Environmental consideration in Route Selection Using GIS

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CRP-514
01 January 2006
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Introduction

- Transportation network expansion is very important for economic and social development.
- Construction new rout is very critical, it has a direct affect on environment.
- Combine the need of developing with minimizing the impact of this development on the environment.
- GIS and Environment
Objective

- The effectiveness and the capability of GIS technology in optimal route selection with minimum environmental impacts.
Review of literatures

- Different studies have been carried out to show the relationships between the GIS and the Environment.
Case Study

Gilan province in north of Iran was selected as a case study to show the effectiveness of using GIS in railway route selection and environmental consideration in land use and management.
Case Study
Methodology of Study

DATA COLLECTION
Land covers maps, River, Road, Culture heritage, and Soil
Methodology of Study

- Analysis and Discussion
  - Different parameters have been selected
  - Pairwise Comparison Method (PCM) has been used to determine the comparative weight of each parameter.
Cont.

- Each parameter weight was attributed to relevant maps.
- Friction map was produced by overlaid all weighted map in GIS.
- Two origins (Rasht city) and two destinations points (Anzaly city) were identified.
Decision maker has to select one of the four routs.

Analytical Hierarchy Process (AHP) was used to evaluate the four routs and chose the optimal one.
Conclusion

- GIS was the best method to deal with route selection.
- GIS has considered not only the economic parameters (Low cost rout) in achieving but also environmental parameters.
- It shows how the GIS can be used as a source of information to enhance and assist the decision makers in decision making.
Recommendations

- utilize the technology such as GIS in conjunction with Env. Parameters.
- establish and maintain a citywide natural resources inventory that catalogs and monitors the location and condition of natural resources.
- to add more Env. parameters to the study.
- documented all environmental information or analysis used in the process and the environmental impact assessment
keep monitoring the area by conducting environmental audit of the same project at a later stage
The End