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Changes in land use between 1990 and 2018 on the basis of the corine system in Adana Province

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Keywords

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ABSTRACT

In addition to protecting the ecosystem and environmental health, green areas fulfill more than one function in terms of living requirements and comfort in cities, contributing to the creation of recreation areas, adding aesthetic value to the city and at the same time providing the physical balance of urban areas. With the rapidly increasing urbanization process, environmental changes and population increases in urban areas have brought about changes in land use. Corine System is used in order to monitor the changes on the land in a regular and planned urbanization process, to protect green areas and to carry out planning studies in this direction. With the analyzes made, an accurate and applicable design can be made for the urban area. In this study, the urban growth of Adana province in 1990, 2000, 2018 and the changes that occurred on the land were determined. The causes and consequences of the changes in the observed years were evaluated by means of Geographic Information Systems. According to the results obtained, it is seen that the green areas do not decrease, applicable plans and studies should be made to create more sustainable urban areas.

Introduction

The phenomenon of urbanization, which accelerated with industrialization, caused the density of buildings for the increasing amount of population, while on the other hand, it caused balance disruptions on the natural environments where people meet their basic needs. People are constantly changing the scenery and causing the changing scenery with their daily activities [1]. With the industrial revolution, we are exposed to such human effects, are under more and more pressure every day and encounter obstacles in providing a healthy and sustainable environment. Natural changes occur in land cover between certain periods. People, who have been interacting with nature from past to present, have caused deterioration in the natural cycle and the formation of environmental problems with the anthropogenic effects they have created on the environment with the development of technology and the increase of globalization [2]. Overpopulation caused by migration to urban areas and unplanned urbanization has occurred due to the inability to use the lands appropriately. Land use changes should be put forward in order to prevent unplanned urbanization and improper land use and to ensure that existing resources are sustainable for future generations. CORINE data is used extensively in the international literature in land use change studies [3].

With the studies carried out, it has been observed that Adana Province has experienced significant changes in terms of land use with the increasing industrialization. The spatial changes experienced by the development of the industrial sector, have been examined by land use classification with the CORINE System.

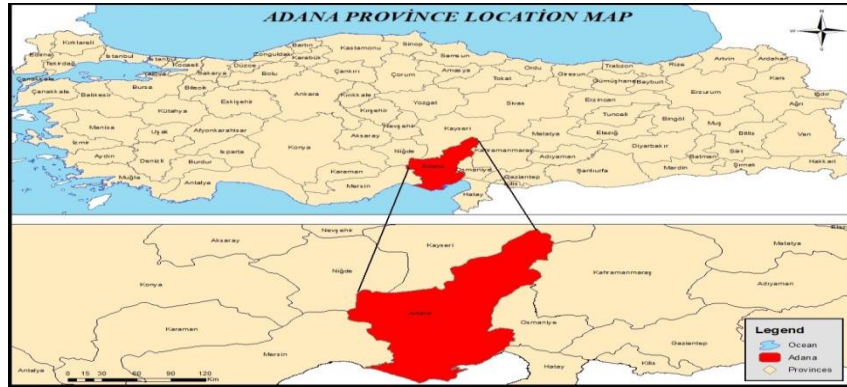


Figure 1. Location map

Material and Method

In this study, CORINE land use data was used. It is a program, established in 1985, aimed at collecting information for the European Union on priority environmental issues such as soil, water, air, coastal erosion and land cover. The European Environment Agency, the CORINE program into its structure since 1994. Land cover use maps with location-based land information are created together with Geographic Information Systems and Satellite images with the CORINE system. In order to correctly interpret the temporal changes of Adana Province on the land between 1990 and 2018, the amount of spatial change has been revealed and the changes that have occurred in the processes discussed have been examined by comparison.

Results and discussion

The changes and differences in the land cover in the province of Adana in 1990, 2000 and 2018 are explained by comparing the data obtained. The number of spatial changes experienced during the process has been revealed and future estimations have been made considering the results obtained. Considering the land use situation in 1990, it is seen that most of the area is divided into forest areas and irrigated fields. Residential areas, transportation areas, industrial and commercial areas, lower rates compared to agricultural areas.

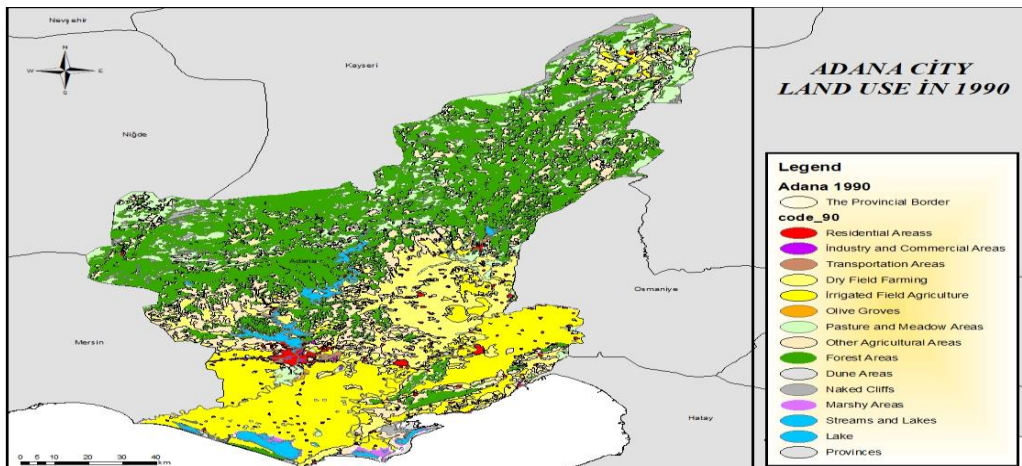


Figure 2. Adana City Land Use in 1990

Considering the land use in 2000, it was seen that although there was a slight decrease in forest, it was still in the first place. Irrigated agricultural areas have also been one of the areas that cover the most land after forest areas. Settlement areas, transportation areas, industrial areas, swamp areas and orchard areas are increasing, while dry agricultural areas, dunes, pasture and meadow areas due to land use rates decreases are observed in these areas.

Considering the land use status of Adana in 2018, it is observed that the forest areas continued to increase in 2018, while at the same time, swampy areas, industrial areas and especially fruit orchards, land use shows that there have been noticeable increases in these areas. The use of dry agricultural areas, vineyards, pasture and meadow areas, bare rocks and sand dunes indicate that the decreases continue in these areas.

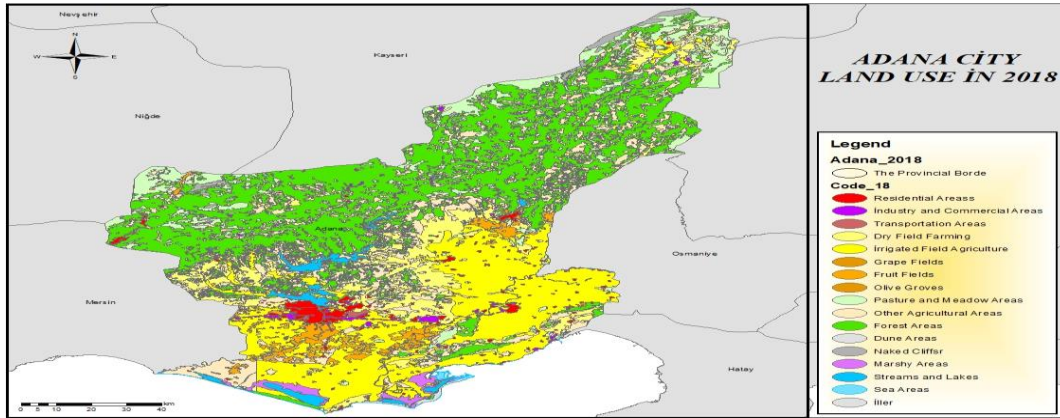


Figure 3. Adana City Land Use In 2018

Conclusion and suggestion

Land use areas in Adana Province, which is the study area, were handled in 15 different categories with the Corine system. While increases were observed in residential and transportation areas, industrial areas, orchards and marshes in Adana province between 1990 and 2018, decreases were observed in pasture and meadow areas, vineyards, dunes and bare rocky areas. Likewise, the increase in population and economic developments, the increase in transportation networks, the increase in highways, the increase in new industrial facility areas and especially the developments in the Organized Industrial Zone have led to the rapid growth of transportation and industrial areas. Due to the newly constructed dams and ponds, there is an increase in the areas of rivers and lakes, as well as sudden increases in orchards. It should be adopted by the society where a healthy and modern life, which is far from environmental problems, is compatible with nature, is important and indispensable for our future. However, as long as necessary precautions are taken, we can leave a sustainable environment that we can pass on to future generations.

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