

THE UNIVERSITY OF EDINBURGH

ABSTRACT OF THESIS

(Regulation 3.5.13)

Degree: MSc Ecological Economics

Date: August 2006

Title of Thesis: **An institutional analysis of flood risk management; a new approach applied in Scotland**

Flooding is a natural phenomenon which can not be entirely prevented and has an important role in the natural environment. But the frequency, extent and derived negative impacts from flooding have dramatically increased over the last decades; becoming the leading cause of social, economic, and environmental losses from natural hazards. In order to deal with the increasing threat of flooding, the water resources literature suggests an integrated and sustainable approach to flood management at a catchment scale. This is a difficult task, as an effective implementation of such approach demands institutional and organisational co-operation at all levels of government, across all sectoral policies and with all concerned stakeholders. However, institutional and organisational dynamics have been largely ignored in previous analysis of flood risk management. As a consequence, the first paper of this thesis reviews flood risk analysis and institutional analysis literature in order to develop a new framework which allows taking into consideration institutional and organisational interactions when examining flood management. The suggested theoretical framework results from the combination of the Driver-Pressure-State-Impact-Response (DPSIR) framework with most relevant elements of institutional analysis highlighted through the literature review.

The second paper applies this theoretical framework to the examination of flood management in Scotland. Historically, responsibility for flood management in Scotland has been fragmented between different agencies, local authorities and landowners. This highlights the necessity of analysing the institutional context in order to assess the feasibility of achieving a holistic and sustainable approach to flood management. The empirical research carried out involved semi-structured interviews with key government agents and relevant stakeholders involved in flood management. From this research, a number of institutional barriers constraining the possibility of promoting a co-operative approach to Sustainable Flood Management (SFM) - as required by the Water Environment and Water Services Act - were identified. These barriers can be aggregated under three major headings: legislative barriers, cultural barriers, and knowledge-based barriers. Based on these findings, a series of institutional and organisational improvements that should be made in order to initiate a change in the DPSIR chain and, thereby, reduce flood generation and impacts in Scotland are suggested. In particular, these recommendations focus on necessary (and achievable) actions that should be taken in order to overcome current barriers hampering the development of a holistic approach to sustainable flood management.

The proposed framework has proven to be useful in examining institutional and organisational dynamics surrounding flood management, and to explore possible solutions to existing problems in order to achieve a holistic and sustainable approach to flood management.

THE UNIVERSITY OF EDINBURGH
ABSTRACT OF THESIS
(Regulation 3.5.13)

Degree: MSc Ecological Economics

Date: August 2006

Title of Thesis: **Application of the AHP in ranking of the influence factors of the ecotourism carrying capacity – a case study in Jixian County ecotourism development.**

No. of words in main text of thesis: 17,153

This study is focused on identifying and ranking important influential factors of carrying capacity in Jixian County ecotourism sites, China. Carrying capacity, as 'one method of controlling the direction and consequences of development' (Hall et al., 1998), is playing an important role in the future ecotourism development and management. A number of researches have indicated that is necessary to identify the main influential factors of the ecotourism carrying capacity so as to keep the quality of natural and cultural resources of scenic sites.

AHP, as an important multiple criteria decision support (MCDS) method, has been utilized in numerous projects of natural resource management. In this research, AHP is taken as main research methods for ranking the influential factors of Jixian County ecotourism carrying capacity. Besides, bootstrap test is applied for identifying difference existed in the respondents' preference.

Through the study, a serious of important influential factors are ranked successfully, meanwhile, a number of significant difference of preference in factors are identified both within each group of respondents and between the two groups. The finding of this study have a big contribution on the planning of the future Jixian ecotourism development and establishment of sustainable management, meanwhile, because of the limited research in this area, it is also helpful for providing a method to identify influential factors of other ecotourism sites in China.