

COMPARATIVE STUDY OF AHP AND MAUT FOR MULTI-CRITERIA DECISIONS IN FLOOD CONTROL PROJECTS

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The water problem which is related to water policy, planning, and management should be solved by considering the uncertainty and effectiveness in the technical aspect. Especially, the plans for flood control projects are for the public and are associated with various purposes and criteria in addition to engineering aspect.

This study aims to provide a decision making model for flood control projects. So this study starts with a comparison of advantages and disadvantages between the AHP (Analytic Hierarchy Process) and the MAUT (Multi-Attribute Utility Theory) by applying these techniques to make decision in a flood control project. To this end, this study develops the integrated evaluation model for the decision of investment priorities considering social, political, environmental criteria in addition to economic aspect and the model is applied to the decision problem of investment priorities for channel improvement plan of the Kum River basin, Korea.

From the study, these two techniques show the similar priorities, but there are some differences according to the project which originated from theoretical characteristics of the two techniques. Fig. 1 shows the investment priorities.

As the results, we can get a few conclusions that the AHP is more suitable for the estimation of relative weights between alternatives, but if ordinal ranking between alternatives is important, it can be said that the MAUT is more suitable technique. Therefore, the developing decision making model for flood control projects can be considered that the AHP is preferable to estimate the weights of evaluation criteria, and the MAUT is preferable to evaluate the alternatives.

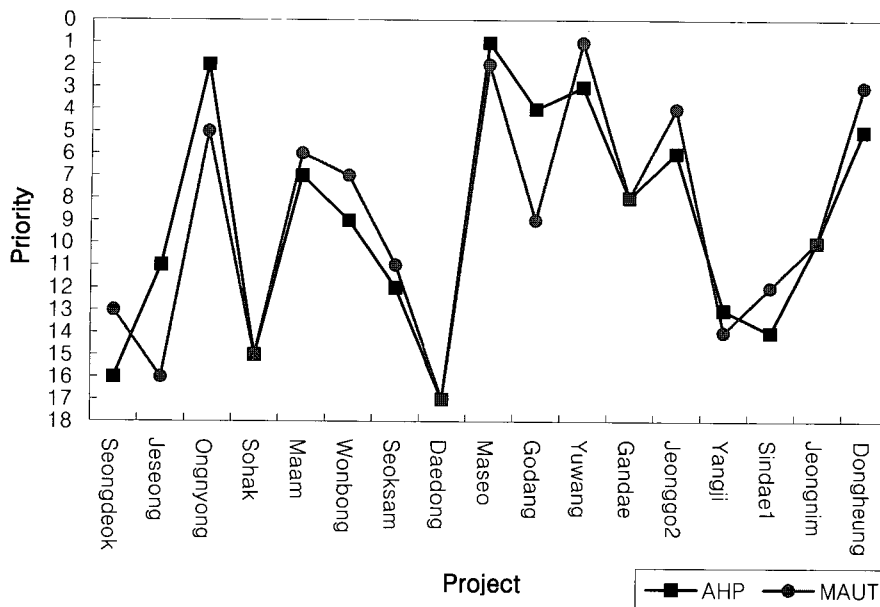


Fig. 1 The investment priorities by the AHP and the MAUT

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