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ABSTRACT OF THESIS

Candidate's Name	Gavin Barrett-Ayres
Degree	MSc Ecological Economics
Date	08/09/05
Keywords	
Thesis Title	Well Being, Social Capital Environmental Attitudes And Individual Preference For A Public Good. A Case Study Of An Urban Green Space Redevelopment

The rational actor theory within economics is the foundation of microeconomic theory. This model of behavior is based upon axioms of choice, which require to be satisfied if the model is to be considered scientifically predictive. This dissertation examines the assumption of rationality within rational actor theory. The questioning of a means ends approach implies questioning the way in which people decide as well as their motivation to do so. Here this is examined by exploring other forms of rationality and by investigating the ultimate grounds for action, the achievement of well being. When this is done, it can be seen that there are many approaches to well being depending on the subject of inquiry. However, by looking at the determinant of well being as formulated through psychological research it can be seen that the economic use of the concept is incomplete. Furthermore the determinants of well being are related to what is personally valued by an individual, an investigation into values, norms and attitudes suggest that this is both social and cultural process.

Recognition of the effect of social processes and structures by economics is investigated through an inquiry into the concept of social capital. The shortcomings of this approach are examined by considering the inherent tension between economics methodology and social phenomena.

The social context of decision making is noted as problematic for micro-economic and by implication macro economic theory. Alternative techniques and indicators to economic indications of growth, which relate to preceding discussions upon well being and value formation, are considered. It is concluded that economic methodology constrains its predictive power and makes it unsuitable in the evaluation and allocation of particular allocation problems. Where this is so other forms of assessment may be beneficial.

The case study investigates several points presented in the previous discussion. Firstly, the link between social aspects and the well-being of people. Secondly, the explanatory value of various social capital concepts and how these might relate to attitude and well being. Finally, an examination of the social upon preference formation (in a resource problem where conflicting values exist). The findings of this case study are mixed. This is partly due to the problem of isolating variables and influences. However as an exploration into the use of alternative measures in a procedural form of decision making the case study provides a useful overview of the structure of the preferences and in promoting deliberation is worthwhile of itself.

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ABSTRACT OF THESIS

Candidate's Name	Lynda J Carroll
Degree	MSc Ecological Economics
Date	25/08/05
Keywords	Diffuse Pollution, Nitrates, Stochastic Emissions, Water Quality, Policy Instruments
Thesis Title	Regulations Of N Leaching From Agriculture: An Assessment Of Alternative Policy Instruments For Scotland

In paper 1 of this dissertation, diffuse nitrogen (N) pollution from agriculture is discussed, exploring impacts, causes and regulations. The review of the literature found little scientific basis for the association between nitrates in drinking water and risks to human health. The mandate for regulation must then be the ecological impacts of N pollution, specifically algal blooms in coastal water. Increased levels of N pollution from agriculture are a result of the increased use of manufactured N fertiliser. Agricultural yield is related to N application and measures to reduce N inputs will have significant effects on farmer's incomes. Regulations of n pollution is far from straightforward as nitrate leaching is not a simple function on nitrogen applied, but is dependant on stochastic elements such as the weather, as well as soil type and management practices. The review of literature suggests that input taxes on N may be the most appropriate regulatory instrument. This is due to a high level on uncertainty regarding costs and benefits of pollution control and the infeasibility of metering an pollutions from agriculture, or accurately modelling N emissions to water bodies. In paper 2 an assessment of alternative policy instruments for use in Scotland is presented. Results of the modelling exercise found that contrary to expectations, the existing stand based implementation of the nitrates Directive was more cost effective than an input tax on N. Linear programming was used to evaluate the effect of constraints such as maximum capital investment on the recommended option and found combinations of the tax and standard to be most effective. In Paper 3, the general findings of the review and application papers are discussed and critically examined.

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ABSTRACT OF THESIS

Candidate's Name	Juan Pablo Castaneda Sanchez
Degree	MSc Ecological Economics
Date	09/05
Keywords	
Thesis Title	Towards A System Of Integrated Environmental And Economic Accounts: Green Accounting For Guatemala

The System Of National Accounts (SNA) has been used to assess economic performance. Some of the well-known shortcomings of the SNA are the failure to account for the loss of natural capital and non-marked environmental services. New methods have been explored to measure macroeconomic performance and its interrelation with the environment, triggered by the incorporation of the sustainable development criterion in policy and decision making. One of these methods is the System of Integrated Environmental and Economic Accounts (SEEA) as a satellite system to the SNA..

The paper examines the background of this method and compares it to alternative measurements and its implications to sustainability. Additionally it uses a partial application of the SEEA framework, using Guatemala as a case study. Indicators for physical flows were estimated and compared to some European countries, showing low consumption levels for Guatemala, but similar trends in terms of the input/consumption ratio. Asset accounts were estimated in physical and monetary units. The resulting values of depreciation and degradation were used to estimate an environmental adjusted net domestic product (eaNDP) which was compared with that of Mexico. Decreasing levels of eaNDP were determined by analysing relevant differences regarding degradation and depletion in both countries. As a result, the paper argues that the SEEA framework can be considered a relatively accurate method for environmental accounting. The full potential of the system still needs to be explored through a complete application leading to time series estimations.

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ABSTRACT OF THESIS

Candidate's Name	William Stuart Craig
Degree	MSc Ecological Economics
Date	29/08/05
Keywords	
Thesis Title	Applying The Sustainable Livelihoods Approach To Test For Social Ecological Resilience

The main drivers of change in social-ecological systems are their human inhabitants. Many human activities in the world today are having environmental impacts that can no longer be sustained. Some environmental disturbances occur naturally and are driven by slowly changing geological or climatic variables. However, many other environmental disturbances can be traced to the activities of humans and their interference with the natural processes of control and regulation.

The capacity for a social-ecological system to absorb an external disturbance yet still retain the same controls and functions for self-regulation is termed social-ecological resilience. This paper addresses the questions of how to measure resilience and how to ensure that human activities can be managed in such a way as to enhance rather than degrade the resilience of not only the natural eco-systems but also the social and economic systems that characterise and define humanity.

The sustainable livelihoods approach was originally intended as a means of understanding the choices facing the rural poor of developing countries. However, owing to its complexity and diversity as an analytical tool, I am investigating whether the social-ecological concept of resilience can be captured and effectively measured within the framework.

My research is based on a time series analysis of eight rural communities in Scotland. A range of socio-economic and environmental data is calibrated into the livelihoods framework and observations made over time. The results showed that the framework could provide a useful tool for analysing social-ecological resilience, but the arbitrary and subjective definitions of resilience and how it is best measured remain the principal obstacle to developing the application any further.

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ABSTRACT OF THESIS

Candidate's Name	Melf-Hinrich Ehlers
Degree	MSc Ecological Economics
Date	29/08/05
Keywords	
Thesis Title	Adoption Of Agri-Environmental Measures: A Multi Objective Programming Model For Trade-Off Analysis Of Scottish Cereal Farms

A dissertation, investigating incentive-based agricultural measures is presented in three parts.

Part I is a review paper, putting the origin, development and analysis of incentive based agri-environmental programmes into socio-economic contexts, while discussing implications deriving from farmers' behaviour. Attention is given to the economics of the supply of agri-environmental benefits and the trade-off's farmers may make when taking up incentive based environmental measures. Major obstacles for successful agri-environmental measures are effectiveness in environmental terms, compliance with international trade agreements, competition with other environmental policies, high transaction costs and acceptance by society and farmers. The economics of supplying agri-environmental benefits are not well researched, although crucial for understanding farmers' behaviour in relation to adoption of agri-environmental schemes. However, narrow neo-classic economic approaches could prove misleading, since farmers' decision-making is complete and based on multiple values, also in relation to the environment and policies.

Part II is a research paper, presenting results of a multi-objective linear programming model for an *ex ante* investigation of trade-off's made by Scottish arable farms when adopting agri-environmental measures of the Scottish Land Management Contract Menu Scheme. Under a gross margin maximisation objective the agri-environmental measures are uncompetitive to cropping, despite compensation payments, up until large productivity reductions occur. Uptake of the measures, however, requires only small trade-off's, especially for less productive farms, and also reduces labour inputs. How such trade-off's are valued by farmers depends on their resource endowments and management objectives. The trade-off figure contribute to better explanation of adoption decisions.

Part III is a general discussion, integrating the findings from the review with those of the research. It emphasises that, although the model indicates potential trade-off's made by farmers adopting agri-environmental measures, incorporation of further insights into farmers' objectives in relation to agri-environmental schemes would be beneficial.

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ABSTRACT OF THESIS

Candidate's Name	John-David Grant
Degree	MSc Ecological Economics
Date	28/08/05
Keywords	
Thesis Title	Green Public Procurement: An Economic Evaluation Of The Scottish Executive's Car Fleet

The procurement of goods and services by governments constitutes a significant proportion of the overall consumption in the economy. Thus, public procurement holds a potentially powerful signal that, if utilised correctly, could significantly contribute to more sustainable consumption patterns. Moreover, as the public sector has historically suffered from great inefficiencies in public expenditure management, improved resource procurement can also potentially derive economic gains by employing greater Life cycle costing. Alternatively, if greener public procurement aims to set a minimum environmental threshold this may supplement environmental policy objectives by inducing change in the wider market by setting a positive example to the private sector. Nevertheless, if focused on a single criterion environmental impact the cumulative effect of all others might result in procuring a product, which has an overall poorer environmental performance.

Road transport has a considerably harmful impact on the environment due, in large part, to the use of non-renewable fossil fuels, which contribute to global warming and local air pollution. The Scottish Executive's procurement policy targets the use of alternative LPG fuelled cars. This dissertation considers the procurement alternatives to the SE's car fleet by undertaking rigorous economic analysis to internalise the most significant impacts that occur during the vehicle replacement cycle. This involves creating an economic cost inventory that creates shadow prices for the most considerable externalities and employs Life Cycle Costing of all other impacts. Outcomes reflect the cost efficiency and environmental effectiveness of the SE's vehicle procurement policy and wider environmental goals.

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ABSTRACT OF THESIS

Candidate's Name	Li Fei
Degree	MSc Ecological Economics
Date	29/08/05
Keywords	
Thesis Title	Multiple Criteria Analysis In Eco-tourism: Using AHP As An Aid In Environmental Impact Assessment Of Influential Factors Of Eco-tourism Carrying Capacity In Lugu Lane Nature Reserve, China

This dissertation examines issues of carrying capacity in the content of eco-tourism. Eco-tourism carrying capacity is a management tool to sustainable eco-tourism, while the concept is quite new with multi-dimensional meanings and is difficult to handle. This dissertation investigates tourism carrying capacity to help the understanding of eco-tourism carrying capacity and points out that the three major attributes to eco-tourism carrying capacity from ecological, economic and social perspectives need to be understood and evaluated. The influential factors of the three attributes differ depending on the destination.

The use of Multiple Criteria Analysis as an aid in the fundamental stage of environmental impact assessment of identify and select influential factors of eco-tourism carrying capacity is a new application of an existing methodology that has been usually used in natural resource management. Using data from a case study of eco-tourism carrying capacity influential factors in Lugu Lane Nature Reserve, China, the paper seeks to identify the basic influential factors of the place within eco-tourism carrying capacity concepts at the beginning, and then applied the value function methodology (Analytical Hierarchy Process) of MCA to aid preference comparison and aggregations of expert opinions in EIA decision making process and come up with a set of key influence factors restricted in the research place. In this way the methodology can help enhance the understanding and determining of eco-tourism carrying capacity hence sustainable eco-tourism development.

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ABSTRACT OF THESIS

Candidate's Name	Lauran Margaret Halpin
Degree	MSc Ecological Economics
Date	29/08/05
Keywords	
Thesis Title	The Long-Term Economic Viability Of Environmental Management Systems: Using MCA Surveying Techniques To Establish Trends In EMS Implementation And Efficiency

This dissertation examines the long-term economic and financial viability of environmental management systems by examining the managerial motivations for the uptake of EMS. The paper is broken into two sections: first, a literature review examining the history of green business practices, the nature and positives/negatives of environmental management systems, the economic theory of corporate competitiveness and marginal abatement analysis, and a background of MCA as well as the explanation of the techniques specific to this research project; second, an empirical study of the long-term economic and financial viability of environmental management systems. Corporate environmental management strategies such as EMS are becoming increasingly popular ways in which the corporate world can reduce the environmental impacts of firms due to ever-increasing pressure from governments, consumers, NGO's and shareholders while at the same time increasing firms' profits and competitiveness in current or future markets. EMS provide both short-term and long-term financial and economic benefits, but is there a point at which the costs associated with maintaining an EMS outweighs the benefits received? If so, why does this point come about?

The hypothesis presented is that firms that are highly motivated to maintain an environmental management system are more likely to benefit from the EMS in the form of enhanced economic and financial performance in the long-run. The hypothesis that managerial motivation impacts the long-term economic and financial viability of corporate EMS was tested over a variety of firms in Scotland and England through a survey administered face-to-face or over the telephone. The results were quantitatively examined using the analytical hierarchy process, a tool in the multiple criteria analysis family. The study confirms that managers are motivated by the long-term benefits of EMS and will thus ensure the continuing viability of the EMS by undertaking the necessary periodic adjustments.

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ABSTRACT OF THESIS

Candidate's Name	Ioanna Mouratiadou
Degree	MSc Ecological Economics
Date	29/08/05
Keywords	
Thesis Title	Public Participation Under The Water Framework Directive: An Application Of Fuzzy Cognitive Mapping In The Pinios River Basin In Thessaly, Greece

In the year 2000 the European Commission introduced the Water Framework Directive, which clearly require the involvement and participation of stakeholders and the public and considers full cost recovery for water services, for enhancing the sustainability of water resources management. Today, however, substantial detail is yet to be determined on how economics and public participation should be operationalised in practice in most EU Member States.

This study seeks to explore these issues, in the context of the Pinios River Basin, where the Greek pilot study for the Water Framework Directive implementation is being executed. In the first section it reviews literature on the concept of sustainable water resources management, the idea of treating water as an economic good and the economic and public participation requirements of the Water Framework Directive. Subsequently, the analysis focuses on the case study investigation of the Pinios River Basin, where Fuzzy Cognitive Mapping has been applied to elicit the perceptions of stakeholders and the public on the current state of water resources, the factors affecting them and the acceptability of applying economic principles in water resources management.

Based on these perceptions, different water management policy options have been simulated to explore their potential effects on the water resources of the area. Fuzzy Cognitive Mapping has been demonstrated to be a useful tool for the unification of the respondents' perceptions and understanding of the system. The findings of this study suggest that the applicability of full cost recovery for water services cannot be looked at in isolation without having regard to other water resources management issues and its potential socio-economic effects, and offer a perceptive on the potential contribution of stakeholders and the public in sustainable water resources management.

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ABSTRACT OF THESIS

Candidate's Name	William Owen Murdoch
Degree	MSc Ecological Economics
Date	30/08/05
Keywords	
Thesis Title	The Economics of Flood Management: A Case Study in the River Lossie Catchment Scotland

In Scotland flooding is increasing in frequency. The 'Traditional Flood Management' (TFM) approach has been to tackle flooding in a reactive manner using 'heavy-engineered' defences. In recent years, a novel, 'Sustainable Flood Management' (SFM) approach has arisen, which aims to provide socio-economic benefits, (flood mitigation) while simultaneously providing environmental benefits, (habitat restoration).

Despite recent pro-SFM lobbying, there has been no attempt to quantitatively demonstrate its superiority over TFM. This study applies a 'full' cost-benefit analysis (CBA) to a particular case study: the River Lossie. This 'full' CBA takes account of all the possible costs and benefits, (economic, social, environmental).

The 'Elgin Flood Alleviation Scheme' is the existing TFM proposal for the River Lossie. It primarily suggests 10km of floodwalls through the town of Elgin. While this scheme would provide numerous benefits, it was regarded as TFM due the lack of sustainability. This study develops a SFM alternative and in line with developing Scottish Executive policy, a 'radical' solution was proposed.

A CBA of the TFM, SFM and the 'Do Nothing' options was carried out. The costs and benefits were calibrated to equate to total cost over 100 years. The 'Do Nothing' cost was estimated at £1,160 million and both the TFM and SFM schemes cost less. The SFM cost-benefit ratio compared to the TFM was 1:8 to 1:2 respectively. This considerable difference is because SFM provides economic and social benefits for the whole catchment (not just Elgin). In addition SFM fosters a far larger quantity of environmental services.

There are considerable political, policy and practicality issues to consider as well as various sources of uncertainty during CBA implementation. However, this study has clearly shown that a 'full CBA' can be applied to flood management. Therefore, there is no justification for using a purely 'financial CBA' in this area in future.

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ABSTRACT OF THESIS

Candidate's Name	Frederick E Schick
Degree	MSc Ecological Economics
Date	29/08/05
Keywords	Clean Development Mechanism; Carbon Market; Sustainable Development; Multi-Criteria Analysis; Mexico; Land-Use Change And Forestry
Thesis Title	Evaluating Sustainability Indicators Of Clean Development Mechanism Forestry Projects Using Multi-Criteria Analysis: Case Study In Los Tuxtlas, Mexico

The Clean Development Mechanism (CDM) of the Kyoto Protocol has the double objective of generating low cost carbon credits for Annex 1 countries and achieving sustainable development in non-Annex 1 nations through carbon mitigating projects. Just three years away from the first commitment period, this strategy sounds more like utopia than reality. Within the strict rules defining this mechanism, nothing guarantees the compliance with the required sustainability benefits. As it is the host countries' prerogative to verify these impacts, there will be great disparity in the quality of CDM projects throughout the world. The forestry sector has been particularly disputed at the CDM Executive Board, which makes it the most risky and uncertain of all CDM options. It is only through the growing voluntary carbon market that carbon sequestration projects have been implemented.

Applying a multi-criterial analysis at the design stage of such projects could assist non-Annex 1 countries in monitoring the predicted socio-economic and environmental impacts on different possible

Options and help them decide which one best fulfils their national goals. A case study carried out in the Mexican region of Los Tuxtlas illustrates the great potential the international carbon market represents for poor rural communities and the conflict of interest that need to be resolved the successful implementation of a sink enhancement scheme. A stakeholder MCA is applied there and reveals the necessary conditions of such projects to contribute to local sustainable development. A perfect attainable goal if community participation is enhanced and the different opinions are accounted for.

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ABSTRACT OF THESIS

Candidate's Name	Christopher Alan Sherrington
Degree	MSc Ecological Economics
Date	26/08/05
Keywords	
Thesis Title	The Accuracy Of Regulatory Cost Estimates: A Study Of The London Congestion Charging Scheme

The London Congestion Charging Scheme has been in operation since 17 February 2003. In common with other regulations, ex ante estimates of the direct costs of the scheme were produced by the regulatory, Transport for London. Reviews of a number of such cost estimates have shown that ex ante costs tend to exceed the ex post (or outturn) costs. This study finds that while Transport for London moderately overestimated the total costs of the scheme, there was a significant overestimate of chargepayer compliance costs. The main reasons for this were greater than expected reductions in traffic and unanticipated technological innovation.

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ABSTRACT OF THESIS

Candidate's Name	Yuchen Zhang
Degree	MSc Ecological Economics
Date	05/09/05
Keywords	Eco-Tourism, Sustainable Development, Multi-Criteria Analysis, Analytical Hierarchy Process
Thesis Title	Using The Analytical Hierarchy Process To Assess The Sustainability Of Different Scales Of Eco-tourism

This paper intends to assess the sustainability of eco-tourism from different aspects such as; economics, environment and social culture. In order to do this, a methodology, the Analytical Hierarchy Process (AHP) Of Multi-Criteria Analysis is employed. However, at first, the definition and aspects of eco-tourism are introduced and then the indicators, which can imply the extent of sustainable development of eco-tourism, are distinguished. To be applied into AHP, the priority of each criterion is gained and multiplied with the performance mark of the eco-tourism operation, the final result therefore represents the sustainability of the site's operation.