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LAND COVER DATA ASSESSMENT IN ALBANIA

SUMMARY

Land cover refers to the observed physical cover of the Earth's surface which describes the distribution of vegetation types, water bodies and human-made infrastructure. It also reflects the use of land resources for agriculture, forestry, human settlements and other purposes. In this context our current study was focused on the evaluation of land cover changes in Albania during the year period 2000-2018, using CORINE land cover program. Albania has a total area of 28,748 km^2, from which 24% is agricultural land, 36% forest, 16% pastures and meadows and 24% is classified as other, which includes urban areas, lakes and waterways and unused rocky. Land cover in Albania during the year period 2000-2018, was excessively affected by natural phenomena and human activity. Land cover changes in Albania were mainly affected by urban residential sprawl over agricultural land. Thus, the urban residential land increased with about 1% (or about 28,000 Ha) and the agricultural land increased with 3.46% (or about 98,000 Ha), whereas forest area and mix agricultural area decreased with 2.1% (or about 60,000 Ha) and 5.35% (about 150,000 Ha), respectively.

Key words: *Land cover, CORINE program, land use, agricultural land, forest land*.

INTRODUCTION

The term land cover refers vegetation cover of the Earth's surface, water bodies, the use of land resources for agriculture, forestry, human settlements, etc. But the land cover can change quickly over time and it is used as an important indicator in the change of Earth's surface, resulting from different factors (Wunder, 2018).

Thus the changes of land cover are essential components for the assess-

ment of land degradation, Carbon stocks as well as the changes of biodiversity in Earth's ecosystems. Albania is located in SE part of Europe. The country has a total territory of 28,748 km^2, from which 24% is agricultural land, 36% forest and 16% pastures and meadows. The remaining 24% is classified as other, which includes urban areas, lakes, waterways and unused rocky. More than 75% of total area of the relief is mostly hilly and mountainous (Brahushi, 2018; Fra, 2010).

The land cover in Albania has changed year after year as a result of natural phenomena and human factors. The concept of land cover/land use in Albania has started to use in the literature after the year 1990 (Nikolli, 2010), because of the increased impact of human factors, land abandonment, deforestation, overgrazing and construction activities. Due to migration of population from rural to urban areas as well as immigration, more than 45 % of the agricultural land was not cultivated or abandoned for years (Brahushi and Alikaj, 2019). On the other hand, privatization and land fragmentation have brought rapid urbanization of agricultural land. At present the urbanization can be considered as a major threat to Albania's land resources. From the build of infrastructure and development of industry, the most fertile lands have been lost(Brahushi, 2018).

The main aim of the current study was the assessment of land cover changes in Albania during year period 2000-2018.

MATERIALS AND METHODS

To achieve the above objective, the current study was based on different papers and documents, reports, national and international studies. The study is performed based on the following materials: Agricultural Annual Statistics published by the Ministry of Agriculture and Rural Development; data from the Ministry of Tourism and Environment and the National Institute of Statistics of Albania (INSTAT); data on agriculture land, forestry, pastures and urban land(Brahushi, 2018; Fra, 2010; Mte, 2018; Aut, 2019; Mte, 2016; Eea, 2017).The CORINE Land Cover (CLC) program was applied to produce land cover maps and land cover categories for the year 2000, 2006, 2012, and 2018. The computer program Excel 2019 was used for statistical analysis.

RESULTS AND DISCUSSION

Factors of landscape changing in Albania

After the year 2000 the soils in Albania have been under the desertification process, caused mostly from poor cover vegetation. Thus, soil erosion is one of the main natural phenomena that indicate in soil degradation. The data show that soil losses in Albania due to the erosion are very high and they vary from 20 to 30 ton/ha/year, but in some areas this value reaches 150 ton/ha/year (Brahushi, 2018).The most affected areas by the erosion in our country are the hillsides located in the Berat, Pogradec, Skrapar, Elbasanit, Korces, Permet, Kolonje, Malesi e Lekasit, Moglice, Krabe, Mirdite, Puke, Kukes. Massive erosion in these areas is related to geological and topographic factors, poor maintenance of terraces, deforestation and overgrazing (Brahushi, 2018).

Floods are actually becoming a major problem, especially in the northwestern part of the country. There is a kind of chain reaction starting with deforestation, overgrazing and erosion, and culminating with flooding. In addition, human factors, abandonment of sloping land, deforestation, overgrazing and construction activities are combined with the natural factors to increase the soil erosion through the country.

Also in the central part of Albania in the area of Dumrea-Elbasan, lakes are threatened from different impact as physical, chemical, biological and geological. Among different threats, habitat modification seems to be one of the most serious, due to the loss and functioning of ecosystems. This remains one of the biggest problem in the Dumrea area (Shumka, 2018).

Another factor of landscape change in the country are forest and shrub fires. The total area destroyed by these fires in the period 2006-2012 was about 9,000 Ha, located mostly in the SW part of the country.

The development of Albanian landscape in the period 2000-2006 has been clearly dominated by urban residential sprawl over agricultural land. Sprawl areas are distributed mainly in surroundings of the capital city Tirana, while in the period 2006-2012, the sprawl was driven mostly in economic site. During this period sprawls decreased from 4.69% in 2000-2006 to 0.47% in 2006-2012 (Nikolli, 2010).

Land cover in Albania during 2000-2018

In the figure 1is presented land cover in Albania for the periods 2000-2018.

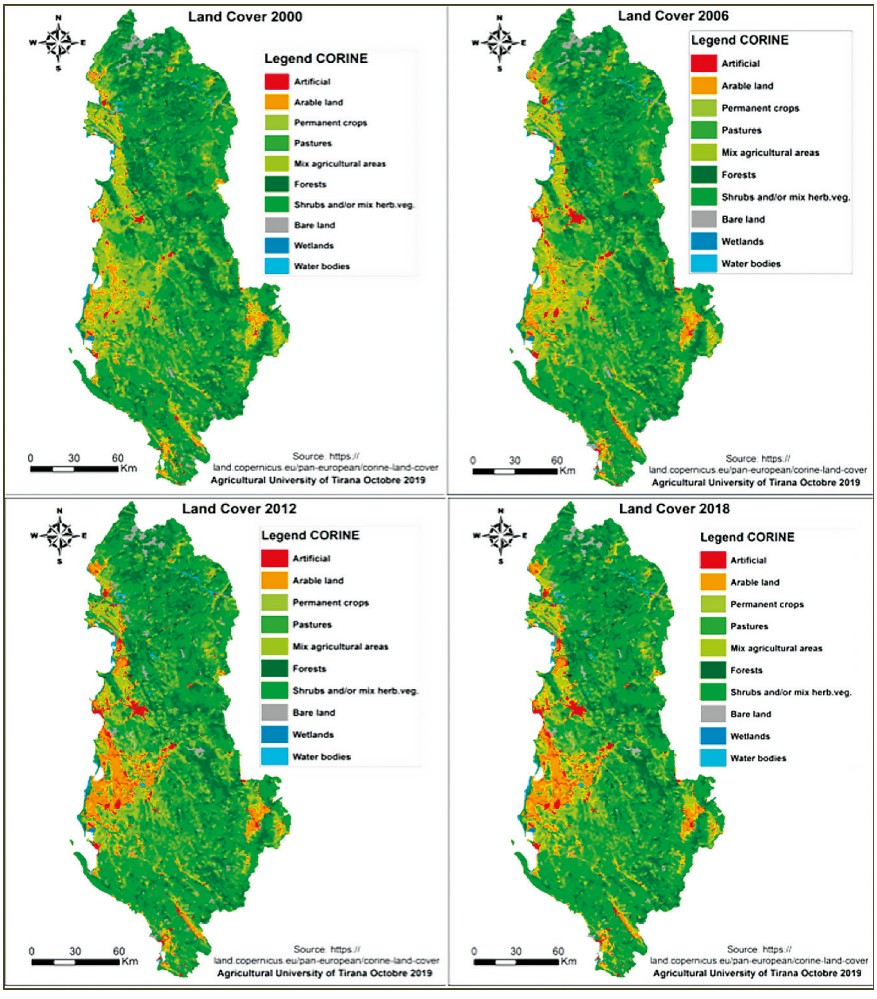

Fig. 1. Land cover in Albania during 2000-2018.

In the figures 2 and 3 are presented trend of land cover for the category of artificial, permanent crops, arable land, pasture and bare land, also for forest, mix agricultural areas and shrubs, where arable land have had the largest increase from 2006 to 2012 but mix agricultural areas and shrubs had decrease during these years.

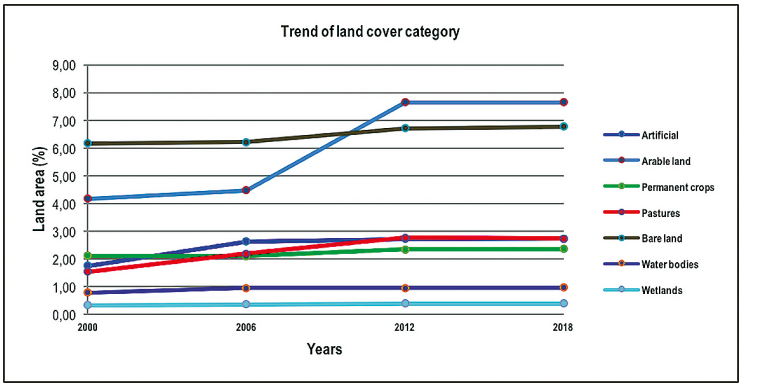

Fig. 2. Trend of land cover category in Albania during 2000-2018 years.

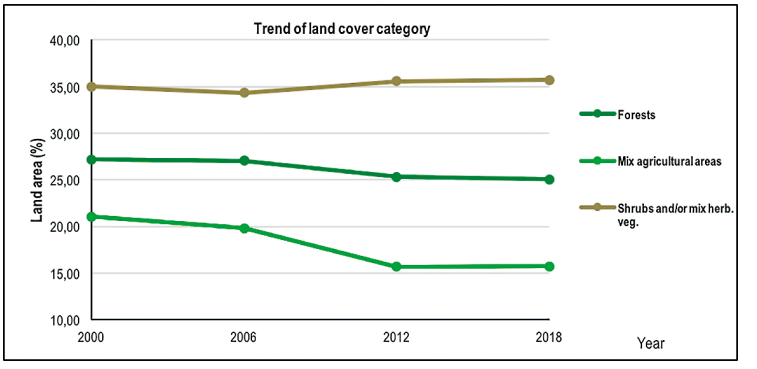

Fig. 3. Trend of land covers for forests, agricultural and shrubs in Albania during 2000-2018 years.

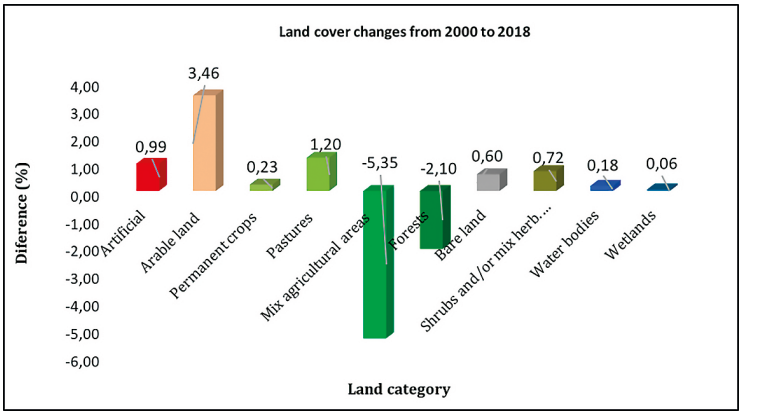

Fig. 4. Land cover changes from 2000 to 2018 in Albania.

Land cover changes from 2000 to 2018 in Albania are presented in Figure 4. During 2000-2018 the urban residential land increased with about 1% (or about 28,000 Ha) and the agricultural increased with 3.46% (or about 98,000 Ha). Whereas forest area decreased with 2.1% (or about 60,000 Ha) and mix agricultural area 5.35% (or about 150,000 Ha).

CONCLUSION

Land cover in Albania has significant changes from 2000 to 2018. During the period 2000-2006 Albania was dominated by urban residential sprawl over agricultural land. Sprawl areas are distributed mainly in surroundings of the capital city Tirana. During 2000-2018 the urban residential land increased with about 1% (or about 28,000 Ha) and the agricultural increased with 3.46% (or about 98,000 Ha). Whereas forest area decreased with 2.1% (or about 60,000 Ha) and mix agricultural area 5.35 % (about 150,000 Ha).

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