

Applying PROMETHEE and ELECTRE methods in selection of storage sites of soil/rock excavation: case study of the Messina Strait Bridge project

Abstract

This paper presents an application of PROMETHEE in assessing the technical and environmental suitability of different storage sites, both in Sicily and in Calabria. The sites have been identified in relation to road and rail design options of the Messina Strait Bridge project and should receive soil/rock from tunnels and foundation excavation.

This is an actual case, developed for one of the most important civil engineering projects that was exposed to a technical and social-political debate, in Italy. The multi-criteria analysis was conducted before the Environmental Impact Study, that was drawn by the project team for the infrastructure variants above-mentioned. Subsequently, during the environmental assessments, the results of the multi-criteria analysis were deepened. Next steps will be the assessments by the agency in charge of the EIA procedure.

Previous requests and directions of local authorities were already taken into account for the comparison of the alternatives and their selection. In particular seven sites for the Sicily region and nine for the Calabria region were evaluated, in relation to social, environmental and cost criteria.

At the end of the project team work, for educational and technical-scientific disclosure, it was considered appropriate a re-examination of the case using ELECTRE and a comparison between the applications and results of the two methods. They will be analyzed in the presentation, after the description of the actual case and its results.