

Participatory Strategic Planning Using A Virtual Reality Environment

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Sustainable development requires an understanding of natural resource management within a changing world, and a holistic appreciation of the complex interactions in coupled human and natural systems. Change is integral to landscapes (rural and urban) but appears to have intensified in pace and persistence towards the end of the 20th Century (Halfacree, 2006). Landscape features experience different dynamics and pathways of change, and are sensitive to different drivers and time periods over which change may take place. The significance of understanding these differences with respect to their sequencing, and the linkages of drivers (or factors) of change with processes, is illustrated by Aspinall (2009) when untangling sub-types of change, based upon the long-term implications for human well-being (de Groot, 2006).

Policies on sustainable development (e.g. European Commission, 2009) emphasise the need for capacity-building to increase levels of public and professional engagement in environmental decision-making. Arnstein (1969) defined a multi-level participatory classification within three main levels: (i) educational (primarily information dissemination), (ii) active participation (public opinions sought and considered in expert decision-making), (iii) citizen power (direct influence on the decision-making process), and Salter *et al.* (2009) argue that the impact of participation is linked to the level of involvement, with greater impact from more citizen power.

Communications between public and professionals, regarding the nature or geographic distribution of services and functions of the landscape, may be constrained by a lack of understanding of technical language or concepts. Similarly, public concerns may not be easily articulated, and issues of risk and impact as interpreted by domain experts may be obscured by use of probabilities, risk and caveats.

Visually representing the real world and scenarios of change aids in the engagement across the different communities of interest and place, assists planners and decision-makers, and can improve the effectiveness of communications. Such visual aids can operate at different levels of semiotic representations (e.g. from symbolic to pictorial quality). An example of a forum for the development and testing of effectiveness of such visual aids and mechanisms of engagement is the Virtual Landscape Theatre associated tools (www.macaulay.ac.uk/landscapes).

The example presented for discussion is the development of a local plan for a National Park, specifically identifying items for inclusion in the issues statement, representing those factors which stakeholders and the public identify as prospective positive and negative influences. The research challenge is to develop approaches to the selection of alternative futures for land use, and the investigation of possible outcomes of policy options with stakeholders and the public. This presentation describes the use of a mobile virtual reality theatre to facilitate consultation with 'hard to reach' public audiences on issues of landscape change.

The land use issues have been classified in relation to ecosystem services or functions for post-event analysis and interpretation with respect to articulation for different audiences. Drawing on the lessons learnt, a provisional list of criteria for filtering issues is prepared, and a range of mechanisms for communicating the meaning of example services and functions prepared for testing.

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