GIS-Based Visualization of Future Landscapes

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GIS-Based Visualization has been increased use in scenarios analysis and public preferences for landscapes over the last ten years ([1][2][3][5]). In this paper, a 3D model of Aboyne in Royal Deeside was developed to present alternative future land use. The tools used in the development and implementation of the 3D model were PC-based, and enable the incorporation of interactive functionality for manipulating features. Inputs comprise DTM and associated aerial imagery, spatial data for trees and forests, road and building information. In particular, a 'drag-and-drop' feature that allows participants to choose where they would like to position elements (wind turbines, trees, houses, et al.) was added based upon a series of 3D icons.

This model was used in the VLT [4] for knowledge exchange programme to elicit public preferences regarding future land uses. The electronic voting system was used to record participant answers, and prompt group discussion. Votes on preferences for land use scenarios were recorded, and analyzed with respect to the nature and proportion of visible features. In addition, audience priorities for future land uses were recorded.

Feedback on the use of interactive landscape visualization for scenario exploration through a virtual reality environment was strongly positive. Over 80% reported it was effective for capturing views on priorities for future land uses including the role of climate change in modifying existing options.

In conclusion, the case study supports previous work in identifying considerable technical scope for further development of landscape visualization and its use in participatory scenario development.

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