

Environmental Economics

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EPFL ENAC LEUrE

ENV-471

Master semester 2 or 4

Exercises

MULTICRITERIA ANALYSIS

Which plot to choose?

The owner of a small chemical factory is looking for a piece of land to set up a recycling unit for the waste products from its production processes. He found two plots of land that he can choose from. The first (plot A), is located 5 km from his factory and has a surface area of 12 000 m². It is offered at a price of 24 million Euros. The second (plot B), is located 10 km from his factory and has a surface area of 10 000 m². It is offered at a price of 20 million Euros.

You are going to help this owner choose between these two plots of land. In agreement with him, you have set up the following scoring rules:

| Evaluation criteria | | |
|------------------------------------|------------|--------|
| Features | Score | Weight |
| Distance (D) in km | $(50-D)/5$ | 0.3 |
| Surface area (S) in m ² | $S/2000$ | 0.2 |
| Price (P) in million Euros | $(50-P)/5$ | 0.5 |

What are the scores for plot A and plot B?

Which plot would you recommend for purchase?

Which plot to choose?

- Answer -

| | Alternatives | | Scores | | Weighted scores | |
|---------------------|--------------|--------|--------|--------|-----------------|------------|
| Features (criteria) | plot A | plot B | plot A | plot B | plot A | plot B |
| distance | 5 | 10 | 9.0 | 8.0 | 2.7 | 2.4 |
| surface | 12 000 | 10 000 | 6.0 | 5.0 | 1.2 | 1.0 |
| price | 24 | 20 | 5.2 | 6.0 | 2.6 | 3.0 |
| Scores | | | | | 6.5 | 6.4 |

The owner should buy plot A

If the price of plot A were 25 million Euros, it would obtain the same totals score as plot B