

Scenario analysis with performance indicators

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A vital part of the planning process is to see the form and impact of different planning options. Ideally we want to 'paint' scenarios onto a digital landscape and to evaluate the changes in relation to design criteria and desired landscape functions. Visualisation and geographical information systems hold the promise to make this possible. However, in reality the tools for doing this require a high degree of customisation and often are tied to specific models. Over the past five years we have developed and explored the use of a GIS scenario analysis tool for a variety of planning applications; including assessment of riparian zones in peri-urban areas, forest restoration in developing countries and urban design for smart growth. Indicator sets are defined by GIS functions, and these are linked to data with predefined scenarios. Built-in indicators provide advanced spatial analysis capabilities and users can program their own indicators based upon a simple application interface. In practice, a user creates a sketch-planning model in GIS and evaluates this option in relation to functional outcomes. For instance, forest restoration options are assessed within the local context of a landscape mosaic to determine the functional benefits to landscape ecosystems. These types of scenarios can be developed rapidly and can be fine tuned to the specifics of the problems at hand.