

The Landscape Character Analysis in Turkey

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1.Introduction

Each country ratifying the European Landscape Convention (ELC) is responsible for identifying their landscapes, integrating their approaches about landscape planning into the other sectoral plannings. Although the studies to classify landscapes at local scale in our country have been carried out for the last four decades, those at national and regional scales have gained importance along with the European Landscape Convention (ELC) in recent years.

The countries signing ELC are responsible for classifying and protecting the landscapes of their countries, forming their management policies, and integrating the landscape into the other sectoral plans such as industry, forestry, agriculture/farming and settlement etc

A landscape, in ELC, means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors. Landscape has been defined by different approaches as in the whole world. However, “landscape ecology” based definition comprises one of the most current definitions today. A landscape is a mosaic of land uses in similar forms on kilometres of large areas and local ecosystems (Forman 1995)

Classification and identification of landscapes is the first problem to be faced by the responsible organizations and institutions for the development, protection and management of landscape. Because all the decisions related to the future of the landscapes should be in sufficient numbers or the change should be assessed during the process (Luginbühl 2002). The interaction of natural and cultural resources, particularly with people, is more important for the identification of the landscape. In this context, during the classification studies, a balance should be struck between people and nature.

Landscape character means “a set of elements that makes one landscape different from another”. Particularly the whole set of elements like geology, topography, soil, flora, land use and settlement areas formulate the landscape character. Landscape character adds meaning to that area by making one area different from another, and understanding that one area is different from another will help us provide contributions to make better future plannings by considering environmental and socio-economic factors of that area. Landscape character is the distinct, recognisable and consistent pattern of elements in the landscape. They can make one landscape different from another with these characteristics (Swanwick 2002).

Landscape character assessment is used to define environmental and cultural characteristics representing a local scale, monitor environmental changes, understand and analyse the awareness of locals about changes and developments (Swanwick 2002).

Landscape character assessment (LCA) includes identification, classification and mapping of different landscape characters. Within the scope of this assessment, factors that cause change in each landscape character type are questioned. This approach is particularly useful to make decisions related to the future management of landscape character. While classifying the landscape, firstly, landscape character type and landscape character area should be determined (Julie Martin Associates et al. 2007).

Landscape character areas include areas with unique characteristics and reflect geographical characteristics of the region. Landscape character types are defined by the same names such as plateau, plain etc., even if they are in the different parts of the world, and they are usually given a proper name since they are unique of their kind (Swanwick 2002).

There are three case study in Turkey relation to Landscape character assessment. Also Turkey Ministry of Forestry and Water Affairs has supported these case studies.

One of these is Yeşilirmak Basin Landscape Atlas Project (Landscape character, Landscape diversity, Biodiversity, Landscape quality, Landscape indicators, Landscape strategy). This Project has started at 2012. It will be finished at 2015.

Second one of these is in the province of Malatya “Landscape Character Analysis and Assessment in terms of Tourism and Recreation” Project started at 2010 and finished at 2012.

Evaluation Malatya Province in terms of Tourism / Recreation and Landscape Character Analysis. This Project started at 2010 and finished at 2012.

Third one of these is Lake of Sugla Site or Suğla Lake “Landscape Management, Conservation Protection, and Planning Project” study that has been carried out by Uzun and etc (2010). The aim of this project is to determine the landscape character types belonging to the planning area using the method of landscape classification at the national, regional and local levels. A second aim is the creation of the first official landscape plan will include development of sectoral landscape policies with an ecology-based approach. The third aim is to introduce landscape management procedures for the implementation of the landscape plan developed above.

In this study, six-staged landscape planning methodology as determination of planning targets; data collection and examination (together with the participation of related groups); landscape analysis; landscape character type analysis; landscape function analysis (water function of landscape, soil conservation function of landscape, habitat function of landscape, cultural function of landscape, bio-diversity function of landscape); visual landscape analysis; landscape improvement strategies (together with the participation of related groups); landscape plan; landscape management have been followed.

2. Material

The research area covers the Konya Closed Basin, one of the 26 main river basins determined countrywide by the Directorate of State Hydraulic Works (GDSH) and Suğla Lake and its surrounding area, which is located within the borders of the basin.

The Konya Closed basin covers an area of 53.850 km², which is equal to approximately 7% of the total area in Turkey. The basin, comprising the main part of the Central Anatolian Plateau, has mainly a plain morphology with differing altitudes of 900 – 1050 m. The basin includes thirty-nine districts in the provinces Konya, Aksaray, Karaman, Isparta, Niğde, and Ankara. In this area, nearly three million people live, 45% in the rural areas and 55% in the urban areas (JMO 2010).

3. Method

The first phase of the methodology includes determination of the targets for landscape planning. The purpose of this study is to form a landscape plan within the frame of protection purpose concerning Suğla Lake and its surrounding area and to make suggestions for different sectors. In the ‘Data Collection and Research Report’ part of the study, natural landscape elements regarding the working field and cultural landscape elements data have been collected. A group that consists of twenty one experts has carried on their studies in this phase. After collecting data about the field, the participation the representatives from different sectors, the managers and the public that live in that area have been provided and the problems in the working field have been stated. In pursuit of that, three-staged landscape analyses have been made. In the first phase of the analyses, landscape character types concerning the area have been stated and “water function of landscape”, “soil conservation function of landscape”, “habitat function of landscape”, “bio-diversity function of landscape” and “cultural function of landscape” has been presented spatially. Additionally, “Visual Landscape Analysis” has been made (Uzun et al. 2010, 2011a, 2011b).

Following the obtained analyses, solutions for the problems of the area were offered, the new activities that are to be brought to the area were discussed with the public and the final form of the plan has been shaped. Basis for the plan has been formed under the titles of landscape improvement strategy, landscape plan and landscape management and later, management organizations about the plan has been arranged. Landscape ecology approaches have had a dominant effect in every phase of this methodology (Uzun et al. 2010, 2011a, 2011b).

The method used for classifying the landscapes of Turkey is carried out in two stages as selection of data sets and determination and mapping of the landscape character types.

Firstly, to form the method related to the determination of the Landscape Classification in Turkey, some preliminary approvals were carried out using the studies of Baçal *et. al.* (1983), Swanwick (2002), Mücher and etc. (2003), Uzun (2003), Wascher (2005), Van Eetvelde and Antrop (2007), Uzun (2009).

While identifying the landscapes, it was seen suitable for the landscapes of our country to be identified at basin level due to the European Union Water Framework Directive and the planning approaches at basin scale during the physical planning process; hence, identifying the landscapes of the country with the names of 26 main river basins at upper scale (Konya Closed Basin Landscape etc.).

- Using “parametric” methods in identifying landscape classes, and forming a hierarchy at “National, Regional and Local” levels to identify landscape character types and areas,
- Using data sets accessible at national and regional levels to be used in landscape classification,
- Land patterns created by people are also accepted to be used in the classification together with the natural data to form landscape character types considering the definition of an area created as perceived by people as a result of the action and interaction of natural and/or human factors, as stated in ELC.

Within the framework of the approach related to the landscape classification at national level, climate, geomorphological, geological, and land cover maps, each data as a polygon, were subjected to overlay analysis by using “ArcGIS9.3”, GIS software.

Determination of the Landscape Character Types at Regional Level was only conducted within the borders of Suğla Lake and its surrounding area. In addition to the landscape character classification at national level, the map of great soil groups was overlaid with the other four maps.

A coding system was formed as to how the data to be used at national and regional scales would explain a landscape character type. Accordingly, the legend information describing the overlaid maps was used in the coding system respectively. The landscape character types with the same names which were overlaid and coded by using ArcGIS 9.3 were grouped and mapped using GIS. As a result of all these procedures, maps of landscape character types were obtained for the Konya Closed Basin and Suğla Lake and its surroundings.

In the naming of landscape character types at national scale, the data about climate, geographical formations, rock types and land cover, respectively, was coded by putting dots between them. For example, the landscape character type coded as “Konya Closed Basin **Mezo.D.8.DOR**” stands for the landscape character type in the Konya closed basin with mesothermal climate, mountainous geological formation, ophiolite, serpentinite rock types, and forest land cover.

Within the framework of the approach related to the landscape classification at national level, climate, geomorphological, geological, land cover maps, each data as a polygon, were subjected to overlay analysis by using “ArcGIS9.3”, GIS software. In this context, 10 988 polygons were obtained in the Konya Closed Basin. The polygons with same characteristics were grouped to reach the common Landscape Character Types from them. As a result, 367 different landscape character types were obtained in the basin

Codings to be formed at regional level can also be performed at provincial level as well as basin level. Since a more detailed scale is used at regional level, the coding system will be more detailed when compared to those used at national level. In this context, the map of great soil groups was integrated with the detailed data in the other four maps in addition to the types of data at national level. The number of the landscape character types at regional scale was determined to be 214

These landscape character types obtained at regional scale could be used for the decision-making process during physical planning process since they are composed of homogenous units. Also, decisions about land use during the landscape and physical planning processes will be made ecologically-based by analyzing each landscape character type in terms of water process function, soil protection function, biodiversity function, bioclimate function and habitat function. Moreover, the policies related to rural development, environmental impact assessment, and protection of biodiversity could be developed with the LCE works.

According to the scale and purpose of landscape planning, a focus was placed on five functions related to the Project area.

Soil and geological structure permeability values were used to determine the landscape water function. The landscape soil protection function was determined by analyzing the potential erosion risk map and relevant data developed as a result of assessment of the vegetation cover, slope and geological dataset. The patch size, number patch shape, patch edge, and main areas were interpreted by using the analysis conducted at the level of patch class in the process of determination of the landscape habitat function. The landscape biodiversity function was determined by using the maps of

the areas of plants, birds and insects developed by the biologists in the project team. The landscape cultural function was determined as a result of developing the twelve criteria which included historical process, archaeologically and historically important areas, traditions and customs, handicrafts, festivals, and entertainment. Considering the functions of landscape taken together, the parameter that is the total landscape function is obtained. In the total landscape function map, areas landscape functions having rated evaluations of very high, high, medium, low, and very low were determined. The visual landscape analysis was produced using a modification of the “Scenic Beauty Estimation” method. As a result, visual landscape types with high visual quality were obtained and mapped.

At Landscape Development Strategies and Sectoral Landscape Guidelines stage, landscape development strategies guiding the landscape plan were developed on the subject of forests, plateaus, grasslands, agricultural areas, water management, residential areas, cultural landscapes, potential tourism/eco-tourism and recreation sites, landscape restoration, transportation and logistics, energy and education. In addition, by preparing the landscape guidelines for forest, agriculture, settlement and tourism/eco-tourism sectors, the basis of the draft landscape plan was formed.

In our country, in terms of identification and giving status to important landscapes, there are only laws and regulations related to the protected areas, but there are no any tools for giving the status for the important characteristic areas at local level. Within this context, Landscape Protection-Management Status were proposed under three groups for the project area: Significant Landscapes, Special Landscapes and Symbolic Landscapes.

The landscape plan was developed by assessing the landscape development strategies, sectoral landscape guidelines, proposed landscape status, and large-scale plans together with the factors affecting landscape change. The landscape plan is a tool to serve the creation of a sustainable balance between nature and studies of man-made engineering. In the plan, planning decisions and plan notes were developed. The plan, analyzing the landscape structure and functions, is the first landscape plan prepared by the public authority in Turkey.

To increase the applicability of the landscape plan, with the aim of ensuring coordination among the institutions having authority and responsibility, landscape management proposal was developed. In this context, Suğla Lake Basin Committee was proposed and short, medium and long term actions were described for the institutions and organizations in the committee.

4. Results

Since it is the first study to identify the landscapes at national and regional scales for our country, this raises the importance of the study. At local scale there are similar studies which this study has been based on by Baçal (1983), Uzun (2003), Uzun (2009). The accessibility of data is important to carry out landscape classification works at country-scale (Swanwick 2002, Mücher et al. 2005, Wascher 2005). In this context, in this study, all the data related to geomorphology, geology, climate and land cover used for the classification of the landscapes can be accessible at country scale. The related data could be accessed from the databases of the Ministry of Food, Agriculture and Livestock and the Ministry of Forestry and Water Affairs. The landscape classification works could be used as basis for the studies such as landscape planning, Environmental Impact Assessment, Strategic Environmental Impact Assessment for any part of the country.

Management, protection and planning of the landscapes should be carried out in coordination. Both processes related to the identification and assessment of the landscapes should be simultaneous and successive. Some experts, on the other hand, assert that identification and assessment of the landscapes should be carried out before the protection and planning procedures. Some others think that identification and assessment should be carried out independent from protection and planning; thus, basic information about the landscapes people use will be obtained. This approach was applied by some countries (France, England, Norway and Spain) (Luginbühl 2002). “Landscape Atlases” were produced by considering the inventory consisting of different landscape types and their dynamic structures in these countries.

In Europe, the impediments determined by Wascher (2005) about the use of European Landscape Convention (ELC), those valid for our country are as follows

- Lack of information and experience is seen about the potential use of the system.
- The authorization about the protection, management and planning of the landscapes is possessed by different institutions in our country.

- Since landscape objectives are not clearly stated at national scale, some LCA works carried out locally are independent from national framework.
- Because it is not a standard method, the relationship between the identification of the landscape character and landscape assessment is not clear.
- LCA is perceived as a tool that assesses, judges and controls “negative” developments instead of moving towards a positive approach.
- The results of LCA lack integrity with political developments and landscape plans. Even, landscape planning lacks legal status in our country.
- There is a lack of awareness about landscape and landscape management both by private and public authorities at local, regional and national levels.

The initiatives and works conducted related to the signing of ELC and identification of country landscapes following the establishment of the Landscape Protection Division-of the Sensitive Areas Department of the General Directorate of Nature Conservation and National Parks under the Ministry of Forestry and Water Affairs; producing policies at national, regional and local scales; putting them into practice; integrating landscape planning with the plans of the other sectors have gained speed. This study is the first study to identify the landscapes at national and regional levels in our country.

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