

A study of the value of the natural environment and its sources based on a material value theory perspective

Niande Hong^{1*}, Ying He²

¹ Zhejiang Gongshang University, Hangzhou College of Commerce, Hangzhou, Zhejiang 311599, China.

² Hangzhou Basic Education Research Office Affiliated School, Hangzhou, Zhejiang 310018, China.

Abstract. In various academic disciplines and contexts, the value attributed to the natural environment encompasses two primary dimensions: the economic significance, which pertains to the economic value of the natural environment, and the philosophical dimension, which refers to the intrinsic (or subjective) value of the natural environment. This paper, after scrutinizing prevalent perspectives within the academic community regarding the value of the natural environment and its origins, asserts that the labor theory of value inadequately and inaccurately captures the essence of the natural environment's value. Consequently, the paper suggests employing the "material theory of value" as a more apt framework to elucidate the origins of the natural environment's value. The "material value theory" centers on the reciprocal relationship between humans and nature, with the objective of fostering an equitable exchange wherein human responsibilities and obligations toward the natural environment are traded for the "value" it provides. This approach aims to establish a harmonious and balanced exchange between humanity and the natural environment.

1 Introduction

Does the environment hold inherent value, and if so, what are the origins of this value? These inquiries not only represent fundamental aspects within the realm of environmental ethics but also serve as the foundational pillars influencing the formulation and efficacy of legislation pertaining to environmental resources. Attaining a comprehensive and precise comprehension of the value associated with the environment and its underlying sources is paramount in advancing the objectives of contemporary environmental resource preservation and sustainable development[1].

Let's begin by delineating the concepts of the 'natural environment' and 'value.' As per the Xinhua Dictionary (Commercial Press, 2001), the natural environment encompasses "the naturally occurring complex of atmosphere, water, organisms, land, soil, rocks, solar radiation, and so on. It is the material basis on which human beings depend for their survival and development." While this definition systematically enumerates the components of the natural environment, providing clarity on its composition, it doesn't explicitly address the essence, or connotation, of the natural environment. From an ecological perspective, the natural environment represents the totality of all objective material factors beyond the biosphere, engaging in constant material exchanges and energy flows with the biosphere. This definition illuminates the intrinsic nature of the natural environment. By amalgamating these two definitions, a comprehensive understanding of the "natural environment" emerges,

encompassing both its essence and composition. Two fundamental characteristics of the natural environment can be distilled from this amalgamation: firstly, the natural environment exists objectively outside the biosphere (inclusive of humans); secondly, it is an objective existence intricately linked to the biosphere, engaged in perpetual exchanges of matter and energy. Building upon these characteristics, it follows that society and its artifacts are not part of the natural environment, and entities unrelated to the biosphere, such as distant galaxies, fall outside the scope of the natural environment[2].

2 The Multifaceted Nature of Value

The concept of 'value' presents a considerable challenge to define, varying across contexts and disciplines. In practical terms, the initial association with 'value' often involves concepts like 'commodity' and 'price.' Following Marx's labor theory of value, value is delineated as "the undifferentiated human labor condensed in a commodity," particularly within an economic framework, commonly synonymous with 'economic value' or 'commodity value.' Yet, in everyday language, people express value judgments such as "This book is not worth much" or "It is worth discussing this issue." These statements extend beyond the realm of commodity value for "books" or "problems." We cannot dismiss the validity of such expressions merely because these objects don't encapsulate undifferentiated human labor. This is because "value" transcends economic confines; it embodies a universal concept in its broader

* Corresponding author: hongniande@163.com

sense—the utility or specific positive impact of an objective entity on individuals. Upon abstraction, a philosophical definition emerges as the most essential and fundamental understanding. "Value" signifies the significance of an object for the subject, fulfilling the subject's needs and representing the absolute transcendence of the subject over the object[3].

3 Exploring Perspectives on the Value of the Natural Environment

Upon completing the definition of the concept, it becomes evident that the "value of the natural environment" examined in this paper encompasses two meanings. Firstly, the economic perspective delves into the economic value of the natural environment. Secondly, the philosophical aspect explores the intrinsic value of the natural environment, often referred to as the value of the subject. Given the constraints of space in this paper and the author's preliminary skills, the initial focus will be on discussing the economic sense of the value of the natural environment[4].

Does the natural environment possess value, and what are the origins of this value? Let's examine some existing academic perspectives:

1. Theory of No Inherent Value: Rooted in Marx's labor theory of value, this viewpoint argues that without the 'condensation of human labor,' natural resources, being products of nature formed by natural forces, lack inherent value beyond their utility. According to this stance, they possess only use value and no intrinsic value.

2. Monetary Performance Theory: This perspective posits that assigning significance to ecological benefits doesn't inherently confer value. The central argument suggests that the notion of "ecological and economic value" for natural resources differs from the concept of value creation through labor in political economy. Instead, it represents the economicization of the applicable value of resources. Economic value, in this context, pertains to the monetary representation of a beneficial impact. Thus, according to Marx's labor theory of value, natural resources lack intrinsic value and only exhibit a monetary expression.

3. Dual Theory of Value: According to this perspective, value manifests in two external forms—commodity value and ecological value—both shaped by socially necessary labor time. The argument posits that in the realm of economic activities, two interconnected yet distinct expressions exist: commodity value and ecological value. Commodity value stems from the quantity of socially necessary labor, and similarly, the socially necessary labor undertaken by individuals serves as the creator of ecological value. When socially necessary labor is amalgamated with commodities, it is denoted as commodity value, while its fusion with ecological resource systems gives rise to ecological value.

4. Material Value Theory: This perspective asserts that natural resources, in their pristine state, draw upon the biological productivity of their ecosystems. The

protective value of natural resources develops gradually over time through the consumption of various substances in the environment. This theory builds upon the premise that humanity represents a distinct biological species, and its labor capacity fundamentally aligns with biological productivity. Thus, just as human labor can generate value, so too can the biological productivity of natural resource ecosystems[5].

4 Decoding Natural Environment Value: Economic Insights and Hypothetical Scenarios

It is evident that the first three points above, whether they acknowledge the value of the natural environment or not, primarily discuss the economic sense of the natural environment's value. They adhere to the labor theory of value, considering it the sole criterion for determining whether the natural environment possesses value. Does the natural environment have value in the economic sense, and if so, what is its source? Before offering insights into these points, let's examine a few cases:

(1) Some scholars have computed that the economic value of the direct use of forest resources in China's Yangtze River basin is 0.197 trillion yuan per year. Simultaneously, its ecological "service value," encompassing soil and water maintenance, water nourishment, and air purification, reaches a staggering 2.1 trillion yuan. The ratio between the two is approximately 1:11.

(2) A paper published in *Science Times* and the *British Journal of Nature* on May 20, 1997, estimates that the total value of the Earth's various uncompensated services to humanity amounts to a staggering 33 trillion yuan per year. This surpasses the combined annual gross national product of all countries globally.

(3) Scientific calculations reveal that the energy received by the Earth from solar radiation every minute is equivalent to the energy released by burning 400 million tons of coal in the same timeframe.

What do these figures signify? For many scholars, the answer lies in indicating the substantial use value of the natural environment, albeit not conferring it with value due to the absence of human labor condensation. However, the implications of potential scenarios raise essential questions. If all the forests in the Yangtze River basin were depleted, individuals might need to contribute 2.1 trillion yuan annually in labor to compensate for it. Similarly, if the sun were to vanish suddenly, people would need to burn 400 million tons of coal every minute as an alternative energy source, requiring extensive labor for extraction. Even if humans were to pay 2.1 trillion yuan annually, it might not fully replace the indispensable role played by the Yangtze River Basin forests, and the Earth's coal resources are finite. While these hypothetical scenarios may never materialize, it prompts critical reflection on the 'absolute belief' in the labor theory of value[6].

5 Rethinking Natural Environment Value Beyond Labor Theory and Toward Sustainable Exchange

The labor theory of value posits that labor is the creator of value, with value being the undifferentiated human labor condensed in commodities. It asserts that value is an attribute of commodities, and their sole purpose is to facilitate exchange. Clearly, value, in this context, primarily reflects the exchange relationship between individuals. Classical political economists introduced the concept of value to elucidate how various products crafted by diverse individuals could be traded at a specific ratio. However, when it comes to the 'value' of the natural environment, it doesn't signify an exchange relationship between people; rather, it involves an interaction between people and nature. Therefore, employing the labor theory of value to explain the value of the natural environment is inappropriate[7].

As we recognize, the applicability of all truths has its limits. Newton's classical physical theory holds true in absolute time and space but becomes fallacious in relative time and space. Similarly, the 'labor theory of value' stands true when elucidating the value of commodities but falters when applied to the 'value' of natural resources. This reinforces the notion that "one step further, even a small one, and the truth becomes a fallacy."

According to the "material value theory," the natural environment possesses a "labor creativity" that generates not only economic "value" but also a multitude of ecological and social "values" freely provided to humanity. Unfortunately, this gratuitousness has led to human selfishness perceiving it as a public good, valuing it solely as a 'use value.' More regrettably, this misconception has fueled centuries of excessive exploitation and destruction of the natural environment. Human greed has depleted numerous once-inexhaustible natural resources. If we persist in undervaluing the natural environment, this trend will only escalate, and the hypothetical scenarios mentioned earlier may one day materialize. While some may view this as alarmist, questioning whether sunlight, for instance, is truly valuable, the author contends that if technological advancements enable human activities to impact the sun's environment, an "eternal eclipse" is not beyond possibility[8].

Therefore, the author asserts that the value exchanged between humans and the natural environment is not without cost. This price manifests in the series of responsibilities and obligations humans undertake to safeguard and promote the harmonious coexistence of humanity and the natural environment. In many instances, this commitment translates into the work required to achieve the aforementioned goals. Consequently, the author concludes that the natural environment possesses economic value, or at least some economic value, and attributes this value to the limited "labor creativity" of the natural environment encapsulated in the array of "values" it offers to humans[9].

6 Natural Environment Value Beyond Labor Theory and Realistic Human Interventions

Regarding the four arguments mentioned earlier, the "value-free" and "monetary expressionist" perspectives are grounded in the labor theory of value, which has already faced scrutiny. Therefore, further commentary on these views is unnecessary at this point.

The "dual theory of value" posits the existence of two external forms of value: commodity value and ecological value, both shaped by socially necessary labor time. Commodity value is expressed when socially necessary labor is combined with commodities, while ecological value emerges when this labor is combined with ecological resource systems[10]. Despite acknowledging the value of the natural environment, this perspective remains tethered to the labor theory of value when dissecting its source. While the first case is easily comprehensible, the explanation for the second case suggests that, in contemporary times, human activities have pervaded nearly every corner of the Earth, transforming it into an artificial ecosystem through various interventions. This implies that all natural environments bear imprints of human labor, whether directly (through exploitation, conservation, etc.) or indirectly (via management agencies, exploration, and planning). These activities, to varying degrees, contribute to shaping the value of natural environments[11].

While human capabilities to understand and modify the natural environment have significantly advanced in recent centuries, it is essential to examine the extent and depth of these interventions. Our planet's biosphere, extending approximately 11 km below sea level and 10 km above, represents only a small fraction of the entire natural environment. Beyond this layer, human interference is limited to a few deep holes from oil drilling and scattered space debris in outer space[12]. Despite achievements such as artificial rainfall, manipulating broader atmospheric phenomena or controlling rainfall distribution remains beyond our current capabilities. Man's ability to predict geological events, like earthquakes and volcanic eruptions, is less precise, but full intervention in these processes remains implausible. While humans can cut down and cultivate forests, replacing their intricate role in air purification, climate regulation, and biodiversity preservation is unattainable. Thus, asserting that the Earth has "almost become an artificial ecosystem" is an exaggeration[13], given the limited scope of current interventions relative to the vastness and complexity of the natural environment.

7 Conclusion

Regardless of the exaggeration in overestimating human intervention in the natural environment and misjudging its nature and extent, taking a step back, this argument relies on the labor theory of value to attribute the source of the natural environment's value to human intervention, whether in exploitation, exploration, or protection.

However, determining the exact value of the natural environment by linking it directly to the input of human activities, such as exploitation or exploration and protection, is flawed. For instance, does the value of the Daqing oil field equate to the investment made in its exploitation? Does the value of a rainforest correspond directly to the expenses incurred in its exploration and protection?

The rigid application of the labor value theory to measure the value of the natural environment is not an accurate or truthful reflection of its multifaceted worth. Rather than adhering strictly to the labor value theory to explain the source of the natural environment's value, it is more appropriate to adopt the "material value theory." This alternative theory not only satisfies its own inherent logical self-sufficiency but is also more conducive to environmental development and protection compared to the labor value theory. The material value theory defines value as the exchange relationship between humans and nature, aiming to establish a series of obligations and responsibilities toward the natural environment in exchange for a range of values provided by humans. This approach seeks to achieve a balanced and harmonious development between humans and the natural environment, fostering a sustainable equilibrium and discouraging the exploitation driven by insatiable greed and desire that leads to environmental pollution and destruction.

References:

1. CAO W, AYANA M T, GAO R. Hybrid Resource Environmental Value Chain Model Based on a Discrete Time Algorithm [J]. WIRELESS COMMUNICATIONS & MOBILE COMPUTING (2021)
2. COLYVAN M, JUSTUS J, REGAN H M. The natural environment is valuable but not infinitely valuable [J]. CONSERVATION LETTERS,3(4): 224-8 (2010)
3. DEMCHENKO N V. Ecological imperative and values of the XXI-st century [J]. ACTUAL PROBLEMS OF ECONOMICS,(83): 110-6 (2008)
4. FOX D. THE NATURAL ENVIRONMENT AS AN AGENT IN THE DESIGN AND OPERATION OF THE BOURNEMOUTH AIR FESTIVAL [J]. EVENT MANAGEMENT, 25(3): 263-77 (2021)
5. GOWDY A J Z. The environmental values of Ottawa planners and the role of these values in a professional code [M], (1993)
6. MOREY T J Z. Value in nature (philosophical frameworks behind beliefs about the value of the natural environment) [J], (1996)
7. SEYMOUR E, CURTIS A, PANNELL D, et al. Understanding the role of assigned values in natural resource management [J]. AUSTRALASIAN JOURNAL OF ENVIRONMENTAL MANAGEMENT,17(3): 142-53 (2010,)
8. TUNCEL G. ALTERNATIVE ENVIRONMENTAL APPLICATIONS IN DEVELOPING "SENSITIVITY TO NATURAL ENVIRONMENT" VALUES IN SOCIAL STUDIES [J]. MARMARA GEOGRAPHICAL REVIEW, (38): 91-103 (2018)
9. Wu Shuqing. Political Economy [M]. Beijing:Higher Education Press,(2009)
10. Marx, Engels. Selected Works of Marx and Engels [M]. Beijing: People's Publishing House, (1995)
11. Marx. Capital [M]. Beijing: People's Publishing House (1975)
12. Ma Zhaoli. An Exploration of Ralston's Ecological Philosophy [M]. Shenyang: Northeastern University Press Ltd. (2009)
13. Yang Decai. Dialectics of Nature [M]. Wuhan: Wuhan University Press, Hubei People's Publishing House, (2006)