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The Economics of Environment and Ecology for Sustainable Development

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Economic growth and development are intricately linked to the sound management of environmental resources. Reducing inequalities in society and maintaining healthy ecosystems are fundamental to achieving sustainable development, yet the interactions between these goals have been largely underexplored. Ecology and economy are derived from the same root words and concerns. Economics provides important tools for understanding and managing resources. Ecological economics focuses on the value of natural services and tries to include those services into price calculations.

This Paper brief focuses on how societies can create opportunities for a green and inclusive economic recovery and, aims to achieve this goal by a structured approach to valuation that helps decision-makers recognize the wide range of benefits provided by ecology and ecosystems, their values in economic terms and in decision-making. A green recovery will significantly enhance the resilience of economies and societies in the face of both the severe recession and accelerating environmental challenges. Through education, research, policy and social action, needs to transform towards an equitable and ecologically sustainable society with respect for the rights of people and nature, biological cultural diversity and to respect its ecological limits.

Keywords: Ecological Economics, Environmental Economics and Sustainable Development.

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1. INTRODUCTION

The links between the economy and the environment are manifold: the environment provides resources to the economy, and acts as a sink for emissions and waste. Natural resources are essential inputs for production in many sectors, while production and consumption also lead to pollution and other pressures on the environment. Poor environmental quality in turn affects economic growth and wellbeing by lowering the quantity and quality of resources or due to health impacts, etc. In this context, environmental policies can curb the negative feedbacks from the economy on the environment (and vice-versa). But how effective they are and whether they generate a net benefit or a net cost to society is the subject of much debate and depends on the way they are designed and implemented³.

Environmental economics is a sub discipline of economics, so it's applying standard economic thinking to the environment. Ecology is the study of how organisms interact with one another and with their physical environment of matter and energy. Ecology and economy are derived from the same root words and concerns. *Oikos* (ecos) is the Greek word for household. Economics is the *nomos*, or counting, of the household resources. Ecology is the *logos*, or logic of how the household works. In both disciplines, the household is expanded to include the whole world.⁴

Environmental and resource economics were established as sub-disciplines of economics after the Second World War, Environmental economics emerged in the 1960s as public concerns with environmental pollution grew. Limits to markets due to the constraints of nature were recognized, in particular the indivisibility of nature that inhibited the allocation of property rights to many environmental benefits. Classical and neoclassical economics have usually focused on human resources, such as buildings, roads, or labour. Natural systems are essential for economic productivity; rivers absorb wastewater, bacteria decompose waste, and winds carry away smoke that would otherwise debilitate workers, but classical and neoclassical economics treat these natural services as external to the costs of production. Ecological economics is a trans disciplinary effort to link the natural and social sciences, and especially ecology and economics. Its goal is to develop a scientific understanding of the complex linkages between humans and the rest of nature, and to use that understanding to develop policies based on ecologically sustainable, has a fair distribution of resources, and efficiently allocate scarce resources including 'natural' and 'social' capital. This requires new approaches that are comprehensive, adaptive, integrative, multi scale, pluralistic, evolutionary, and which acknowledge the huge uncertainties involved.

Ecological economics seeks to incorporate the research of economists, ecologists, philosophers and social scientists, however its influence seems to be having been limited to areas in which it retains the standard economics framework, and this limits its effectiveness in terms of environmental solutions. The strength of environmental economics lies in the fact that it is analytical and deals with concepts such as efficiency, trade-offs, costs, and benefits. Many believe strongly that the times call for more direct political action, more consciousness- raising, more political-organizing, and, especially, more representation and influence of environmental interests on the political scene. As a world community, we have learned some difficult lessons about the costs and implications of pollution and the irresponsible use of scarce natural resources, and some believe that we still have much to learn.

³ OECD

⁴ William P. Cunningham, M. A. (2010). Environmental Science:A Global Concern. New York,NY: McGraw-Hill.

1.1. Background

Environmental economics is the application of the principles of economics to the study of how environmental resources are managed. Ecological economics focuses on the value of natural services and tries to include those services into price calculations. More than natural resource economics, ecological economics assumes that natural resources are limited and valuable, while manufactured capital is abundant. It is essential to improve the toolkits that economists use to assess the benefits of environmental policies

1.2. Aims and Objective

This paper having clear objectives how to support the economic development and implementation for growth with sustainable strategies that bring government closer to citizens and business to respond effectively to crisis situations due to environmental degradation, and to provide a brief knowledge to explore how a well-managed natural environment can contribute to economic growth and how such an effective and efficient regulatory system can be designed. This paper is based across three objectives:

- How economic growth affects the environment;
- How environmental degradation affects economic growth; and
- How environmental policies can help to make the most out of environmental protection and economic growth.

2. ENVIRONMENT, ECOLOGY AND SUSTAINABLE DEVELOPMENT

Environmental economics focuses on a society's natural and environmental resources, and examines the way people make decisions that lead to environmental destruction and environmental improvements. Environmental economics is an analytical subject. The economic approach to environmental issues is to be contrasted with what might be called the moral approach. According to the latter, environmental degradation is the result of human behaviour that is unethical or immoral. One of the most important questions in environmental science is how we can continue improvements in human welfare within the limits of the earth's natural resources. *Development* means improving people's lives. *Sustainability* means living on the earth's renewable resources without damaging the ecological processes that support us all.

We have reason to be optimistic about this new direction of environmental policy. The wisdom of experience coupled with scientific and technological advances can bring about significant change. Perhaps more importantly, environmental objectives have broadened to consider the future along with the present and to accommodate global interests along with national and local needs. Such is the fundamental premise of sustainable development—a goal that integrates economic prosperity with environmental preservation, as a legacy to future generations. Sustainable development is an effort to these two ideas. A popular definition describes this goal as “meeting the needs of the present without compromising the ability of future generations to meet their own needs.”

In 1968, biologist Garret Hardin wrote a widely quoted article entitled “The Tragedy of the Commons” in which he argued that any commonly held resource inevitably is degraded or destroyed because the narrow self-interests of individuals tend to outweigh public interests. Ecological economics focuses explicitly on ecological concepts such as systems, thermodynamics, and material cycles. In a system, all components are interdependent. Disrupting one component, such as climate conditions risks destabilizing other components, such as agricultural production in unpredictable and possibly catastrophic ways. Thermodynamics and material cycles teach that energy and materials

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cycle through systems, constantly being reused; one organism's waste is another's nutrient or energy source. This perspective allows us to see environmental resources, and other species, as limited in supply, valuable, and often fragile. Ecological economics tries to make producers account for social costs, as well as environmental costs.

In the early 1970s, an influential study of resource limitations was funded by the Club of Rome, an organization of wealthy business owners and influential politicians. The study was carried out by a team of scientists from the Massachusetts Institute of Technology headed by the late Donella Meadows. The results of this study were published in the 1972 book *Limits to Growth*. A complex computer model of the world economy was used to examine various scenarios of different resource depletion rates, growing population, pollution, and industrial output. Given the Malthusian assumptions built into this model, catastrophic social and environmental collapse seemed inescapable.

3. ACTION FORMATION

It is essential to improve the toolkits that economists use to assess the benefits of environmental policies. Economics uses powerful models to explain environmental market failures and the policy solutions used to address them. Environmental economics has a major role to play in the design of public policies for environmental quality improvement. There is an enormous range and variety of public programs and policies devoted to environmental matters, at all levels of government: local, state, regional, federal, and international.

Scarcity can actually serve as a catalyst for innovation and change. As materials become more expensive and difficult to obtain, it becomes cost-effective to discover new supplies or to use available ones more efficiently. The net effect is as if a new supply of resources has been created or discovered. Several important factors play a role in this cycle of technological development: Technical inventions can increase efficiency of extraction, processing, use, and recovery of materials. Substitution of new materials or commodities for scarce ones can extend existing supplies or create new ones. Recycling becomes feasible and accepted as resources become more valuable. Substitutability and technological development is likely to continue into the future.

Issues related to the design of environmental policy are a major part of environmental economics. It is important to know how alternative policy approaches measure up in terms of cost-effectiveness, getting the most pollution reduction for the money spent, and, in terms of efficiency, appropriately balancing the benefits and costs of environmental improvements. There are a number of important questions about the relationship between environmental issues and the behaviour of the macro economy: What overall preferences do citizens have with respect to the balance between environmental protection and economic growth? Effective decision making requires that there be adequate information about the consequences of the decisions. This is as important in the public sector, where the issue is effective public policy, as it is in the private sector, where the main concern is with the bottom line of the profit-and-loss statement.

The primary type of public-sector analysis in environmental policy questions is benefit-cost analysis. Policies or projects are studied in terms of the environmental benefits they would produce, and these are compared with the costs that are entailed.

The need for a more systematic way of monitoring the environmental implications of reform those sectorial and economy wide indicators of sustainability should be developed. The growth of economic activities, in terms of production and consumption, requires larger inputs of energy and material that

generate a greater quantity of waste by-products (Georgescu-Roegen, 1986). This is confirmed by Grossman and Krueger (1995), who state that to achieve a high level of growth a country needs more inputs to enlarge its outputs, leading to an increase in the waste and emissions generated through the production of economic activities.

In terms of economic growth, the increase in GDP that arises from converting energy and natural resources into capital and consumption goods leads to a decrease in environmental quality. So the basic objective of this paper that how economic growth affects the environment; and environmental degradation affects economic growth as, on the impact of economic growth on environmental quality is an empirical problem and it varies according to circumstances, such as individual countries' development view, degree of economic development and trade openness. According to the environmental Kuznets' conditions that at the first stage economic growth increases the level of environmental degradation, and then environmental degradation decreases after reaching a certain level of average income per capita. Although the increase in the level of trade openness, industrial extension, and show positive impacts on environmental degradation, if the natural and environmental policies are clearly explained and practiced among trade partners and industries, the environmental condition of societies would maintain a good condition for a long time. To conclude this paper we can say that growth is important for the economic development of many countries, if high rate of growth produces a smaller impact on the environmental condition, because this is the only factor to ensure the achievement of sustainable development.

The environmental Kuznets curve (EKC) hypothesis explains the relationship between economic activity and environmental degradation. Therefore, environmental conservation policies, technological advancement and modern industrial policies are required to make the economic growth of the countries effective in reducing CO₂ emissions.⁵ And for policy maker to make policies for environmental protection and economic growth; there is need for international collaboration among developing and developed countries for fostering green economy and sustainability. We need green growth because risks to development are rising as growth continues to erode natural capital, through the tools of Sustainable Development.

4. CONCLUSIONS

Climate change and globalization, rapidly accelerating urbanization, demographic changes and their effects: these are huge trends that shape the world in which people live and work. As the scale of human activities has grown, the evidence of environmental degradation has also increased, forcing the community to recognize it as a problem.

Ecological evaluation and management is essential for remediation, restoration, and Natural Resource Damage Assessment, and forms the basis for many management practices. These include determining status and trends of biological, physical, or chemical/radiological conditions; conducting environmental impact assessments, performing remedial actions should remediation fail, managing ecosystems. This paper examine the Economics of Environment and Ecology for Sustainable Development, means ensuring profitable and long-term growth while balancing profit, people and planet, the SDGs are our common responsibility. The expected outcome is to the role of sustainability in development priorities, based on growth with equity and the conservation of the resource base, a good strategies are needed that can contribute to the sustainable economic development. In order to generate the most appropriate model, the environmental Kuznets curve (EKC) is helpful for managing the economics of environment and ecology.

⁵ Mishra, Mukesh Kumar (2020) : The Kuznets Curve for the Sustainable Environment and Economic Growth, ZBW – Leibniz Information Centre for Economics, Kiel, Hamburg

All types of environmental management and policies require ecological evaluation as a basis for sound decisions. To develop a basic analytical framework to trace the environmental impacts of macroeconomic policies and specific additional measures are required to promote the environmental policies.

Green economy and green growth need to be fostered as both of them are needed for a Sustainable Development. Political, social and economic aspects of sustainability need to be considered for achieving green growth and green economy. In order to prevent environmental disasters of global proportions, we need to radically reduce toxic emissions and consumption of non-renewable resources within the space of a few decades. This poses an enormous challenge to the financial and the real economy. It requires that keeping in mind The Kuznets Curves Model Mechanism and reform further to develop the global economic governance system and restructure incentive systems at different level as well as good Ecological Models to develop different ecological theory in a wide range and modelling approaches for sustainability of economics and environment.

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