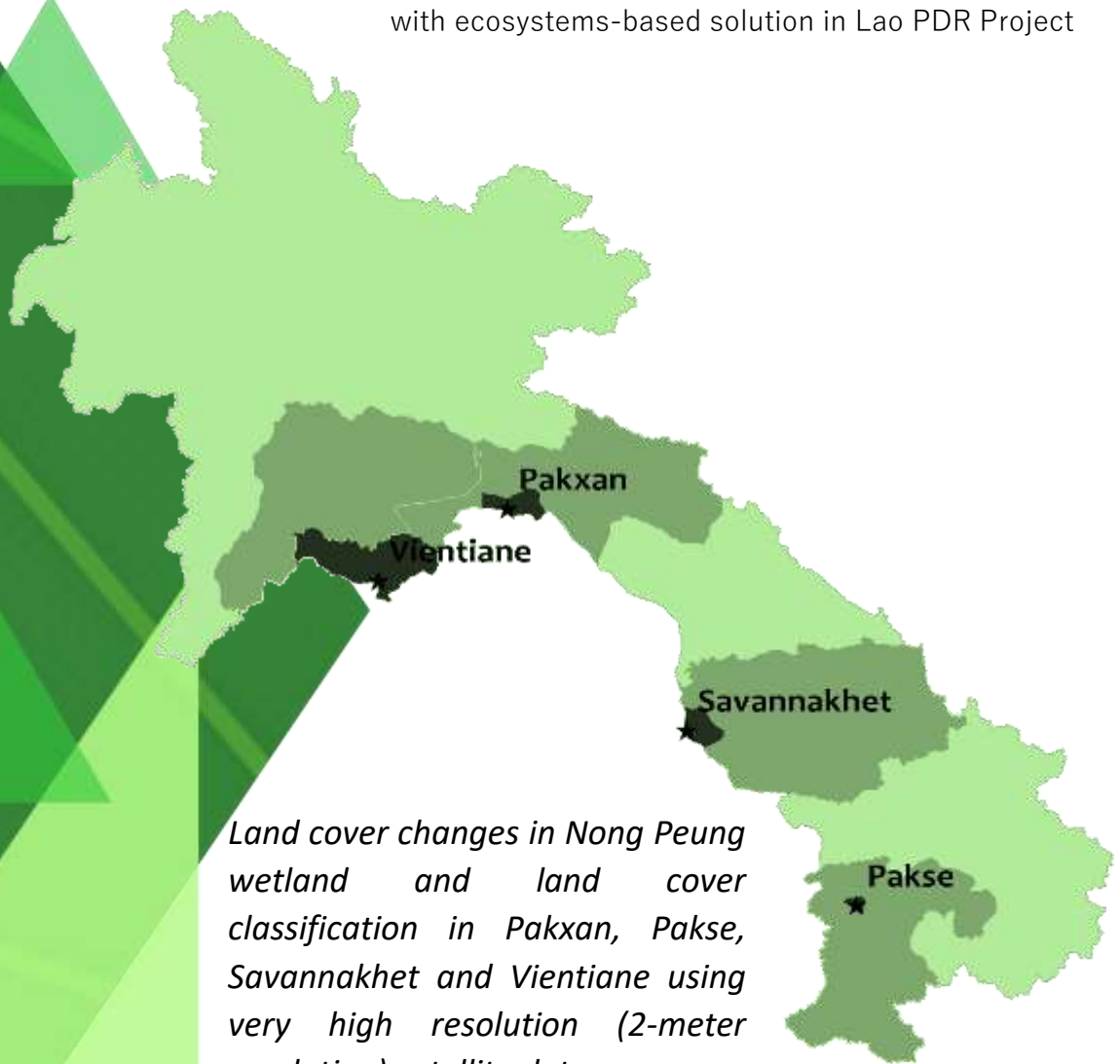


# GENERATING BIOPHYSICAL DATA FOR ECONOMIC VALUATION OF URBAN ECOSYSTEM SERVICES

UNEP/GCF Project: Building resilience of urban populations  
with ecosystems-based solution in Lao PDR Project



*Land cover changes in Nong Peung wetland and land cover classification in Pakxan, Pakse, Savannakhet and Vientiane using very high resolution (2-meter resolution) satellite data*

# Introduction

This part of the study focusses on using very high-resolution satellite data (2-meter resolution) for four urban areas Pakxan, Paske, Savannakhet and Vientiane, to generate land cover information for the year 2018. Also land cover change matrix between 2008-2018 has been generated for the Nong Peung Wetlands in Pakxan. The remaining wetland in 2018 was found to be 543 ha. Also, there was a wetland gain of 107 ha and wetland loss of 242 ha during the period 2008-2018. This may be the most accurate assessment of changes in area of the Nong Peung Wetlands using detailed satellite data. Estimated areas under different land cover and satellite derived classified maps for four urban areas is given in the following pages.

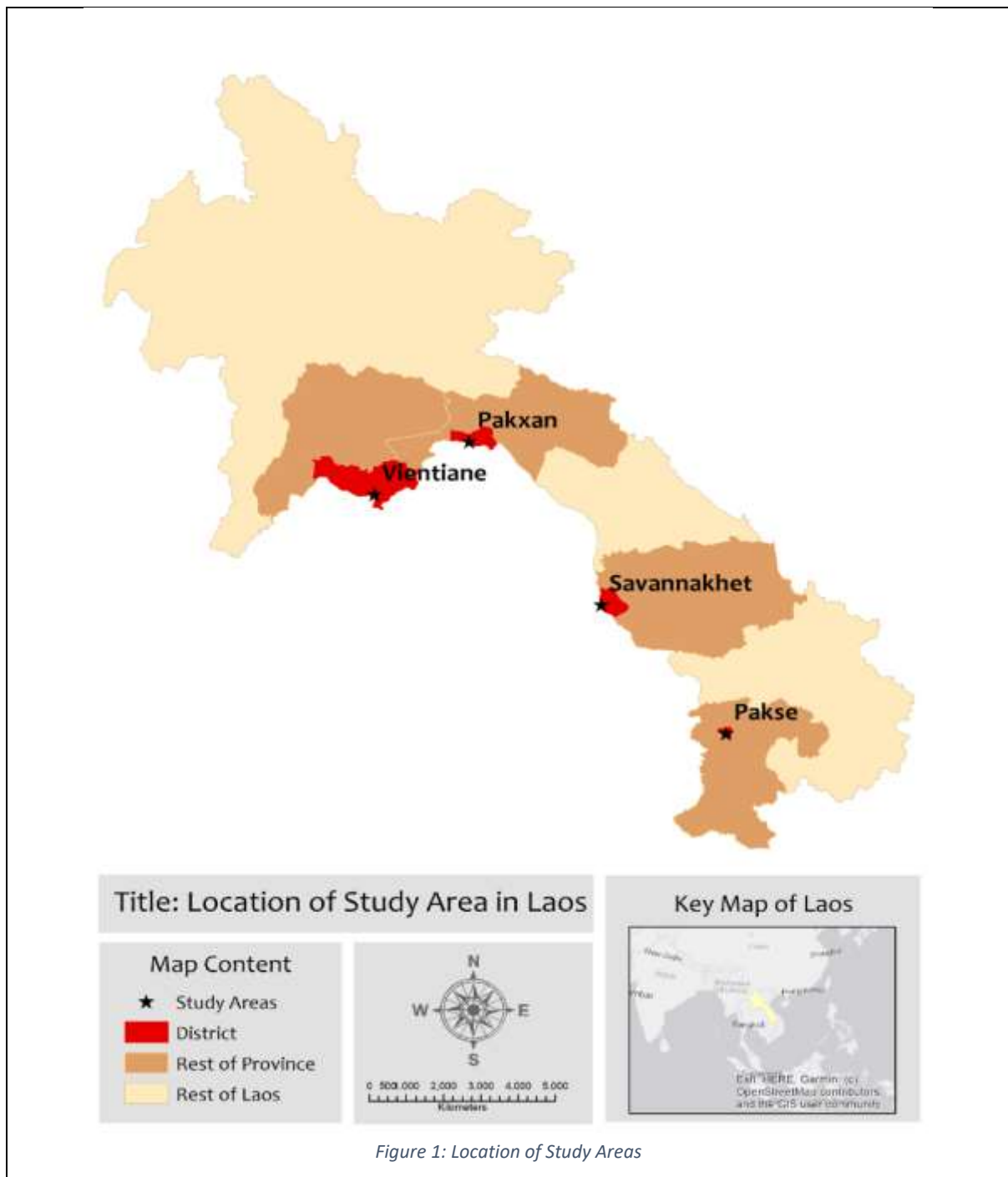


Figure 1: Location of Study Areas



Figure 2a : Nong Peung Wetlands in Pakxan

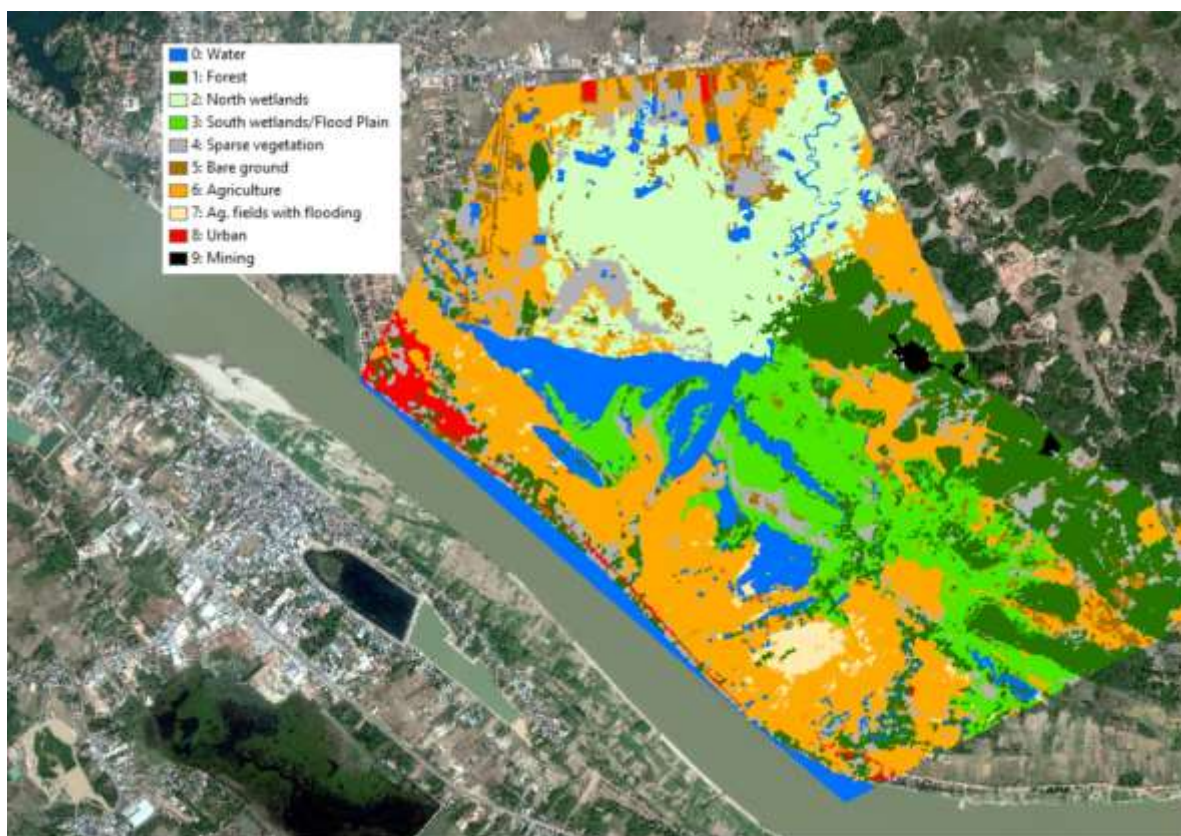


Figure 3b : Classified area covered for Nong Peung Wetlands in Pakxan

Table 1: Land Cover Classification of 2008 and 2018 in Pakxan; change in Land cover

Land Cover (LC) Type	Area in Ha		
	2008	2018	Change in LC*
Water	353.2	260.7	93
Forest	317.5	413.7	96
N. Wetland	446.6	371.4	75
S. Wetland	338.9	291.4	48
Grass	97.9	31.8	66
Sparse Vegetation	67.8	186.1	118
Bare Ground	12.5	95.7	83
Agriculture	619.1	662.6	43
Flooded Agriculture	93.7	33.6	60
Urban	49.9	47.3	3
Mining	6.6	9.5	3

\*Number in red (#) are decrease in area of land cover type over a decade and numbers in green (#) are increase in area over a decade

# Pakxan Landcover in 2008

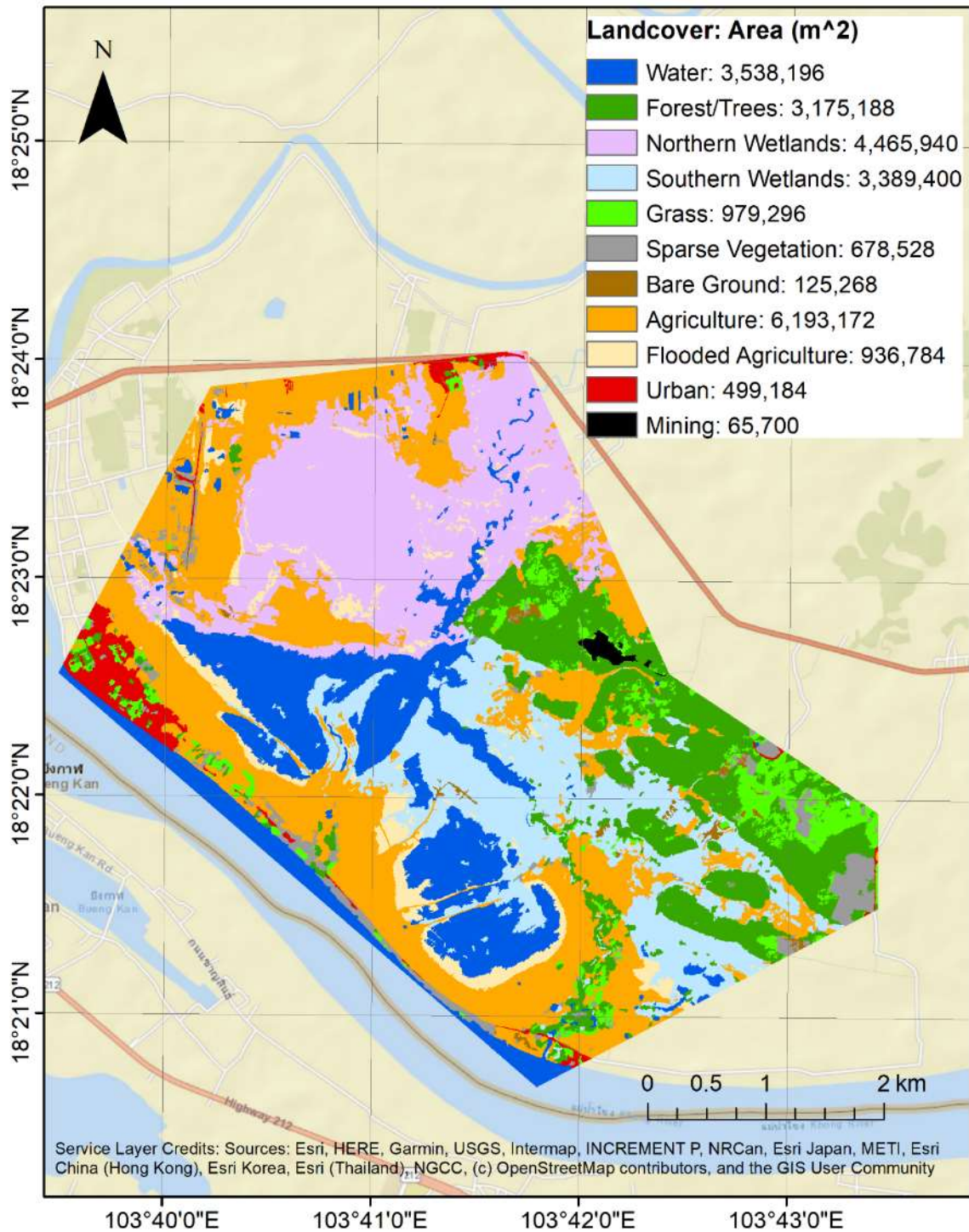


Figure 4: Land Cover in Pakxan in 2008

# Pakxan Landcover in 2018

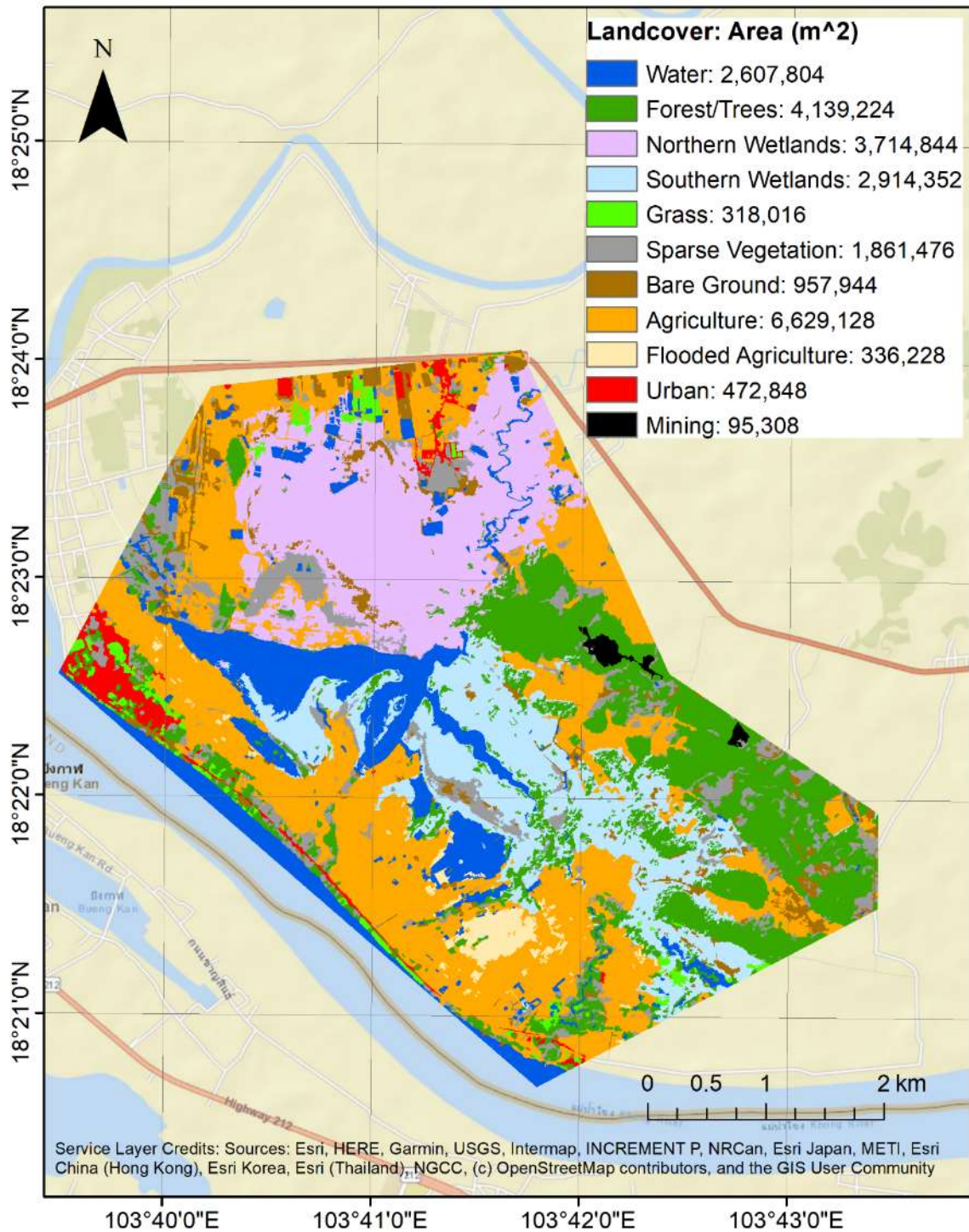
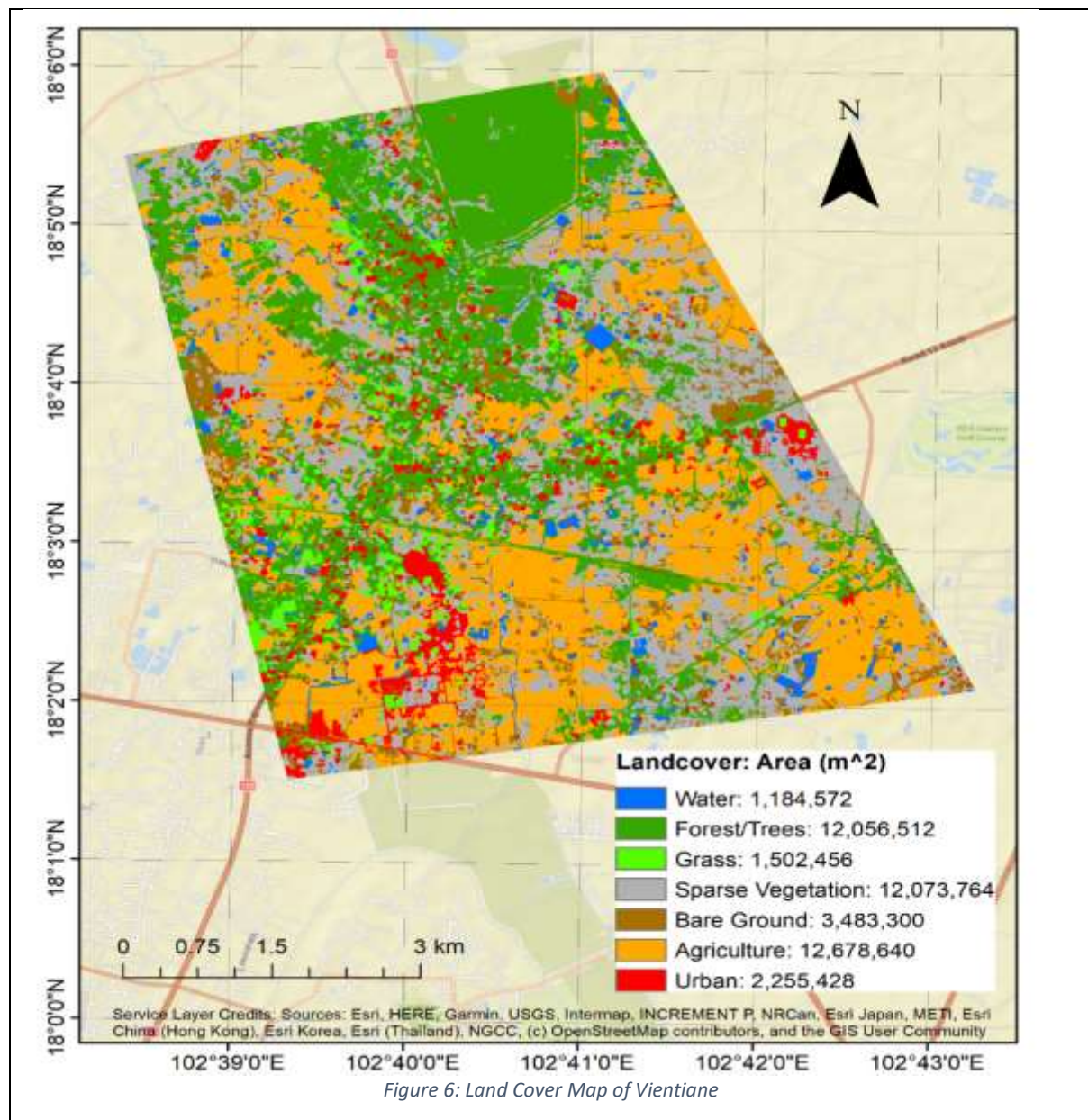


Figure 5: Land Cover in Pakxan in 2018

**Table 2: Land Cover Classification in Vientiane**

Land Cover Type	Area in Ha
Water	118.5
Forest/Trees	1205.7
Grass	150.2
Sparse Vegetation	1207.4
Bare Ground	348.3
Agriculture	1267.9
Urban	225.5



*Figure 6: Land Cover Map of Vientiane*

Table 3: Land Cover Classification in Savannakhet

Land Cover Type	Area in Ha
Water	5.8
Forest/Trees	66.7
Grass	24.2
Sparse Vegetation	28.1
Bare Ground	7.7
Agriculture	14.0
Urban	87.2

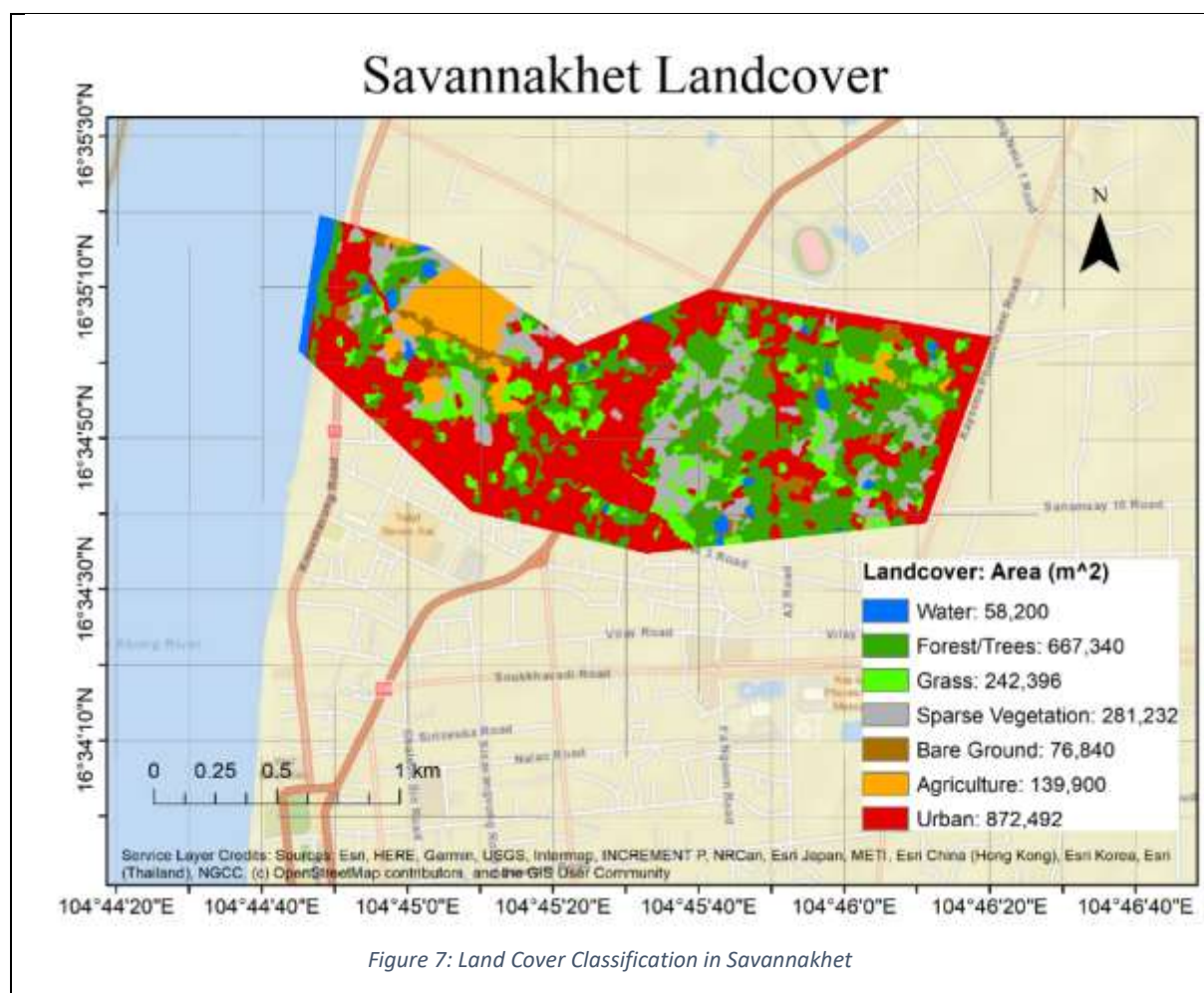


Figure 7: Land Cover Classification in Savannakhet



*Table 4: Land Cover Classification in Pakse*

Land Cover Type	Area in Ha
Water	34.4
Forest/Trees	447.9
Grass	13.7
Sparse Vegetation	312.5
Bare Ground	43.6
Agriculture	115.6
Urban	57.9

