

# Environmental Economics: A Primer

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**Abstract:** *Human economic activities (production and consumption) have caused environmental damage and degradation. Environmental economics involves applying the tools of economics to address environmental issues. It studies economic effects and their consequences for human well-being and the natural environment. Environmental economics can help us properly understand the value of the environment and take action to preserve and improve it. This paper provides a brief introduction to environmental economics.*

**Key Words:** *environmental economics, ecological economics, resource economics*

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## I. INTRODUCTION

Business is increasingly being held accountable for the social and environmental implications of its activities. Environmentalists, consumers, and policy-makers are increasingly demanding to account for its resource use and to balance its proposed benefits with its environmental sustainability. Policy-makers concerned with the management of natural resources are increasingly causing businesses to reconcile financial objectives with social responsibilities. Environmental economics attempts to bridge the traditional separation of economic and environmental considerations [1].

Environmental economics is a branch of economics that focuses on environmental problems of pollution of earth, air, and water. It studies the financial impact of environmental policies and the effects of environmental policies on the economy. It supports environmental policies to deal with air pollution, water quality, toxic substances, solid waste, and global warming. It considers issues such as the conservation and valuation of natural resources, pollution control, waste management, and recycling.

Although environmental economics is related to ecological economics, they are different. Ecological economics focuses more explicitly on long-term environmental sustainability and issues [2]. It views the relationship of the economy and the environment as central.

Ecology studies harmony between nature and man, whereas economics focuses on the disharmony between man and nature. The relationship between the two is shown in Figure 1 [3].

## II. CONCEPT OF ENVIRONMENTAL ECONOMICS

Economics as a science deals with the allocation of scarce resources among competing uses. It is concerned about the satisfaction of man's unlimited wants with the scarce resources available. The environment includes all energy and material resources, aquatic ecosystems, and the atmosphere. It provides all life support systems with air, water, land, and the materials necessary to fulfill all developmental aspirations of man. It may also be regarded as a synthesis of study of various branches of knowledge like science, economics, engineering, thermodynamics, philosophy, ethics, etc. The life of human beings is shaped by the living environment.

Environmentalists are those who care for environment, realizing that any damage to the environment will affect the life of living things. Environmental economics deals with the impact of economic activities on the environment [4]. It focuses on designing interventions that help attain economic efficiency when the market mechanism is not working properly or when market failure occurs. The advancement in technology continues to impose new demands on the environment. As shown in Figure 2, the fundamental principles of environmental economics are important in achieving sustainable development [5].

Environmental economics is a sub-discipline of economics that seeks to understand the economic causes of human impacts on the environment, such as atmospheric pollution. It involves the study of the decisions of agents (which include consumers, firms, government agencies, and non-profit organizations) that have environmental consequences and how to affect these decisions to achieve environmental objectives. This economic approach is used in dealing with such problems as environmental degradation, resource depletion, and global environmental change.

At the heart of environmental economics are a few concepts namely: opportunity costs, external costs, social costs, and private costs [6]. Environmental economists develop policy recommendations relating to [7]:

- Effects on the environment or human health resulting from economic activity
- Cost-benefit analysis of industrial activities or proposed environmental regulations.
- The economics of environmental issues such as renewable energy use, waste management, construction of new hydroelectric power plants, and pollution control measures
- Valuation, which aims to assign dollar values to natural resources.

### III. BENEFITS AND CHALLENGES

Market data can shed light on the benefits of environmental economics. Environmental economics offers powerful tools for the diagnosis of environmental problems and the design of policy solutions to them. Embracing environmental economics will help us make better choices and long-term decisions. This can improve our approach to making sure we have clean air and water and that we are protected from risks such as floods [8].

Two main challenges to environmental economics are its transnational nature and its impact on various moving parts of a society. The global nature of environmental issues has led to the formation organizations like the International Panel on Climate Change (IPCC), which organizes annual forums for heads of state to negotiate international environmental policies. In the United States and some other nations, policy proposals stemming from environmental economics tend to lead to contentious political debate, making it difficult to develop environmental policies [9]. Uncertainty is ubiquitous in environmental economics. Since the real world is considerable uncertain, incorporating uncertainty into policy design is challenging [10].

### IV. CONCLUSION

It is not possible to describe human behavior independently from the environmental systems that sustain their existence. This problem can be overcome only through the inclusion of normative concepts like rights or justice. Environmental economics is a branch of economics that deals with the relationship between the economy and the environment. The field has contributed substantially to our understanding of the nature of environmental problems [11]. The fundamental principles of environmental economics are important in achieving an integrated sustainability science.

More information on environmental economics can be found in [4, 12-22] and several other books available on Amazon.com. More information is also available in the following journals exclusively devoted to it:

- Journal of Environmental Economics and Management
- Journal of Environmental Economics and Policy
- Journal of the Association of Environmental and Resource Economics
- Review of Environmental Economics and Policy

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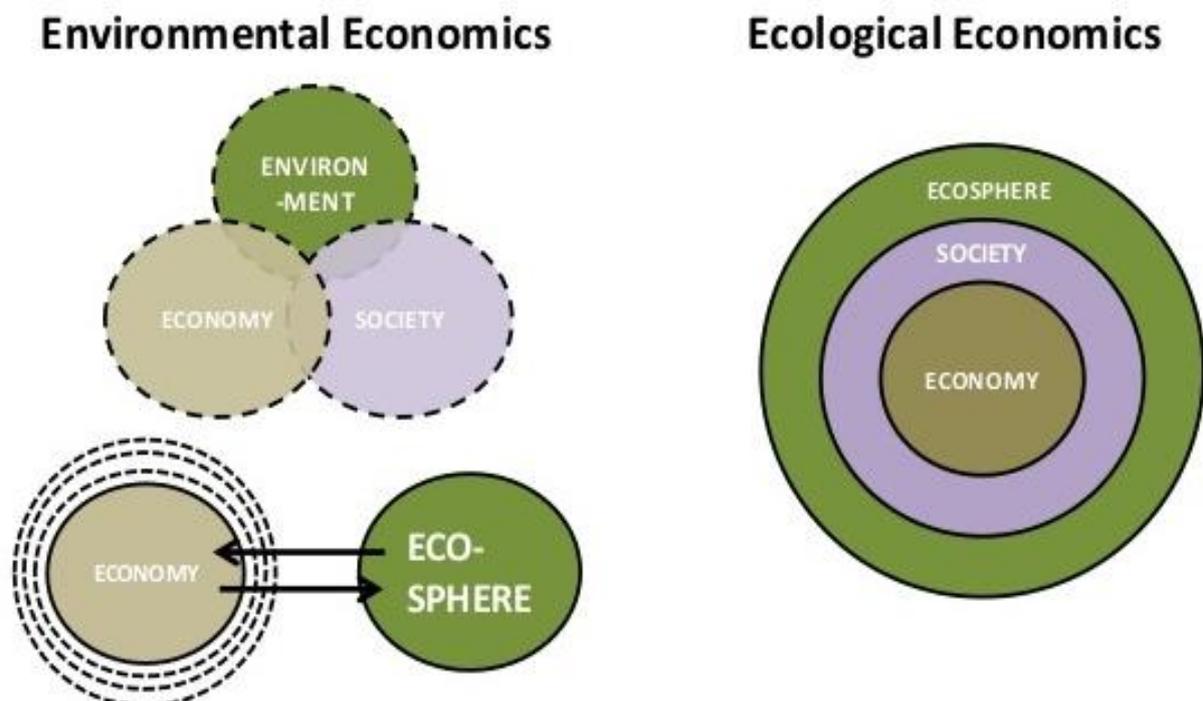


Figure 1 The relationship between environmental and ecological economics [3].

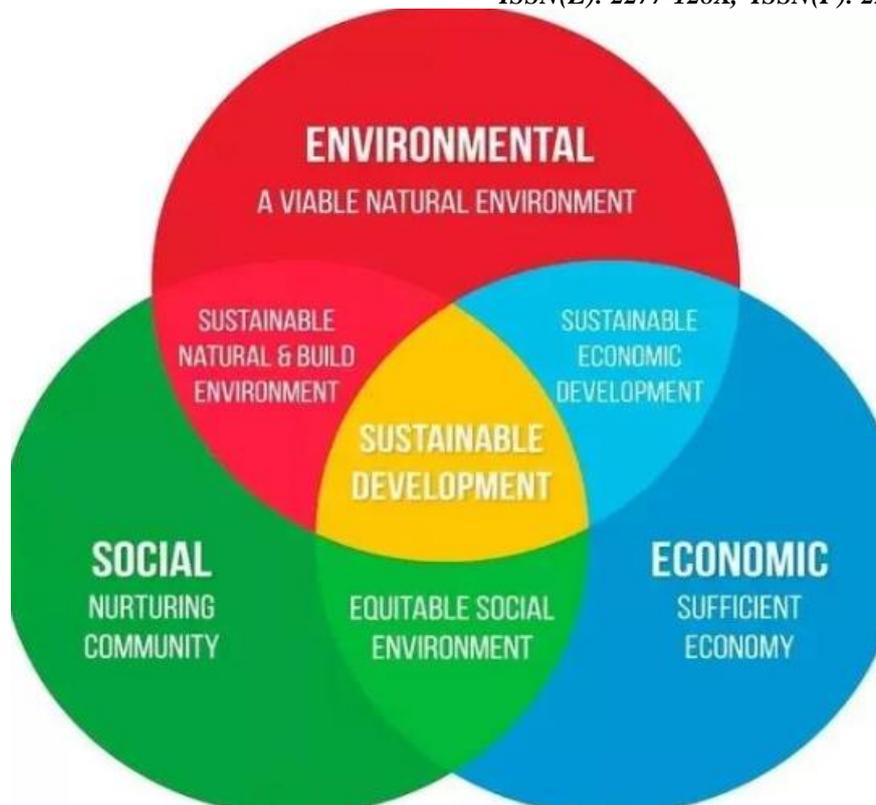


Figure 2 The relationship between environmental economics and sustainable development [5].