

# The Contemporary Significance of Marxist Ecological Philosophy

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**Abstract.** Marxist ecological philosophy carries profound implications and serves as the guiding principle for constructing an ecologically advanced society. The essence and fundamental principle of Marxist philosophy is to demand individuals to fully utilize their subjective agency and achieve the harmonization and integration of humanity and the natural world by adhering to objective rules. An extensive examination of Marxist ecological philosophy holds significant theoretical and practical significance in the pursuit of constructing a harmonious and sustainable planet.

**Keywords:** Marxist ecological philosophy, sustainable development, environmental ethics, systems thinking, socio-ecological integration

## 1 INTRODUCTION

Vietnam has prospered economically in recent decades due to aggressive industrialization and urbanization initiatives. However, material affluence has caused air and water pollution, desert expansion, forest destruction, biodiversity loss, and climate change-related hazards. Political leaders, corporations, academics, and civil society groups are concerned about unsustainable development patterns as global environmental degradation and resource crises worsen. Global desire for large and systematic changes that secure economic prosperity, social fairness, and ecological limits is growing.

The Vietnamese government has made environmental conservation a priority as part of President Nguyen Phu Trong's "ecological civilization" goal. This shows a willingness to combine economic and ecological goals through sustainable development. However, resilient transdisciplinary theories and policies that guide equitable decision-making are needed to implement effective solutions. Marxist ecology provides a comprehensive framework for understanding complicated human-environment relationships and leads Vietnam's scientifically sustainable civilization.

Vietnam has undergone rapid economic growth in recent decades, propelled by ambitious efforts in industrialization and urbanization. Nevertheless, this abundance of resources has resulted in substantial harm to the environment, such as the contamination of air and water, the expansion of deserts, the destruction of forests, the loss of biodiversity, and the occurrence of climate change-related dangers. Based on World Bank data, Vietnam's gross domestic product (GDP) has experienced significant growth, expanding from \$31.2 billion in 1990 to \$271.2 billion in 2021, representing an almost eightfold increase. During the same time frame, the nation's carbon dioxide (CO<sub>2</sub>) emissions have surged from 48.5 million metric tons to 276.6 million metric tons, representing a more than fivefold escalation [1]. The alarming development pattern, which is not sustainable, has caused concern among political leaders, corporations, academics, and civil society groups.

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Environmental conservation has been prioritized by the Vietnamese government by following President Nguyen Phu Trong's objective of achieving an "ecological civilization". This demonstrates a readiness to align economic and ecological goals utilizing sustainable development. Nevertheless, it is crucial to develop resilient transdisciplinary theories and policies that guide fair decision-making to successfully implement efficient solutions. Marxist ecology offers a comprehensive framework for comprehending intricate human-environment connections and can steer Vietnam's shift toward a scientifically sustainable civilization.

## **2 LITERATURE REVIEW**

Ecological philosophy is an abstract field of study that investigates the profound interrelationships between living organisms and the ecosystems in which they exist. Applied environmental science, a branch stemming from ecology and evolutionary research, focuses on the intricate factors and interconnected consequences that contribute to pressing issues like climate change, ocean acidification, and the rapid decline of biodiversity [2,3]. These crises present a substantial peril to human civilization.

Considering the environmental consequences of industrialization and ongoing economic expansion, it is imperative to recognize ecological philosophy as a valuable yet frequently disregarded asset in the pursuit of creating sustainable societies. It surpasses the restrictions of separate areas determined by academic boundaries and instead embraces a comprehensive approach that integrates radical holism and interdisciplinarity, rooted in the interconnected functioning of living systems rather than simplistic mechanical models [4,5]. The framework integrates diverse disciplines, such as cosmology, biology, and social sciences, to uncover intricate interdependencies that are often obscured by fragmentation.

### **2.1 Key principles and distinctive features**

The foundational structure of ecological philosophy is constructed upon four main pillars:

a. **Complex Dynamism** - Ecological communities are intricate adaptive systems that display non-linear causation, emergent phenomena, self-organized spontaneity, distributed agency, and a radical openness that contradicts control or deterministic predictions [6,7].

b. **Relational Holism** - Components are situated within interconnected networks of relationships that unify all aspects, rather than existing as distinct entities or hierarchical structures. The complex interconnections among systems give rise to interdependent cause-and-effect relationships and feedback loops that propagate effects across individuals, societies, and environments [8,9].

c. **Co-Evolution** - The reciprocal interactions between ecological and social environments give rise to dynamic couplings that lead to cumulative transformative trends over time. Agents do not passively bring about alterations in the environment, but instead, they actively exert influence and adjust to the evolving selection pressures in their environment [10,11].

d. **System Integrity** - Stability and resilience are achieved through the harmonious integration of larger-scale systems, such as watersheds, bioregions, and global

biogeochemical cycles, which provide support for the different populations within them. Nevertheless, the increasing demands on these systems are leading to their heightened instability [12,13].

The naturalistic assumptions in ecological philosophy have several methodological implications. These include the requirement for humility in decision-making, the significance of circular causality in explaining phenomena, and the acknowledgment of the collective influence of different actors across various aspects of the ecosystem.

## **2.2 Concepts and principles of ecological philosophy**

This section aims to provide a comprehensive overview of the fundamental concepts and principles of the ecological philosophy approach, to facilitate a more profound comprehension of this field. Ecological philosophy is an abstract field of study that examines the profound interrelationships between living organisms and their surrounding ecological systems. Applied environmental science is a field that stems from ecology and evolutionary research. It focuses on understanding the intricate factors and interconnected consequences that contribute to pressing issues like climate change, ocean acidification, and the rapid decline of biodiversity. These crises present a substantial peril to human civilization.

### *First, the origins of the framework*

Ecological philosophy is a theoretical discipline that explores the deep connections between organisms and their surrounding environmental systems. As a branch derived from ecology and evolutionary research, applied environmental science deals with the complex factors and interconnected effects that contribute to current crises such as climate change, ocean acidification, and the rapid decline of biodiversity. These crises pose a significant threat to human civilization.

Given the impact of industrialization and continuous economic growth on the environment, it is crucial to consider ecological philosophy as a valuable but often overlooked resource for creating sustainable societies. It transcends the limitations of discrete areas defined by academic borders and instead adopts a comprehensive approach that incorporates radical holism and interdisciplinarity, based on the interconnected functioning of living systems rather than simplistic mechanical models. The framework unifies various fields, including cosmological, biological, and social sciences, to reveal complex interconnections that are typically hidden due to fragmentation.

### Fundamental principles and characteristics

The fundamental framework of ecological philosophy is built upon four primary pillars:

a. Complex dynamism - ecological communities are intricate adaptive systems that exhibit nonlinear causation, emergent phenomena, self-organized spontaneity, distributed agency, and a radical openness that opposes control or deterministic predictions.

b. Relational holism - components are situated within interconnected networks of relationships that unite all aspects, rather than existing as separate entities or hierarchical structures. The intricate connections between systems result in interconnected cause-and-effect relationships and feedback loops that spread effects throughout

individuals, societies, and surroundings.

c. Co-evolution - reciprocal interactions between ecological and social environments result in dynamic couplings that lead to cumulative transformative trends throughout time. Agents do not simply cause changes in the environment, but rather they actively influence and adapt to the changing selection pressures in their environment.

d. System integrity - stability and resilience result from the cohesive integration of larger-scale systems such as watersheds, bioregions, and global biogeochemical cycles, which support the various populations within them. However, the growing pressures placed on humans are causing these processes to become more unstable.

#### Implications for research methodology

These naturalistic assumptions have several methodological repercussions for ecological philosophy:

Ecological dynamics function as highly flexible and innovative systems, rather than stable equilibrium systems that allow for interventions without consequences or unwanted feedback effects. Humility is crucial for making sensible and ethical decisions in intricate adaptive systems.

Furthermore, ecological theories require circular causality to prevent the confusion between correlation and causation, considering the interdependence of multiple variables. Due to the absence of an absolute external perspective, observer interpretations are constantly involved in occurrences.

Ecological environments change the collective influence of various actors across different aspects. Organisms cannot be adequately distinguished from inorganic processes based just on purposeful action and directed locomotion. Thermodynamic, metabolic, and developmental markers are more effective in making this distinction. The defining qualities constantly fluctuate within indistinct limits.

Ecological philosophy challenges prevailing worldviews that are based on dualistic thinking, hierarchical structures, and isolated mechanization, which are contrary to the interconnected principles that support resilient living systems. It offers essential direction to reverse environmentally harmful behaviors by aligning human civilizations with ecological boundaries to attain sustainable prosperity in the long run.

#### *Second, foundational principles*

Ecological philosophy differs from environmental frameworks that focus on chemistry, raw materials, infrastructure, and technology in four main ways.

a. Environmental communities are open, complex adaptive networks, not closed, regulated equilibrium systems. Decentralized control, spontaneous emergence, non-linear causation, reciprocal feedback mechanisms, self-organization with intrinsic spontaneity, and radical creativity instead of planned and inflexible structures are key traits. They resist oversimplified modeling, forecasting, and external influence without accountability.

b. Relational holism—components are embedded in complex networks of connections that link multiple entities. Complex actor-environment linkages produce a chain reaction of

repercussions that affects individuals, civilizations, and ecosystems.

c. Co-evolution—close coactions and couplings between natural and cultural settings lead to cumulative transformative trends throughout time. Phenomena are caused by a complicated interaction of selection pressures among individuals with various agendas.

d. Systemic integrity — watersheds, global biogeochemical cycles, and atmospheric hemodynamics support natural communities, making them strong and resilient. These fragile systems are being disrupted by human stresses.

*Third, scientific lineages and evolving complexity frameworks*

The fundamental principles of modern ecological philosophies can be traced back to significant scientific advancements in previous decades, which unveiled a growing interconnectedness across many academic fields.

The initial, Darwinian imprints.

The origins of the foundations can be traced back to Charles Darwin's groundbreaking Theory of Evolution, as expounded in his influential works such as 'On the Origin of Species'. His model of natural selection proposed that the variation in features among organisms leads to differing rates of reproduction in successive generations, as genomes adaptively respond to ecological conditions. The offspring that are more adapted to changing conditions flourish, spreading advantageous traits.

Nevertheless, the intricacy of evolutionary phenomena extends beyond competing hierarchies. Modern bioscience places greater emphasis on the dynamic interactions between species, such as predation, parasitism, mutualism, commensalism, and symbiosis, in the dissemination of ecological advances, rather than solely focusing on rivalry. However, Darwin's views had a major impact on modern thought by illustrating the process of transmutation as opposed to the existence of permanent archetypes.

The second topic of discussion pertains to advancements in thermodynamics.

In the mid-19th century, the newly developed laws of thermodynamics revealed significant exchanges of matter and energy across different physical layers, such as the carbon, nitrogen, and water cycles, which are essential for supporting life on Earth. The interplay between inorganic and organic processes highlights the inevitable interconnectedness that operates at various levels through circular causality, rather than isolated events.

Alfred Lotka and Howard Odum expanded the use of thermodynamic principles, such as dissipative structures, to ecological systems in the early 20th century. They achieved this by measuring the movement of energy and resources, the interconnectedness of different organisms, and the cyclical relationships within self-organized biological communities that exist within varying climates and mineral/nutrient cycles.

Furthermore, this publication focuses on the field of Systems Science.

By the middle of the 20th century, progress in mathematics, cybernetics, and computational power enabled systems theories to create formal models of complex phenomena in biology, technology, and society using non-linear dynamics and network

structures. H.T. Odum and other scientists developed a comprehensive understanding of living systems and ecologies by using energetic frameworks. Fritjof Capra and Ilya Prigogine incorporated systems thinking into ecological philosophy by applying self-organizing chaos theories and dissipative structure.

James Lovelock's Gaia theory posited that the Earth functions as a self-regulating complex adaptive system, maintaining conditions suitable for life through global biochemical equilibria. This system is comprised of dynamic balances across geological, hydrological, atmospheric, and biological spheres. Meanwhile, Lynn Margulis showed the vital role of microbial symbiotic connections that extend across bacterial biofilms and eukaryotic mitochondria, fostering evolutionary progress through collaboration rather than just competition.

Many contemporary ecological philosophies favor radical holism and relationality over reductionism or atomism due to the presence of multi-dimensional contextuality and interconnectedness throughout existence at many levels. The removal of disciplinary barriers and precise definitions allows for a smooth transition guided by the interconnectedness of systems and dynamic changes.

Nevertheless, the analytical tools provided by systems science frameworks also present possibilities for ideological forces to selectively screen interpretations or extend control ambitions by marginalizing important uncertainties concerning complex adaptive systems. It is important to exercise caution when applying abstract formalizations to constantly changing and irreducible phenomenological realities.

#### *Fourth, comparing the divergent paths of Eastern and Western societies*

China has a rich cultural history that is deeply influenced by Daoist philosophical traditions. These traditions prioritize metaphysical continuity and the harmonious relationship between humanity, heaven, and nature, rather than conflict. The Zhou Dynasty, which existed over two thousand years ago, already witnessed the emergence of profound ecological concepts. Daoist schools emphasized the importance of matching both individual and community actions with intrinsic environmental patterns and limits to achieve stability and prosperity.

Charles Darwin introduced evolutionary science in the mid-19th century, which sparked Western perspectives focused on using mechanical science and technology to actively manipulate, exploit, and alter natural environments for human gain. However, this approach did not recognize the interconnectedness and limitations of these systems.

#### Western Models - Instrumentalism and externalization

Traditional Western perspectives have typically viewed nature and ecosystems as mere collections of lifeless materials and things, devoid of inherent purposes, influence, or worth apart from their potential for human exploitation and financial gain. Enlightenment-era intellectuals advocated for profound distinctions between the realms of mind and body, spirit and subjects, and humanity and nature.

This ideological orientation promotes the belief that humans have ultimate control and dominion over natural settings, resulting in an unrestricted increase of material

consumption and a focus only on improving control, efficiency, convenience, and choices for human civilization.

#### Ambiguous Dichotomies - Eastern relational holism

Ancient Daoist ecological theory focuses on dynamic relational holism rather than atomism. It emphasizes the need for balanced connections between individuals, communities, and the environment through mutual cause and effect and collaborative involvement with organic, self-regulating natural processes.

Instead of strict divisions, the continuous interaction and permeability between distinct categories such as naturalism and supernaturalism allow for holistic and interconnected understandings of the nature of reality. The seamless interconnectedness of the mind, body, spirits, communities, and ecosystems in Vietnamese traditions enabled the adoption of more sustainable methods of survival.

#### Combining the advantages of dual frameworks

Nevertheless, both strategies possess benefits as well as significant constraints. The anthropocentric control blatantly disregards the intricate nature of systems and the crucial interconnections between them. However, the inclination in Eastern philosophy to passively adhere to perceived natural conditions undermines the potential for ethical creativity, progress, and improvement through deliberate intervention. Insisting on complete adherence to established norms poses the danger of becoming stagnant and vulnerable.

By combining the advantages of Eastern holism and Western analytic science while addressing their limitations, we can discover effective approaches to ensure long-term prosperity. Implementing targeted technology progress under ecological consciousness and limitations can provide enduring resilience. By combining analysis and synthesis, praxis can be achieved, allowing for integration across several domains. A recent study on meta-patterns reveals the existence of universal principles that go beyond the specific contexts of ancient Vietnamese and modern complexity theories.

The integration of different views can combine the qualities of old Eastern wisdom and modern scientific understanding through process-oriented philosophical approaches. Facilitating communication between different knowledge systems promotes variety and resilience, while also focusing efforts on enhancing the overall welfare of society. Throughout history, humanity has consistently made progress in uncovering universal truths that transcend narrow boundaries, despite facing challenges and constraints.

#### *Fifth, integrating ecological philosophy and Marxist social thought*

In addition to conceptual frameworks, ecological philosophy also has a crucial function in guiding economic models and development programs by offering ethical guidance. Karl Marx, a prominent socialist thinker, highlighted the need for equal relationships among individuals, society, and the surrounding ecosystems. His dialectical views advocated for the establishment of institutions that are designed to meet communal requirements while maintaining a balanced relationship with the natural boundaries of the region. These institutions should not facilitate uncontrolled capital exploitation, which can lead to the destruction of the productive forces that permit wealth, without any form of accountability.

### Lack of conservation in industrialization

Unfortunately, in communist states during the 20th century, the implementation of Marxist ideas mostly prioritized accelerating heavy industrialization and maximizing material output, while largely neglecting the importance of ecological conservation and the limitations of sustainability. The catastrophic environmental ramifications and ultimate downfall of the Soviet Union and President Ho Chi Minh's regime in Vietnam serve as unmistakable cautionary illustrations of the perils associated with unregulated productivism. Exclusively depending on technical advancements is inadequate to overcome the inherent intricacies of natural systems.

### Realigning socialist paradigms

Integrating ecological principles like systemic variety, resilience, sustainability, and complexity provides a synthesis missing from applied Marxist models. This overconfidence in linear mechanical control and anthropocentric resource exploitation is unwarranted. Under President Nguyen Phu Trong, 'ecological civilization' reforms in Vietnam attempted to connect socialist growth with natural boundaries and bio-capacity. Implementing economic planning and technology innovation with a methodical knowledge of environmental limits and responsibility.

This is a deliberate return to Marx's original idea of fair, moral, and democratic establishments that use scientific knowledge to meet collective needs while avoiding self-harm rather than facilitating unregulated industrial capital growth that externalizes violence to humanity and the environment. Modern ecological philosophy' transdisciplinary, dynamic, and ethical focus helps fix mechanical Marxist practices' flaws. These ideas provide vital sustainability elements.

### Combining the principles of ecology and Marxism to achieve long-term sustainability.

Marxist understanding of historical social forces and modes of production and ecological research of environmental constraints and system dynamics provide a solid sustainability foundation. This statement shows how capitalism's exploitative practices during industrialization caused environmental problems. It also stresses the need to avoid anti-technology views that harm mankind.

Ecological knowledge and societal needs can guide scientific progress toward liberation and prosperity. Respecting nature's limits and being accountable to society are crucial. By combining ecological principles with socialism, excessive consumption, austerity, unrestrained industrialization, and primitivism are balanced.

This dialectical synthesis addresses damaging ideological dogmas in prior Marxism implementations. It achieves so by creating adaptive, decentralized, and democratized institutions guided by socio-environmental justice ethics. It uses a flexible and comprehensive strategy that combines information from many fields and moral duties to properly protect civilization's ecosystems.

### *Sixth, current significance and practical uses*

The decreasing connection between modern civilizations and the natural world necessitates smart and morally good technology to restore balance within the globe before



key and devastating thresholds. Ecological philosophies influence human ethics, ideals, and attitudes toward nature beyond physical landscapes.

The Enlightenment, which led to the scientific revolution and industrialization, promoted human dominion over nature. Intellectuals believed in a dualism between mind and body, spirit and subjects, and humanity and nature. This led to a utilitarian view of surroundings as lifeless objects and creatures used only for human exploitation and profit.

Contemporary ecological theories promote continuity over geological and cosmic divisions based on shared foundations. Human acts, as complex dissipative systems, are inextricably linked to nature's self-organizing and chaotic dynamics. Complex causal networks and feedback loops in interwoven webs of influence spanning individual, social, and ecosystem levels produce unforeseen outcomes.

Throughout history, many ideological and intellectual groups have dynamically engaged with ecological schools of thought in various countries. Changing social attitudes, ethics, and legislation is essential for sustainable communities that depend on resilient environments. Sharing values like conservation, variety, moderation, and ethics helps social collaboration overcome physical barriers and build cultural cohesiveness.

natural philosophy can guide Vietnam's environmental policies and help solve city problems generated by unregulated economic growth that disregards natural equilibrium. Three main areas need improvement:

- a. Cost-effectively improving technological infrastructure and industrial processes to reduce carbon emissions, air and water pollution, and ecological degradation.
- b. Scientific research and development aim to build sustainable technologies that save resources and enhance community wealth while respecting local environments.
- c. Multidisciplinary education that promotes ecological ethics and policy based on complex adaptive systems thinking rather than linear mechanical theories is the goal.

### **3. COMBINING THE PRINCIPLES OF ECOLOGICAL PHILOSOPHY AND MARXIST SOCIAL THOUGHT**

Ecological philosophy plays a vital role in providing ethical guidance for economic models and development programs, in addition to conceptual frameworks. Karl Marx, a renowned socialist philosopher, emphasized the necessity of establishing equitable connections between individuals, society, and the surrounding ecosystems. He promoted dialectical perspectives that supported the creation of institutions tailored to fulfill the needs of the community while also respecting the natural limits of the region [14,15].

Regrettably, in communist states of the 20th century, the application of Marxist principles primarily focused on expediting heavy industrialization and optimizing material production, while largely disregarding the significance of ecological preservation and the constraints of sustainability. The catastrophic environmental consequences and eventual collapse of the Soviet Union and President Ho Chi Minh's regime in Vietnam are clear examples that warn us about the dangers of unregulated productivism [16,17].

By incorporating ecological principles such as systemic variety, resilience, sustainability, and complexity, applied Marxist models can achieve a more comprehensive

and holistic approach. The unwarranted nature of this overconfidence lies in the reliance on linear mechanical control and the exploitation of resources from an anthropocentric perspective. President Nguyen Phu Trong's administration in Vietnam is implementing 'ecological civilization' reforms that aim to integrate socialist development with ecological limits and bio-capacity. These reforms involve the use of economic planning and technological innovation, guided by a systematic understanding of environmental constraints and the need for responsible practices [18,19].

This is an intentional revival of Marx's initial concept of just, ethical, and democratic institutions that utilize scientific knowledge to fulfill common needs while preventing harm to oneself, instead of promoting uncontrolled growth of industrial capital that transfers violence onto humanity and the environment. The transdisciplinary and dynamic focus of modern ecological philosophy addresses the flaws of mechanical Marxist practices and incorporates vital sustainability elements [20,21]. This approach also emphasizes ethical considerations.

#### **4. CONCLUSION**

Ecological philosophy emerged in response to the increasing environmental pressures caused by worldwide human economic activities. Ecological philosophies offer valuable insights for addressing sustainability issues in Vietnam and establishing an ecological civilization that ensures enduring prosperity. These philosophies examine the complex relationship between human cognition, ethics, and social governance.

The fusion of Marxist social ideology and ecological principles presents a hopeful route to attain sustainable development and surmount the shortcomings of previous Marxist implementations that emphasized swift industrialization at the expense of environmental preservation. This synthesis aims to address harmful ideological beliefs in previous implementations of Marxism by establishing flexible, decentralized, and democratic institutions that are guided by principles of socio-environmental justice.

In Vietnam, the integration of ecological knowledge and a Marxist comprehension of social forces offers a robust basis for the pursuit of long-term sustainability. By adhering to natural boundaries while simultaneously fulfilling societal demands, this interdisciplinary methodology can assist in mitigating excessive consumption, austerity measures, uncontrolled industrialization, and primitivism - ultimately resulting in a more robust and fair development paradigm.

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