

# Ecosociocentrism

Gopi Upreti

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The Earth First Paradigm for Sustainable  
Living

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This groundbreaking book by Professor Gopi Upreti delves deep into the complex issues of the global environmental crisis and climate change, highlighting the threats that jeopardize the very continuity of life in our planet. It vividly depicts the Anthropocene, the most perilous epoch in human history, and the stark realities of climate change, environmental destruction, and degradation. The author presents innovative ideas, strategies, and policy recommendations that encourage responsible practices toward sustainable living. It challenges us to reassess our mode of thinking, reform our dominant development model, and reorient our cultural-behavioral patterns toward the ones guided by ecological wisdom consciousness. It is a valuable addition to every environmental scholar's bookshelf. It is recommended for those engaged in environmental conservation and development, including at the UN and similar international organizations, governmental policymakers, civil societies, academics, media, and students.

—Ambika P. Adhikari, *D. Des, Sr. Global Futures Scientist, Arizona State University, Former Nepal Country Representative, International Union for Conservation of Nature (IUCN)*

Professor Gopi Upreti deserves sincere congratulations for his invaluable contribution to the timely book, written amid a global environmental crisis and the looming threat of climate change. The author's keen observation that we live in the most dangerous era, besieged by ecological and environmental crises, is spot-on. In his treatise, *Ecosociocentrism: The Earth First Paradigm for Sustainable Living*, Professor Upreti postulates that our destiny is inextricably linked to Earth's state of functional health. The author's thesis is that we must first secure a functionally healthy Earth to ensure a future for humankind and other living systems. He advocates for an alternative development vision, where policies are guided by ecological principles and wisdom that prioritize ecosystem health and sustainable use of Earth's systems, promote cooperation and equity, and resist competition, control, and domination driven by the insatiable greed of manmade capital accumulation. This book is a compelling narrative that highlights the importance of Earth as our only home and the need to protect it as a fundamental requirement for our safety and survival. It is a must-read book for anyone committed to social and environmental sustainability, nature conservation, and the pursuit of a sustainable human civilization that coexists with the diverse living system on Earth.

—Megha N. Parajulee, *Regents Fellow Professor and Faculty Fellow, Texas A&M University, Texas*

*Ecosociocentrism: The Earth First Paradigm for Sustainable Living*, by Prof. Gopi Upreti, presents a comprehensive and thought-provoking analysis of the existential crossroads faced by humanity in our current Anthropocene epoch. It pierces through the fog of growth-driven solutions, often misguided and serving only to perpetuate the crisis. It compellingly argues that changes in human consciousness and behavioral patterns are necessary and imperative for the survival and flourishing of humans and Earth's diverse life system. The book's central thesis resonates profoundly—Earth, our only abode in the vast cosmos, requires our first and foremost protection for our safety and security. Anyone concerned about the future of our life-supporting planet and the continuance of human civilization should consider this insightful book a critical read. It serves as an eye-opening exploration of our relationship with Earth and offers an actionable blueprint for a more harmonious and sustainable living on planet Earth.

—Jagadish Timsina, *Editor of Agricultural Systems, Visiting Professor, University of Peradeniya, Sri Lanka*



*We are living in a critical period in Earth's history, in which humanity's impact on the environment has escalated to a scale that is impacting not only the health and vitality of the planet Earth but also the existential threats of diverse living system and the species, including our own. Only the functionally healthy Earth's systems can ensure the security of humanity, the living system, and the sustainable living for all, which is possible only if "The Earth First Paradigm" becomes the conscious working algorithm of humanity in the Anthropocene epoch of the twenty-first century. This is not merely a hopeful vision of the future; it is a logical and necessary path that we must embark upon if we wish to exist on this planet.*



To the memory of  
Professor Nicholas Polunin (26 Jun 1909–8 Dec 1997)

United Nations Environment Programmer's International Sasakawa Environment Prize (1987) United Nations Global 500 Roll of Honor (1991).

I would like to take a moment to honor the legacy of Professor Nicholas Polunin, a truly remarkable individual whose pioneering efforts in the field of environmental conservation continue to inspire and inform our collective efforts to protect our planet. As the founder and dedicated editor of the journal *Environmental Conservation*, Professor Polunin was a true visionary who recognized the urgent need to preserve our planet's invaluable ecosystems and worked tirelessly to promote greater awareness and action in this critical area. Through his unwavering commitment and indomitable spirit, Professor Polunin embodied a profound dedication to preserving our planet and its natural resources. His teachings and inspirations continue to resonate within the pages of his works and in the lives of those fortunate enough to encounter his wisdom. I count myself among these fortunate individuals, having had the privilege of receiving the Best Paper Award in Switzerland in 1995 and the monetary prize for my article published in the journal *Environmental Conservation*, Volume 21(1) of Spring 1994, bestowed upon me by Professor Polunin himself. It marked a pivotal moment in my life, inspiring me to persist in adding chapters to the manuscript of this book.

This book that I now dedicate to Professor Polunin's memory is a small but heartfelt tribute to his enduring legacy. It is my hope that the pages within will not only capture the spirit and vision of this remarkable individual but will also inspire others to carry on his mission and to work tirelessly in defense of our planet's most precious resources. May we collectively strive for a healthier, greener, and more caring Earth in memory of Professor Nicholas Polunin's vision and work.

Gopi Upreti  
Emeritus Professor  
(IAAS), Tribhuvan University  
Kathmandu, Nepal

# Foreword

This is a book written by a longtime professor and practitioner in Nepal’s leading academic institution, the Agriculture and Forestry University, formerly known as the Institute of Agriculture and Animal Science of Tribhuvan University. The author, a colleague of mine whom I have known for some years, is passionate about the issues of environmental equity, justice, and social inclusion. The book’s 13 chapters follow one another logically and each chapter serves to prepare the reader for the topics in the next chapter. Prof. Upreti performs the difficult task of making the book comprehensible to the layperson while maintaining depth and rigor to satisfy the professional scientist. The global topics of climate change and other human-driven deterioration of earth systems are well covered in the book. I find the book to be a useful resource for professional and can be adopted as supplementary resource material for environmental science and studies course at the university level.

Jefferson Science Fellow,  
Fulbright US Scholar,  
Embassy Science Fellow, Professor,  
California State University  
Fresno, CA, USA

Mohan B. Dangi



# Foreword

In this timely and compelling book, *Ecosociocentrism: The Earth First Paradigm for Sustainable Living*, Professor Gopi Upreti provides a robust examination of the multifaceted issues our world confronts today, spanning ecological, sociological, environmental, and climate change domains. He expounds on the notion that the qualitative enhancement of both human life and the environmental sustainability should take precedence over mere growth-driven development, thereby challenging the current trajectory of global development. Professor Upreti's comprehensive analysis of our complex environmental and social landscapes firmly posits the need for a fundamental reconfiguration of our dominant development paradigm, beliefs, methodologies, consciousness, and moral obligations. He incisively illuminates the principal triggers of our ongoing ecological and climate crisis, ranging from the destruction and degradation of ecosystems and unsustainable exploitation of natural resources to socioeconomic inequities prevalent in developing countries, and most critically, the ecologically detrimental consumption cultural patterns in developed Western societies. To address these pressing environmental and societal challenges, Professor Upreti argues that significant alterations to our current environmental and development policies and their robust implementation are essential in both developed and developing nations. He presents policy instruments and strategies for the protection of functional health and the ecosystem services of the planet, the advancement of social justice and equality, and the cultivation of global environmental and social sustainability.

Professor Upreti critiques the prevailing valuation approach of biodiversity, ecosystem services, and natural capital. He posits that the flaws inherent in the valuation methodologies are primary drivers of global environmental degradation, thereby imperiling the survival of humanity on our home planet. Contrary to the conventional market-based valuation that undermines the value of biodiversity, ecosystem health and services, he advocates for an economic valuation framework that appreciates the life-support services and material contributions of the natural ecosystem. He accentuates the necessity for new development initiatives to transcend the confines of mere economic growth and to incorporate values that promote qualitative enhancements in human life and the environment. Central to his argument is

the vital role that *environmental ethics* can play in shaping human behavior and guiding development initiatives fostering an environmentally conscious society capable of mitigating existing environmental challenges, including global environmental and climate crises.

Navigating the complexities of social and environmental sustainability, Professor Upreti introduces the term *Ecosociocentrism*, a neologism derived from the amalgamation of *ecocentrism* and *sociocentrism*. This innovative paradigm emphasizes that our socio-economic system (sociosphere) is subordinate to, and functions within, the planetary ecosystem (ecosphere), and thus, must operate in harmony with Earth's regenerative biocapacity. Professor Upreti poses a critical question: *how can our finite Earth support infinite growth-driven development within its limited biocapacity?* Professor Upreti maintains that achieving sustainable development requires implementing development policies and strategies that enhance ecological resilience while operating within the *biocapacity* of planet Earth. He presents *Ecosociocentrism: The Earth First Paradigm* as a development model that serves as the foundation of ecological and social sustainability safeguarding the continuity of humanity and the wider biotic community on planet Earth.

In this book, Professor Upreti artfully navigates the complex societal, ecological, environmental, and global challenges currently confronting humanity. An invaluable resource for those wishing to understand the theory and practice of ecological and sociological systems, including the current environmental crises and climate change, this book is a seminal reference for students, academics, researchers, ecologists, sociologists, environmentalists, and policymakers alike.

Founder of Asta-Ja Framework, Professor and  
Coordinator, Environmental Sciences  
University of Louisiana at Lafayette  
Lafayette, LA, USA

Durga D. Poudel

# Preface

This book is the culmination of over three decades of reflection, engagement, and an enduring quest for a meaningful understanding of our complex relationship with our environment and nature. The inception of this journey took place in 1990 during my East West Center (EWC) Doctoral Fellowship at the University of Hawaii. The 1990s was a decade marked by a global awakening toward *environmental conservation* and *sustainable development*. These concepts became central to development discourses among professionals, planners, and institutions involved in shaping policy across the globe. Significantly, this was also the era of *Our Common Future*, the pivotal Brundtland World Commission on Environment and Development (WCED) report published in 1987. The report was the first to offer an official, albeit inadequate, definition of *sustainable development*, which subsequently informed policy directives in nations worldwide. In this era, the environment earned its rightful place within the development policy framework of nations, spawning a movement that continues to this day. The *mantra* of *sustainable development* has since echoed in every corner of national and international forums and discourses, from development experts to politicians. Following my rigorous immersion in the *Our Common Future* report and the previously published *Limits to Growth* report by D.H. Meadow's team, I found myself intrigued by a glaring discrepancy. While *sustainable development* emerged as the touted model for progress, it became apparent to me that the model failed to embrace the foundational ecological principles that underpin genuine environmental sustainability. This revelation made it clear that *sustainable development*, in many ways, was a sophisticated reframing of the existing neoliberal growth model, masked by its appealing novelty.

The current growth economic paradigm has, with striking audacity, succeeded on two fronts: a relentless, unsustainable extraction of Earth's resources to feed the insatiable appetite for growth, and the promotion of ecologically hostile consumerism as a means to perpetuate corporate wealth accumulation. This model's egregious consequences are palpable and far-reaching, ravaging the health and integrity of Earth's systems with an alarming ferocity. The devastating fallout from this model is manifested in the catastrophic breakdown of planetary ecosystems, rapidly accelerating climate change, the extinction and annihilation of millions of species,

ocean acidification, destruction of coral reef ecosystem, toxic pollution, and the desertification of previously fertile lands. The continuity of *Homo sapiens* and Earth's living system now hangs in the balance, under an increasingly ominous cloud of uncertainty. We can agree that humanity's destiny is inexorably intertwined with the functionally healthy planet. This forms the crux of this book that to secure our collective future, we must first ensure the functionally healthy and flourishing planet. *Ecosociocentrism: The Earth First Paradigm for Sustainable Living* is a call for a radical change in our dominant mode of thinking and development model seeking a viable path for sustainable living on planet Earth.

Changes in human consciousness and cultural behavioral patterns are not only necessary but also moral imperative for the survival and flourishing of both humans and Earth's diverse life systems. Anyone concerned about the future of our life-supporting planet and the continuance of human civilization should seriously ponder into revisiting the fundamental *assumptions* and *modus operandi* of our current growth model and reconceptualize what we really mean by *development*.

We are living in a critical period in Earth's history, in which humanity's impact on the environment has escalated to a scale that is impacting not only the health and vitality of the planet but also the existential threat of entire living system including our own. This crisis can no longer be addressed solely through technological advancements or cosmetic policy changes. A fundamental shift in our *collective consciousness* and *behavioral patterns* is required—a shift that allows us to view the environment not as a separate entity, but as an integral part of ourselves and of all life. It behooves that Earth's systems be maintained in a functionally healthy and resilient states so that they can continuously generate ecological goods and services across multiple generations for sustainable living.

This journey begins with a profound look at *human consciousness*, which was understood not merely as an isolated phenomenon, but as an evolutionary development with substantial implications for human behavioral change. When *human consciousness* is elevated, we are more likely to perceive and value the interconnectedness of life, recognizing the environment as an organic extension of ourselves. Yet, consciousness alone is insufficient. Sustainable living also requires a profound sense of *spirituality*—a sense of connection that transcends the self and binds us to the planet Earth and the cosmos. Such *spirituality* gives rise to a deep sense of awe and reverence for the natural world, promoting a stewardship-based approach to environmental interactions. Spirituality, in this sense, is not confined to religious or mystical experiences. Instead, *spirituality* can emerge from our everyday encounters with Nature, from the simple act of observing a sunrise or sunset on the snowcapped mountain top to the amazing deep and colorful sea world and to the complex *web of life* of tropical and Amazonian rainforests and, in introspection, realizing of our special existential role within this grand cosmos.

I believe *human consciousness* is a powerful and liberating force of unlocking our full potential as individuals and as a species. It can open a new vista for the *quantum leap to eco-cultural enlightenment*, a new milestone in the evolutionary history of *Homo sapiens* liberating humanity from its current delusion. Albert Einstein's following words impeccably evoke this vision:

A human being is part of the whole called by us “the universe,” a part limited in time and space. We experience ourselves, our thoughts, and our feelings as something separate from the rest—a kind of optical illusion of our Consciousness. This delusion is a kind of prison for us, restricting us to our personal desires and affection for a few persons nearest to us. Our task must be to free ourselves from this prison by widening our circle of understanding and compassion to embrace all living creatures and the whole of Nature in its beauty.

No doubt, the biggest challenge of humanity today is how to free itself from the prison of this optical illusion to preserve the web of interconnectedness and live in peaceful coexistence with other living entities in Nature. The interweaving of consciousness, spirituality, and moral imperatives in environmental stewardship presents a holistic approach to addressing our environmental challenges and climate crisis. It goes beyond the traditional, segmented methods, embracing a more comprehensive, integrated, and ecologically guided profound engagement with our planet. Through this integration and engagement, we can hope to bring about a societal transformation that redefines our relationship with the environment and our roles as custodians of the Earth. Only through a transformative process empowered by *collective consciousness* within humanity itself can we secure a sustainable existence for all. To facilitate this transformation, a paradigm that fosters ecological harmony between the *ecosphere* and *sociosphere* is indispensable. Planet Earth is the sole abode for all living entities, including *Homo sapiens*. Only a healthy and functionally nourishing Earth can ensure the security of humanity and sustainable living, which is possible if *The Earth First Paradigm* becomes the conscious working algorithm of humanity in the *Anthropocene epoch* of the twenty-first century. This is not merely a hopeful vision of the future; it is a logical and necessary path that we must embark upon if we wish to prolong sustainable living on planet Earth.

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It is with profound gratitude and respect that I acknowledge the contributions of several individuals without whom this manuscript would not have come to fruition. Foremost, my earnest appreciation extends to Mr. Richard Morse, Senior Research Fellow of the Program on International Economic and Development Policy, and the Coordinator of the Participatory Development Group at East West Center (EWC). His instrumental role, akin to sowing a seed that subsequently germinated and culminated in this book, cannot be overstated. Equally, my deep sense of indebtedness rests with my Professor Richard W. Hartmann, Tropical Agriculture, University of Hawaii, whose meticulous editing and valuable feedbacks on the initial few chapters enhanced my confidence to pursue it further.

Similarly, I would like to acknowledge Catherine Wilson, Professor of Urban and Regional Planning at the University of Hawaii, and Arthur Getz, Visiting Research Fellow at EWC for intellectually stimulating discussions on various development themes, particularly “environment and sustainable development,” which have been instrumental in shaping my thoughts in this book. I greatly appreciate Dr. Uttam Gaulee, Professor of Higher Education Administration and Policy at Morgan State University for his inspirational advice and encouragement.

On a personal note, my gratitude goes out to my wife, Samita Upreti, whose patience and enduring support have been a pillar of strength. Her providing me with nourishing meals and maintaining my wellbeing, while gracefully bearing with my idiosyncrasy, deserves special mention. Similarly, my son Asim, my daughter-in-law Eva, and younger son Bibek, warrant my grateful acknowledgment. Without their support and compassionate care during my periods of illness, surgery, and the subsequent recovery, completing this work would have been impossible.

Finally, I would be remiss if I did not acknowledge the inspiration derived from my beloved granddaughter, Arya Upreti, whose cheerful smile energizes me and her mere presence symbolizes the generation that will become the true custodians of our planet. This book, in many ways, is a testament to their future stewardship of the planet Earth.

# Introduction

As we can observe, the fundamental ecological variables—matter, energy, space, time, and diversity—govern all ecological phenomena. The interactions and interplay of these variables determine the behaviors of ecological systems. Chapter 1 begins with a brief discussion of these variables and introduces emerging ecological concepts that enhance our understanding of ecological complexity and behavior, which we discuss in later chapters.

Chapter 2 delves into the importance of biodiversity, ecosystems, and ecosystem services for human survival. It highlights the necessity of preserving these natural systems and ensuring their continued healthy functionality. The chapter provides a critical perspective on how the current economic system recognizes only the tangible, market-driven commodity values, thus neglecting the integral life support ecological services and resources provided by diverse biotic communities and ecosystems. It emphasizes that all human needs are met through materials and ecological services derived from these natural ecosystem processes, for which no comprehensive economic valuation system currently exists.

Chapter 3 critically examines the current state of biodiversity and ecosystem destruction and degradation, attributing this primarily to hyper-anthropogenic causes. It identifies key forces of environmental destruction, primarily ecologically detrimental consumption and production patterns in wealthier, industrialized countries, and population pressure, poverty, and inequitable development in developing nations. The chapter underscores the alarming impacts of unsustainable resource extraction and economic activities, particularly in developed and rapidly developing nations. The chapter concludes that environmental conservation strategies will only succeed if adequate cultural, socio-economic, and political measures are implemented to shift current production and consumption patterns and alleviate human poverty.

Chapter 4 explores the fundamental principles underpinning ecosystem evolution, examining the dynamic processes that have shaped biodiversity and ecosystems over time. Acknowledging the importance of comprehending these principles and mechanisms for interpreting ecosystem responses to disturbances and forecasting future changes, the chapter explicates how anthropogenic and biotic

interactions, abiotic factors, and random events instigate long-term alterations in ecosystems. This intricate interplay underscores the complexity of ecosystem evolution, which often involves shifts spurred by climate change, plate tectonics, and species interactions. Attempts have been made to integrate perspectives with insights derived from evolutionary biology, underscoring the instrumental role of adaptation and speciation in shaping ecosystems.

Drawing from biological, evolutionary, and ecological sciences, the chapter outlines the foundational principles of ecosystem evolution, including natural selection, ecosystem succession, coevolution, diversity and stability, interconnectedness, interdependence, mutualism, and system complexity. It positions ecosystems as the basic units of biological organization, emphasizing the symbiotic feedback mechanisms between biotic communities and the physical environment that sustain their structure and function. It highlights how biological subsystems' growth and development influence and impact the physical system. The chapter delves into a more profound understanding of these principles and theories to inform future ecosystem protection, preservation, and biodiversity management efforts.

Chapter 5 brings perspectives on how *autopoiesis*, or the self-organizing property of the living system, is the basis for the emergence of a complex form of ecosystem structure. Autopoiesis provides the fundamental basis for the system view of life. It pervades the biophysical realm of Nature as a ubiquitous phenomenon. Ecosystems can be comprehensively conceived as autopoietic systems that engender and sustain themselves via homeostatic responses to shifting environmental conditions. Ecosystem health encapsulates its capacity for *resilience*, *self-organization*, and preserving the ecosystem's functional integrity. Therefore, the health of ecosystems should occupy the focal point of any policy-making and managerial strategy that aims to safeguard Nature, promote conservation, and guide ecologically informed management and societal values such as human health and wellbeing, which are intrinsically interconnected to the health of ecosystems.

Understanding the concept of *autopoiesis*, *ecosystem health*, and their implications for human health and wellbeing is imperative for nature conservation and sustainable living. Furthermore, there is an urgent need for restoration and ecological reengineering efforts to restore and redevelop degraded ecosystems, reinstating their functional integrity, which is critical to the continuation of the living system on planet Earth.

Chapter 6 critically analyzes the complex task of aligning human needs with the imperatives of nature conservation, protection, and sustainable development, acknowledging the profound influence of basic human needs on the behavioral patterns of people. It draws upon Abraham Maslow's hierarchy of needs, noting the constant nature of fundamental human needs irrespective of cultural or historical contexts. These needs largely rely on ecosystem services, including material inputs, life-supporting resources such as land, air, water, biodiversity, and waste management services. The human economy operates as a subsystem within the planetary ecosystem, emphasizing sustainable development as a multidimensional concept with inherent ecological, economic, and social dimensions. In the *Anthropocene era*, humanity grapples with the monumental task of balancing these dimensions of



sustainability. The dominant economic model, characterized by infinite growth, excessive consumerism, and utter disregard for ecosystem health and resilience, is inherently unsustainable. Thus, an ecological value-based development model that promotes ecosystem health and maintenance of ecological processes and operates within the biocapacity of our planet Earth forms the basis for sustainable living.

The chapter argues for creating socio-economic governance systems capable of mitigating poverty, enabling Earth-friendly consumption patterns and growth, and preserving ecosystem health and vital environmental life support services. With the looming threat of infinite economic growth surpassing the Earth's *biocapacity*, there is an urgent need for a global consensus on sustainable production, distribution, and consumption of goods and services. A steady-state economy—marked by circular economy, population stability and reduced per capita consumption—to ensure the sustained functionality of the planetary ecosystem fosters optimism for sustainable living on planet Earth.

As a defining crisis of the *Anthropocene*, climate change has far-reaching impacts on human and Earth systems. Chapter 7 offers a comprehensive examination of climate change's current and projected consequences, investigating global warming scenarios ranging from 1.5 to 4 °C. It underscores the escalating threats facing human societies, including increased extreme weather events, rising sea levels, and high risks to food and water security. Each incremental degree of warming amplifies these risks, potentially leading to unimaginable catastrophic outcomes, should global average temperatures rise by 4 °C above pre-industrial levels. This is crucial to avoid a looming existential threat to humanity. The chapter highlights the role of fossil fuels corporate capitalism in accelerating global warming to alarming levels, pushing Earth's tipping points to potentially irreversible extremes. Scientists have spotlighted the rapid pace of contemporary changes compared to those marking the end of the last glacial period, notably the 52% loss of biodiversity between 1970 and 2010.

The chapter highlights the efforts of investigative journalists and scholars in holding fossil fuel industries accountable for their environmentally destructive acts and their role in promoting stricter adherence to environmental laws and regulations. It posits that through the unified efforts of scientists, policymakers, journalists, environmental activists, NGOs, and grassroots movements, there is potential for a *paradigm shift* in the mindsets of mainstream politicians and the world's corporate leaders. Replacing the current ecologically hostile cultural superstructures with new ones grounded in *ecological wisdom* is essential for securing the future of humanity and planetary Earth systems. The chapter concludes by endorsing the integration of ecology and political economy with ecological facts backed value-based development imperative as the sole viable solution to rectify humanity's unfortunate disconnection from Nature, suggesting the dawn of an *ecological civilization*, a transformative phase in human development that harmoniously aligns our *sociosphere* with the *biosphere*.

Chapter 8 critically evaluates the existing valuation approaches of *biodiversity*, *ecosystem services*, and *natural capital*, positing their inadequacy as a principal driver of environmental destruction and threats to human existence on planet Earth.

The current *neoliberal economic model* recognizes only the tangible benefits and market-determined commodity values, thereby neglecting the invaluable ecological services contributions from diverse ecosystems and biotic communities. Such disregard for the natural ecosystem's life-support services and material inputs, fundamental to producing human-made goods, necessitates revising economic valuation systems, with the principle of opportunity cost applied to maintaining a healthy natural ecosystem.

It argues for a comprehensive valuation of entire ecosystems, recognizing their potential for generating goods and services vital for human wellbeing and happiness. The intertwined nature of the economic system and natural ecosystem signifies the urgent need for our policies and valuation strategies to abide by ecological laws and principles, emphasizing protecting and maintaining healthy ecological systems. The discourse around the valuation of natural systems, encompassing biodiversity and ecosystem processes, has become a pivotal issue among conservationists, environmentalists, and economists. It underscores the urgent need for experts from various disciplines, particularly ecology, biology, agriculture, and economics, to collaborate to develop valuation techniques and approaches that integrate both the instrumental and intrinsic values of biodiversity and ecosystems. The chapter concludes with a call to integrate biodiversity and ecosystem services values into economic valuation systems, stating it as a prerequisite for sustainable development and effective environmental protection and conservation.

Chapter 9 critically assesses the *metaphysical* foundation of the *dominant development paradigm* that has marked the *Anthropocene epoch*, underscoring its inherent tendency to treat Nature as an entity to be dominated, subdued, and exploited. The pervasive ecological crises we face today—climate change, global warming, large-scale species extinction, and desertification of terrestrial and aquatic ecosystems—can be attributed to this worldview, rooted in Rene Descartes' philosophy and the paradigm of modern science. Descartes's acclaimed system envisages the natural world as a *mechanical* and inert system subject to human intervention and manipulation, engendering inflated *anthropocentrism* and consequent instrumental exploitation of Nature.

The chapter advocates for a transformation in our relationship with and understanding of Nature, emphasizing the need to regard Nature as possessing *functionally nurturing* and *survival values* crucial for perpetuating living system including human civilization. This shift requires an *ecological wisdom* that underscores the protection and cultivation of Nature as a living system and guides the development of science and technology toward restoring damaged planetary ecosystems. This critique extends to the current neoliberal market-driven model, which renders sustainable development unthinkable unless radically restructured to internalize *environmental externalities* and costs linked to the depletion of natural capital and ecosystem services. Empirical data on global ecological footprint growth suggest humanity is consuming Nature's services 44% faster than its regenerative capacity, leading to critical overshoots of four out of nine planetary boundaries and severely undermining the Earth's biocapacity.

The chapter underscores the crucial role of *values* in the development model and argues that without restructuring the current economic development model's *assumptions* and integrating *ecological facts* and *values*, humanity will inevitably confront crises in both the socio-economic and planetary ecosystem. Hence, this chapter's key focus is identifying and conceptualizing alternative development paradigms and trajectories that redirect our currently unsustainable development path toward a healthier planet.

Chapter 10 critically analyzes the indispensable role of *environmental ethics* in the context of sustainable development and Nature conservation. The chapter critically reviews the necessity of a foundational shift in our development approach advocating for pragmatic development ethics rooted in preserving and conserving Nature and satisfying basic human needs. It explores the metaphysical underpinnings of *environmental ethics* and their implications for Nature protection, conservation, and sustainable development. Sustainable development is discussed through multiple interconnected dimensions, including ecology, social and economic, and cultural and ethical systems. The term *sustainable development* has been reduced to a mere rhetoric due to its excessive use with little substance, often camouflaging the neoliberal growth model with minor adjustments, likened to repackaging old wine in new attractive bottles.

The chapter insists that development should not solely focus on quantitative metrics like GDP, but instead, it must encompass qualitative improvements in people's lives and their social and environmental relations. Since the publication of the influential report, *Our Common Future* (1987), the concept of *sustainable development* has undergone considerable changes, with scholars adding various social and ecological dimensions. It underscores that genuine sustainable development necessitates preserving and managing environmental resources but also requires profound social, cultural, and institutional transformation. The chapter presents five principles of sustainable development and proposes to reconceptualize *sustainable development*. The diligent implementation of those principles, underpinned by political commitment, could guide nation-states toward realizing sustainable development goals and foster an eco-civilization grounded in social justice and environmental sustainability.

Buddhism, Gaia, and System Theory share a common foundation of *interconnectedness* and *interdependence*. The Gaia hypothesis and System Theory emphasize systems analysis and remind scientists, policy analysts, and others concerned with local environmental problems that their local systems are embedded inside larger systems. Buddhism emphasizes the interrelatedness and interconnectedness of living and non-living systems in Nature through *Dharma* concept and dependent co-origination of all worldly phenomena. Chapter 11 offers the potential to guide human behavior to build a harmonious relationship with the planetary ecosystem.

The scientific perspectives embodied in the Gaia hypothesis and system theory adopts a processual view of life, affirming the indivisibility of humanity from the intricate network of relationships with other entities in Nature. Analogously, Buddhist *Eco-Dharma* is rooted in the principle of human interconnectedness with Nature, attributed to the condition of *dependent co-origination* also known as

*Pratītyasamutpāda* in Sanskrit. The chapter argues that our current crises stem from an egocentric and pathologically misconstrued perception of the human self and Nature. Buddhism offers a pragmatic and practical framework for developing coherent *environmental ethics*. Gaia and System theory provide a unifying framework focusing on living systems spanning individual organisms, ecosystems, and human social systems. The convergence of Buddhism, Gaia, and system theory on interconnectedness, feedback mechanisms, interdependence, emergent boundaries, and hierarchies emphasize their combined potential to illuminate the path out of our current predicament. Buddhist ethical tenets of *compassion*, *non-violence*, and *reverence for life* amplify this potential. The chapter highlights Buddhism's unique perspective on environmentalism and man's relationship with Nature, underlining the doctrine of dependent co-origination (*Pratītyasamutpāda*) and Eco-Dharma, which affirm the interconnectedness and interdependence of all things.

The chapter explores how these fundamental Buddhist teachings, combined with Gaia and system theory, enhance our understanding and practice of an emerging *ecological paradigm*. Collectively, Buddhism, Gaia, and system theory imbue us with an ecological worldview, or *Eco-Dharma* guiding humanity toward a harmonious relationship with the planet, thereby paving the way for sustainable living and coexistence.

Chapter 12 explores the enormous role human *Collective Consciousness* can play in bringing the desired changes in people's behavior and attitude and consequently altering the behavior of political institutions and power centers. With a collective *ecological awakening*, it is possible to bring about desirable political outcomes that align with maintaining the functional integrity and resilience of planetary ecosystem based on ecological laws and scientific epistemology. However, achieving this vision depends on the emergence of informed and environment-friendly politicians and managers who possess a vision of creating a sustainable society that prioritizes meeting the essential needs of all over satisfying the *greed* and *self-aggrandizement* of a few. The failure to do so would result in the inability to protect the planetary ecosystem and maintain its *regenerative* and *resilient capacity*.

Philosophers and scientists have long grappled with defining and understanding *Consciousness* from various perspectives, but recent neuroscience research has provided new insights into this complex subject. The biological evolution of *Homo sapiens* took millions of years. However, the relatively recent evolution of human Consciousness and rationality can resolve the planetary environmental crisis that humanity currently faces. Human collective ecological Consciousness has the power to effect social and cultural changes that benefit humanity and the biotic community in Nature, and it is the only means that can reconnect and reestablish humanity's ruptured relations with Nature, the planetary ecosystem. The development of science and technology should be directed toward the sustainable uses of *Earth's systems* resources while maintaining the *biocapacity* of the *Earth's systems*. Ultimately, a transcendental ecological consciousness that integrates the *ecosphere*

and *sociosphere* can give rise to an ecological civilization that is the basis for an ecologically sustainable and equitable global society.

Building upon the previous chapters, Chap. 13 proposes a new paradigm called *Ecosociocentrism: The Earth First Paradigm* to reconcile *instrumental, relational, and intrinsic* values in Nature and claims to provide the foundation for *sustainable development* and *eco-civilization*. This paradigm stresses the significance of maintaining social and ecological integrity to ensure the continuation of all species, including *Homo sapiens*. Recognizing and embracing the interconnectedness and interdependence of all life forms, the *ecosociocentric paradigm* embodies the ethical perception that human activities that promote social and ecosystemic health, stability, integrity, and diversity should be deemed right and just, while those that undermine these values are morally wrong and unjust.

The proposed paradigm suggests a shift to a new development ethics that adopts a comprehensive approach to justice, equity, and social and ecosystemic wellbeing. The paradigm integrates the *ecosphere* and *sociosphere* with the ethical view that embodies the concept that human response to Nature must be for the collective needs of humans and other beings, maintaining self-organizing creative processes (*autopoiesis*), which are intrinsically intertwined in Nature. The *sociosphere* is a subsystem of the *ecosphere* and is always intertwined and entangled with the *ecosphere* in a *dialectical nexus*. A correct understanding of the Nature of this interaction is necessary to realize sustainable development in the *sociosphere* and to prolong and maintain environmental sustainability in the *ecosphere*.

The insurmountable challenges sustainable development faces today are integrating social and ecological integrity recognizing instrumental and some intrinsic values in Nature and placing them at the heart of normative discourse on development. *Ecosociocentrism: The Earth First Paradigm* seeks to provide a new definition of sustainable development that captures the essence of social and ecological sustainability. The paradigm defines *sustainable development* as “*the development that satisfies human needs of present and future generations while maintaining the resilience and the biocapacity of Earth’s systems in such a way that human socio-economic throughputs of sociosphere remain within the biocapacity of the ecosphere, the planetary ecosystem.*” Only such development can sustain the social and ecological integrity to fulfill and actualize human potential and protect the living system on planet Earth.

The proposed paradigm seeks to integrate *ecosphere* and *sociosphere* with an ethics-based development approach that entails Nature’s instrumental and intrinsic values. Included in the prescription of this paradigm are ten *directive principles* and six *policy strategies* to achieve the underlying objectives and goals of *sustainable living* on planet Earth. A functionally healthy and nourishing Earth ensures the security of humanity and sustainable living if *The Earth First Paradigm* becomes our conscious *working algorithm* in the *Anthropocene epoch* of the twenty-first century.

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