

LANDSCAPE EVALUATION MODEL FOR GREEN BELT PLAN: AN APPLICATION TO ROKKO MOUNTAIN RANGE IN SETO INLAND SEA NATIONAL PARK

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Landscape assessment using semantic differential method (SD method) and statistical techniques (factor analysis and regression analysis) is conducted relatively often in the building design and landscape architecture fields. Our study aims to conduct as objective and quantitative as possible assessment of tree planting as part of the Sabo projects and to create a landscape assessment model. This paper describes the overview of the study details.

OVERVIEW OF MT. ROKKO GREENBELT PROJECT

The Rokko Mountain Range area was devastated by the Hyogo-ken Nanbu Earthquake (also called the Great Hanshin-Awaji Earthquake) on January 17, 1995. The ground in this region has been loosened since, and the area is susceptible to sediment-related disasters which may be triggered by heavy rain and other factors. In light of this fact, a planting program called the “Rokko Mountain Range Greenbelt Project,” which is headed by the Ministry of Land, Infrastructure and Transportation, to nurture the Rokko Mountain Range as a greenbelt is ongoing with the objective to (1) prevent sediment-related disasters, (2) conserve and establish a beneficial city environment and landscape, (3) conserve and nurture the ecological system and biological diversity, (4) provide healthy recreation areas, and (5) prevent urban sprawl.

ROKKO MOUNTAIN RANGE FROM THE ASPECT OF LANDSCAPE

The Rokko Mountain Range belongs to the Seto Inland Sea National Park, which is one of the first national parks established in Japan, designated in 1934. In particular the primary target area of the Rokko Mountain Range Greenbelt can be seen from nearly everywhere in the vicinity, from the mountain foothills to the seashore, and serves as the background of the urban districts including Kobe City. It is also a wonderful scenic point where people can have a birds-eye panoramic view of Kobe and its environs, the so-called “10-million dollar” nightscape view, and the Seto Inland Sea, which make up the symbolic landscape features known to the local people.

REQUIREMENTS FOR SCENIC ASPECTS IN THE ROKKO MOUNTAIN RANGE GREENBELT PROJECT

Taking into consideration the scenic aspects of the Rokko Mountain Range, it is necessary to promote the Rokko Mountain Range Greenbelt project with attention placed on conservation of the scenic value of the mountain range and improvement of its quality.

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As long as the assessment is implemented by humans, it is quite natural that the assessment results will vary depending on the person who conducts the assessment. However, the Rokko Mountain Range Greenbelt project is a public project headed by the Ministry of Land, Infrastructure and Transportation, and therefore it is desirable to assess the scenic value using criteria that is as objective as possible.

Moreover, in the Rokko Mountain Range Greenbelt project, the landscape consists of trees, unlike the case of roads or ports where the landscape is comprised mainly of structures, and therefore there will be significant change in the landscape depending on operation and maintenance, growth of trees, and seasonal changes. Thus, a landscape assessment technique needs to be established that can ensure scenically healthy tree planting with consideration given to the aforementioned changes in the landscape.

FLOW OF STUDY ON LANDSCAPE ASSESSMENT MODEL

The flow concerning the study on the landscape assessment technique is shown in Fig. 1. In 2005, we conducted assessment of the actual state of the landscape in summer for a preliminary study, although it involves qualitative analyses, and clarified the relationship between the forested area, which is assessed as beneficial landscape, and scenic elements which are components of the landscape (Fig. 2 and Fig. 3). As a result of this assessment, it became evident that the forested area that is considered desirable from the aspect of sediment-related disaster prevention, which is a primary objective of the Rokko Mountain Range Greenbelt project, generally corresponds to that which constitutes beneficial landscape. And we believe that it has been proven that planned forests and planting methods of the project will contribute to improvement of the landscape in the Rokko Mountain Range. Based on these results, we formulated a quantitative assessment model to make assessment (interim assessment and post assessment) of the project from the aspect of landscape in 2006.

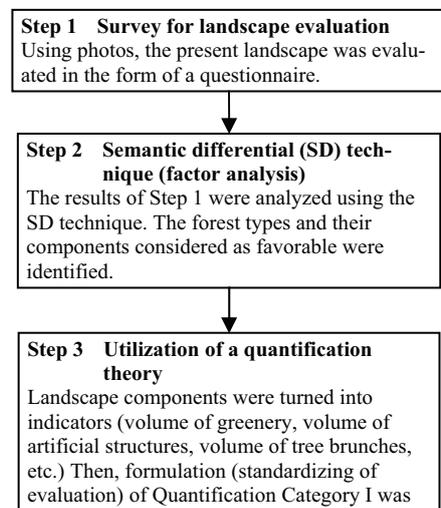


Fig. 1: Flow of study



Fig.2: Example of forested area considered as beneficial landscape
Trees to be planted by the project:
Evergreen broadleaf trees



Fig.3: Example of elements of forested areas which are assessed as beneficial landscape
- The main trunks stand upright, and the tree shapes are good.

Keywords: Landscape evaluation, green belt plan, development of regional landscape