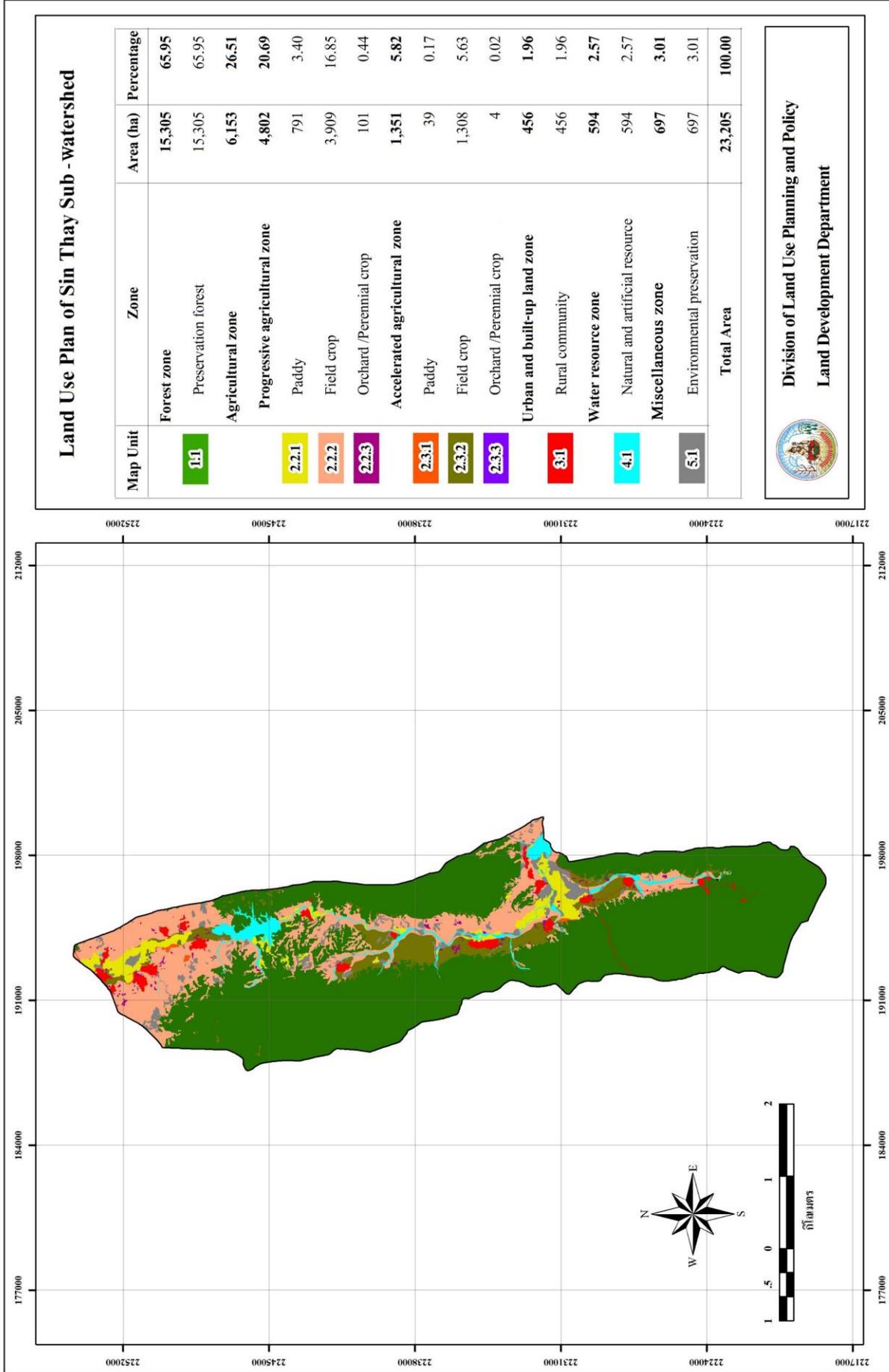


Fig.3 Preliminary Land Use Plan of Sin Thay Sub-watershed

***** APPENDIX *****

The examination of a preliminary land use plan in Sin Thay sub-watershed where some part locate in Tatkon Township of Nay Pyi Taw and some part locate in Yamethin Township of Mandalay was performed from July 2 to 8, 2018.

The government officers from Land Use Planning and Policy Division and Soil Resource Survey and Research Division, Land Development Department, Thailand surveyed in the study area of Sin Thay sub-watershed in Myanmar. The upper part of the study area was located in Yamethin Township of Mandalay and the middle and lower part were located in Tatkon Township of Nay Pyi Taw. The activity was performed in order to check general information of the study area and examined the preliminary land use plan which is a part of the collaboration project of ACMECS activities between year 2017 and 2022 of Land Development Department, Thailand.

