

Ecological Economics	
School	Scottish Agricultural College
Module Leader	Mr Salman Hussain
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Module Number	B59E5
Credits	12
Assignments	YES
Exams	YES
Student Effort ours	120
Pre-reading/Other Program-related Activities	12 hours
Formal Lectures/Workshop	26 hours
Discussions/Group Activities/Case Studies/Demonstrations	6 hours
Laboratory work	4 hours
Independent Study & Coursework	72 hours
Objectives The aim of the module is to set sustainable development within an economic perspective, assessing both the limitations of opportunities associated with the application of economics to the environment.	
Subjects <ul style="list-style-type: none"> • Fundamental principles in environmental economics • Tools that regulatory authorities use in pollution management • Ethics of going 'green': corporate social responsibility debate • How should a firm decide its optimal strategy: cost benefit analysis • The pressure on firms: 'green consumerism' • Corporate environmental management tools 	
Content This module will provide a precise and relevant synopsis of applications in economics to environmentalism and to sustainable development. Clearly, a module of this length and nature cannot be comprehensive. We have focused on the theory and implementation tools that are pertinent to environmental management in industry. The module does not pre-suppose that the student has any kind of background in economics. There is very little in this module that overlaps with the content of a conventional economics	

module. The vast majority of students who major in economics around the world are taught very little (if anything at all) about the interaction between economic and other systems – social, ecological, industrial. This module aims to address this gap.

One of the aims of the module is to understand how an economist thinks, to get inside the 'black box' of economics along with its jargon. Chapter 1 is an introduction to fundamental principles in environmental economics. It starts from first principles and explains the operation of the market. It sets out the relationship between the market and the natural environment. Further, there is a particular focus placed on the role of firms in the economy and in the 'greening' of society. As such, it is the theoretical foundations for and the context for the rest of the module.

Chapter 2 introduces the concept of 'optimal pollution'. All production systems produce some level of pollution. This chapter outlines how society might adjudge the best level of pollution. This also serves to introduce the concept of marginal analysis – that is, analysis that considers the 'extra' unit, not the average or total. Once the 'best' level of pollution has been determined, there follows a discussion of ways of achieving this. Managers are faced with environmental legislation from agencies such as such as the Environmental Protection Agency in the US and equivalents around the world. This chapter sets out the rationale for the legislative tools that they apply. There has been a trend towards the use of market-based tools – taxes, subsidies and tradable permits: these are explained and documented in-text using real-world examples.

Many students taking the course will be motivated in part (if indeed not wholly) by the ethical need to 'do something good for the environment'. Chapter 3 is rather different in nature to the others in the module in that it is philosophical in nature. This might seem distant and irrelevant to some, but consider this: what if a manager is trying to be ethically sound but is actually acting in a way that is morally damaging to society? A manager is responsible as a human being to act as a planetary steward, making sure that the natural environment is preserved for future generations, but he or she is also acting as an agent for the firm. What if these twin roles are in conflict? This chapter addresses such questions.

Chapter 4 begins our investigation into the tools that corporate environmental managers might apply. One of the most fundamental and all-pervasive tools applied by decision-makers schooled in economics is cost-benefit analysis (CBA). This is, simplistically, an objective way to make various costs and benefits of a project/proposal comparable. CBA is a performance yardstick that assists the decision-maker. It is discussed in conventional economics and business studies – but rarely with a particular focus on environmental issues.

Chapter 5 considers ecolabeling. In particular, we focus on firms' participation in voluntary schemes which are intended to convince the purchaser that their product is more environmentally-friendly than competitors'. The theoretical foundation for ecolabeling is green consumerism; economic assumptions of consumer choice are set out. We then outline the principles of ecolabeling schemes and document the various major international schemes that are operational today and that co-exist in the market.

The final chapter considers another green management tool – design for environment (DFE). DFE is an application of life cycle analysis methodology to the industrial design and R&D domains. Life cycle analysis provides a cradle to grave assessment of the total environmental impact of a good, irrespective of the financial costs of producing that good. DFE is documented with examples showing how it has been used to improve environmental

performance and profitability simultaneously, a scenario that might be called a 'win-win' scenario. Professor Porter of Harvard University has argued that there is great scope for applying such 'win-win' gains but that more stringent legislation is required to realise them. The Porter hypothesis is discussed and challenged.

In summary then, this module is concerned with the tools that environmental decision-makers might apply and the economic principles upon which they are based. We trust that, at the end of the module, the student will better understand the language of economics.