1. An introduction to *Protecting Nature with Buddha’s Wisdom*

1. AN ERA OF ENVIRONMENTAL, CLIMATE, AND NATURE PROTECTION

At the time of writing, the citizens of the planet are living through an era of environmental, climate, and nature protection. Everyone is keen or even hyper-sensitive to a clean environment vis-à-vis a polluted environment. Every government is vigorously pursuing a large portfolio of laws and projects designed to protect its citizens from the harmful effects of pollution and climate change. Protecting nature, environment, and climate is a top priority in any global political conference. The issues thereof are debated often heatedly among people on the streets, in the academia, in the media, and among the political parties every minute without a single day neglected.

This book provides a broad survey of this era of environmentalism, nature conservationism, and climate protection, based upon which it offers a treatise on the Buddhist way to addressing the major issues of concern of this era. The title “Protecting Nature with Buddha’s Wisdom” tells succinctly the scope and purpose of this book. It is written for any citizen of this era who is keen on a fresh viewpoint of dealing with these issues. Of them, Buddhist readers would be particularly intrigued by the exposition of this book on the four major environmental and nature issues through the Buddha’s perfect wisdom.

Buddhism has long been recognized as a system of thoughts which is neither egocentric nor even human centric. This is evident still today and alive and well through the teachings of no self, emptiness of intrinsic nature, and the interdependence of all things in nature (Lama Tsongkhapa’s Praise). One can say, as my Buddhist friends like to say, that Buddhism is an environmentalism or nature protectionism established long before the modern environmental, conservation, climate movements, which will be clarified throughout this book (UNGA 2012). The Buddhist system of thoughts, which is an old system but

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1 Throughout the book, Buddhist commentaries are cited by an author name and a two-word short title.
still highly pertinent to modern thinkers and activists, offers a unique approach to tackling these challenges of the era. This will also be clarified in this book.

Before the present author wades into all of this, let me tell you first how this era of environmental and nature protection began in the modern world (Seo 2021, 2023). The present author can point to the early 1970s as the decade when environmental issues began to be taken seriously by the global community. In the United States, the Environmental Protection Agency (EPA) was given birth in 1970. In the same year, the major environmental laws passed the Congress and were signed soon afterwards such as the Clean Air Act (CAA), the Clean Water Act (CWA), followed by the Toxic Substances Control Act (TSCA) (USEPA 1970a, 1970b, 1976).

At about the same time, the first international conference on this topic convened by the United Nations was held in Stockholm, Sweden in 1972, which was named the United Nations International Conference on Human Environment (UN 1972). In the same year, the United Nations-related researchers also published the famed report entitled “The Limits to Growth: A Report for the Club of Rome’s Project on the Predicament of Mankind,” which has since been known as the Rome Club Report (Meadows et al. 1972).

In retrospect, these laws, international conferences, and institutions would turn out over time to be the solid foundation laid down from which the myriad of occurrences that has followed since then sprung up. Two decades later, by the 1990s, the global community signed a major agreement at the Rio Earth Summit in Brazil in 1992. The formal name of the conference was the United Nations Conference on the Environment and Development, whose major outcome was entitled the “Agenda 21” (UN 1992). From the Earth Summit, foundational international organizations were born, notably, the United Nations Framework Convention on Climate Change (UNFCCC) and the UN Biodiversity Convention (UNFCCC 1992, CBD 1992). Along with the Intergovernmental Panel on Climate Change (IPCC) created at the end of the 1980s, these international organizations would play a pivotal role in the environmental, conservation, and climate movements that followed (IPCC 1990).

Following these milestone treaties, the global community adopted the Millennium Declaration and Millennium Development Goals at the turn of the century (UN 2000, 2001). Capping the two decades of negotiations, the members of the UNFCCC came to a landmark agreement at Paris, France in December 2015 named the Paris Climate Agreement at the 21st Conference Of Parties (COP) of the UNFCCC (UNFCCC 1997, 2015). Thenceforth, the Green Climate Fund (GCF) began its allocations of funds, which were raised by voluntary contributions from rich countries and businessmen, to developing and least developed countries for the numerous climate change projects that the recipients of its funding proposed (GCF 2011, Seo 2019).
While these international agreements and affairs are the most visible signs of the era to people, they are not the most tangible to them. Underneath these signs there has been major progress over this time period in people’s awareness of the harmful effects on their health of the numerous pollutants created as byproducts of economic development and anthropogenic activities. Along with the knowledge acquired of the pollutants such as sulfur dioxide (SO$_2$), nitrogen oxides (NO$_x$), fine particulate matter (PM$_x$), and carbon dioxide (CO$_2$), people have increasingly demanded their governments to take necessary measures to reduce or eliminate these pollutants and other harmful chemicals, thereby the harmful effects of them on their health. These demands are sometimes realized through national legislation, but only after fierce political battles (USEPA 2010, 2014, 2016, Seo 2020).

Setting aside all of these, an acute observer would not find it difficult at all to come across on the main streets the most tangible signs of the era: From electric vehicles (EVs) or hybrid vehicles replacing gas-powered vehicles; solar panels on the roofs of the houses and buildings replacing fossil fuel-fired power plants; mobile phones that update local weather every hour as well as air quality; air purifiers on the corridors of buildings and houses; fancy face masks protecting people from the fine particulate matter pollution and other chemical dusts; assorted recycling bins at the door of every building; wind turbines that fill the scenic landscapes; hurricanes that are kept track of every minute by satellites and airplanes; the streets without trash bins; cities with bike-specific lanes; energy-saving Light Emitting Diode (LED) lamps that fill the night sky all night long; electric hand dryers replacing paper towels in restrooms; e-books replacing paper print books; paper straws replacing plastic straws in cafes and restaurants; environmentally and sustainably grown vegetables and crops; environmentally friendly meat products; high school Friday protestors; civil-disobedient last generation protestors; smart watches that check your heart rhythm every minute; coke zeros replacing sugar-rich cokes; bottles of purified water piling on recycling bins. Readers of this book will easily run across some of these salient marks of the era of environmental and nature protection every single day (Seo 2021).

2. FOUR MAJOR ISSUES

There is a large number of social issues that pertain to the protection of the environment and nature of the planet, each of which matters at one geographical location or another or at one local community of the planet or another. The present author categorizes them in this book into the four major issues: (i) protection of endangered species, (ii) environmental pollution, (iii) using the nature’s resources, and (iv) global climate change.
The first category concerns the species of animals and plants on the planet. This concern is expressed via a variety of terminologies, e.g., a mass extinction of species, biodiversity loss, endangered species, conservation of species, loss of habitats for some animals, ecosystem services, and preservation of genetic resources (Carson 1962, Leopold 1949, CBD 2020, USF&WS 2023).

This movement can be further divided into two subcategories. The first subcategory is focused on the health of the ecology of concern, so the biological diversity of the planet or the nation is of primary concern. The size of the biodiversity is what it concerns. The second subcategory has a focus on a specific species or a basket of species. The protection of a specific endangered species endeared by people is of primary concern, for example, bald eagles, monarch butterflies, turtles, Asian tigers, polar bears, certain frogs, or even red maple.

As for a policy-making effort, the US Endangered Species Act (ESA), the United Nations Convention on Biological Diversity (CBD), and the national designations of preservation areas or nature preserves are representative of the broadly adopted policy schemes nationally or internationally (US Congress 1973, CBD 1992).

The second category is the issue of environmental pollution such as air pollution, water pollution, indoor pollution, mobile pollution, agricultural pollution, toxic chemicals, etc. There is a long list of pollutants that are well understood by common people as of today, including sulfur dioxide (SO₂), nitrogen oxides (NOₓ), ground-level ozone (O₃), ammonia (NH₃), methane (CH₄), chlorofluorocarbons (CFCs), fine particulate matter (PM₂.₅ and PM₁₀), carbon monoxide (CO), carbon dioxide (CO₂), volatile organic compounds (VOCs), lead (Pb), asbestos (Tietenberg 1999, USEPA 2010).

These pollutants, individually or jointly, cause a major social pollution problem or another that affects the society at large. Such problems include acid rain caused by SO₂, smog caused by O₃, ozone depletion caused by CFCs, fine dust pollution caused by PM₂.₅ and PM₁₀, indoor air pollution from VOCs and other gases, ammonia pollution from agriculture, various types of surface and ground water pollution, and numerous hazardous chemical accidents (Likens and Bormann 1974, Molina and Rowland 1974, Pope et al. 2002).

As for the policy side, there are numerous landmark laws and regulations in place to tackle the variety of pollution problems. Of the most notable are the US Clean Air Act (USEPA 1970a, 2010), the Clean Water Act (USEPA 1970b), and the Toxic Substances Control Act (USEPA 2016). Since air and water pollution problems are largely a local or a national environmental issue, many countries have in place similar laws and regulations to those of the USA. The Montreal Protocol is an example of an international treaty signed to deal with the ozone layer depletion problem, which is a global problem (UNEP 2016).
At the heart of the full range of pollution problems and societal discourses on them lies the harmful effects of the pollutants on people’s health. Of the total damage that the pollutants altogether cause societally, nearly 90% is accounted for by the damage to individuals (Muller and Mendelsohn 2009). They can cause a mortality of an individual or lasting morbidities (Mendelsohn and Olmstead 2009). A strong interest by the public in an environmental policy, which is not hard to encounter, is as such often driven by a healthy egocentric concern about one’s health and wellbeing.

The third category of the issues to be addressed is the inquiry on how the natural resources that are offered by nature so generously should be used. The planet is endowed with a large basket of resources, through reliance upon which humans and other beings have survived through time. At the same time, societal concerns have spiked recently regarding the finite nature of all of these resources. Given that however plentiful they are they are ultimately fixed, how humanity should utilize nature’s resources has become an important societal question (Hotelling 1931, Fisher 1981, Seo 2023).

The Limits to Growth critiques point to many such finite resources at risk of depletion, starting with arable land for food production (Meadows et al. 1972). The fossil fuel critiques point to an imminent end of the fossil fuels on the planet such as crude oil and natural gas, seriously jeopardizing the current energy production capacity of human civilization (Hubbert 1956, Deffeyes 2001). The rare metal critiques point to the limits of rare earth materials, such as lithium, cobalt, and nickel, which are vital to the modern economy (Haxel et al. 2002, USGS 2023).

There are millions of resources on the planet, other than these finite resources, that are offered by nature. To mention just a tiny fraction of them: croplands, trees, fruits, grasses, wild flowers, rivers, lakes, fishes, mollusks, crustaceans, seas, oceans, buffaloes, sheep, chickens, gold, copper, iron, silicon, sunlight, moonlight, winds, waves, rain, snow, ice, geothermal, lion, tigers, elephants, sparrows, eagles, hawks, and pigeons. Each of these is a renewable resource, viz. a resource that can be harvested or recycled year after year or rotation after rotation. When property rights are well defined, an owner of one of these resources will manage it to harvest year after year (Solow 1974, Hartwick and Olewiler 1997, Seo 2023). For a counter example, unregulated fishing in open seas could lead to overfishing and then extinction of some fish species. As such, creating property rights is critical (Gordon 1954). In the above list, some are also finite but highly recyclable, e.g., gold and copper (USGS 2023).

The resource use question of the planet depends to some degree on the size and growth of human population. The human population on Earth has increased in an explosive manner since the latter half of the 20th century (IIASA 2007). The larger the human population, the bigger the stress on the natural system.
which has to be utilized to feed and support the human population. At the same time, there emerged in recent decades many developed countries that worry about a rapid decrease in the rate of their population growth, like many European Union countries, Japan, and South Korea (EuroStat 2023).

The fourth category is global climate change. This is a novel kind of environmental and nature inquiry. Although the issues of protecting species, environmental pollution, and resource uses have long been well known to the human civilization for thousands of years, an anthropogenic climate change through the release of carbon dioxide and other greenhouse gases is a rather new area of investigation. The greenhouse gases are carbon dioxide, methane, nitrous oxides, water vapor, ozone, and fluorinated gases (IPCC 1990).

But, the scale of the problem as well as the risk it poses to humanity is by far greater than those posed by the other three categories of problems. The entire atmosphere of the planet is an object of concern and the climate system of the entire planet is being altered (Nordhaus 1994). In fact, there are few human activities that do not lead to the emission of greenhouse gases. In the worst-case scenario put forth by some projections, the entire human population as well as the animal population can become extinct from Earth (Le Treut et al. 2007, Emanuel 2008, Weitzman 2009, Seo 2018).

Notwithstanding the great challenge, the international efforts to hammer out a global climate treaty in which all the nations on the planet take legally binding responsibilities for cutting greenhouse gases have failed repeatedly since 1992 when the United Nations’ Framework Convention on Climate Change (UNFCCC) came into birth (Seo 2017, 2019, 2020). The well-publicized agreements such as the Kyoto Protocol, the Copenhagen Accord, the Paris Climate Agreement exclude developing countries from burden sharing or exclude legally binding responsibilities of any nations (Seo 2020, 2021). This is a defining characteristic of a globally shared good, which is referred to by economists as free riding (Samuelson 1954, Buchanan 1965). That is, countries will wait and see until other countries make sacrifices to restore the global climate system (Nordhaus 2015, Seo 2021, 2022b).

The problem of global climate change is framed by the researchers and politicians as an urgent call for cutting greenhouse gas emissions by a globally collective effort of all the countries on the planet, i.e., the mitigation efforts (Nordhaus 2008, UNEP 2017, IPCC 2018). But, the bigger problem of climate change may be how the nations and individuals will cope with the changing climate system, including the development of mitigation technologies (Seo 2006, 2016, 2021, 2022a). If, for example, global climate change were to unfold in a gradual manner over many centuries to come, it would alter the weather and climate conditions for numerous economic activities without adapting to which countries and individuals will fail to compete (Bakkensen and Blair 2022, Amarasinghe et al. 2022, Mendelsohn 2022).
3. THE BUDDHIST WAY IN ENVIRONMENTAL AND NATURE PROTECTION

This book explains the four issues from Chapters 4 to 7: protection of species in Chapter 4; environmental pollution in Chapter 5; natural resource uses in Chapter 6; and global climate change in Chapter 7. Each of these chapters will provide a thorough description of each respective topic, including relevant sciences, economics, and policy negotiations.

The ultimate goal of this book is to describe the Buddhist way in addressing each of these problems, based on the detailed exposition of each of these topics through Chapters 4 to 7. Readers may ask, for what purpose? As the book will reveal, the Buddhist thought system has been and is deeply connected to these nature inquiries for thousands of years (Schumacher 1973, Sivaraksa 2010). In one sense, readers will realize that Buddhism is an environmentalism or nature protectionism of the old age which still thrives. If you are a curious reader, take a moment to compare Ajahn Chah’s teachings from the Thailand forests with Thoreau’s *Walden: Or, Life in the Woods* (Ajahn Chah 2007, Thoreau 1854).

Consider the species protection, for example. Buddhism has long espoused care for the sentient beings beyond humanity. The care for animal beings as deep as the care for another human being. Many Buddhists including Buddhist bhikkhus and bhikkhunis practice not eating animal meats while lay Buddhists practice releasing animal life. The deep care for the sentient beings, especially animal species, was started with the Buddha Shakyamuni’s first moral rule of conduct advised to his followers (Pratimoksa Sutra). The first precept prescribed by the Buddha was and is “Do not kill or promote killing other sentient beings” (Dhammapada, Vinaya Pitaka). This is the first of the set of the vows one must take to become a Buddhist monk or nun, referred to as a root vow (Bhikkhu Thanissaro 1994, Thubten Chodron 1996). This is also the first of the five precepts that one must take to become a Buddhist follower (Bhikkhu Khantipalo 2007).

The Buddha’s moral advice was again rooted in the way that the fully and perfectly enlightened one saw the worlds and the beings therein. In his teachings, the interdependent nature is what defines the worlds that people live in (Paticca-samuppada Sutta, Nagarjuna’s Fundamental Wisdom, Lama Tsongkhapa’s Praise). “When this arises, that arises” is how things arise. “When this disappears, that disappears” is how things cease (Bodhi Sutta). So are sentient beings. An animal you are trying to kill at the moment may

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2 The references of the individual Sutras and works from the Pali Canon and the Tibetan Kangyur & Tengyur are available at the end of this book as Book Bibliography.
have been your mother who cared for you so much in some remote past lives, Buddhist stories tell (Jataka, Jatakamala). From this deep interconnectedness only the Buddha can see, it is advised that one should not harm other sentient beings.

The Buddhist Canons are much engaged with the nature or environment that contains lives of sentient beings as well as natural phenomena. For a salient example, Buddhism is often called a religion of trees because many iconic trees are associated with the most important events in the life of Buddha Shakyamuni. Buddha Shakyamuni became an enlightened being under the Bodhi Tree in Bodhgaya which still stands at that spot after 2600 years or so (Setting the Wheel of Dharma in Motion, Abhiniksramaṇa Sutra, Lalitavistara Sutra). The Tree of Merit stood in the birthplace of Je Rinpoche, whose leaves resembled Tibetan letters and symbols (Thubten Jinpa 2019).

Buddhism is also often described as a religion of a lotus flower because it symbolizes the Buddha’s enlightened mind as well as the compassion of bodhisattvas toward sentient beings. Like a lotus flower, the enlightened wisdom shines untainted and pure, even if it arose from a dirty muddy water and is rooted in it. “You are wise, you are free, … ; Grow in the world like a lotus; Rising unsullied from mud and water,” says the Buddha (Sutta Nipata, Lalitavistara Sutra). The bodhisattvas, Taras, and deities of Buddhism would hold a lotus flower on her/his right hand, or some of them are called “a lotus-born” or padme jungne in Tibetan (Tara Prayer, Guru Rinpoche Prayer).

In Chapter 2, the present author provides a succinct but encompassing review of the perfection of wisdom, prajñaparamita in Sanskrit, that has been expounded by the Buddhas, Gurus, and Lamas in the past. Continuing with the exposition offered in the previous book entitled “Buddha, Wisdom and Economics,” Chapter 2 will be written especially with an anchor on Je Rinpoche’s marvelous teachings given during the 14th–15th century in Tibet, who is better known to the public as Lama Tsongkhapa (Thurman 1982, Hopkins 2008, Kelsang Gyatso 2016, Thubten Jinpa 2019, Seo 2024). The chapter is also written for the audience of environmental and nature thinkers and activists.

Chapter 3 follows it through by presenting a list of ideas, concepts, symbols, and tales from the Buddhist literature, which is selected by the present author, apposite to the inquiry of this book, that is, environmental and nature protection. They are called by the author the Buddhist instruments for environmental and nature protection. This list will be an important resource for whom is interested in understanding the connection between Buddhism and today’s environmental and natural philosophies. Also, the list will turn out to be a vital toolkit for those who apply Buddhist ideas to the environmental and nature
problems of today, especially policy-makers in historically Buddhist countries and elsewhere.

The list of Buddhist instruments is the following: (1) The religion of trees: Bodhi tree, sal tree, ashoka tree, sandalwood tree; (2) Jataka stories when Buddha was a great monkey; (3) The king of snakes protecting Buddhism; (4) The religion of a lotus flower; (5) Dependent arising and interdependent world; (6) Cause and effect, and karma and consequences; (7) Perfection of wisdom, a tale of a frightened rabbit; (8) A billion-fold universes and the Indra’s Net; (9) Buddha Nature; (10) Bodhisattva’s life: saving all mother sentient beings; (11) A path of reasoning.

The presentation of the Buddhist thought system’s engagements with the environmental and nature issues from the ancient times of Shakyamuni, which the present author calls the environmental and nature philosophy of the old age, will offer modern environmental readers a precious opportunity to compare it with the modern environmental and nature studies as well as with the contemporary political discourses and policies. The same can be said of the Buddhist readers.

4. BUDDHA’S WISDOM

Readers of this book who have no background in the Buddhist literature, whether an economist, a scientist, or an environmentalist, are likely to have a predisposition to assume that the Buddhist way of dealing with these modern issues is based on an emotional appeal, without a scientific basis, and without well-defined ideas. Therefore, it would not be of much help to solving these pressing problems of today. This is a prejudice that is largely untrue as well as misinformed. This book will do much to clear away such misconceptions and misgivings about the Buddhist way, say, the old-age environmentalism.

On the contrary, the Buddhist approach to dealing with the environmental and nature issues is rooted on the solid foundation of knowledge, known as prajnaparamita (the perfect wisdom), that has been proven perfect for over two and a half millennia since Shakyamuni (Sutra on Setting the Wheel in Motion, Conze 1973, 1975). Buddhism, as elucidated through a long line of flawless speakers, is a rational religion or a path of reasoning as Buddhists would prefer to say, whose ultimate goal is to get rid of fundamental ignorance [marikpa in Tibetan, avidya in Sanskrit] about life and the world (Nagarjuna’s Fundamental Wisdom, Aryadeva’s Four Hundreds, Buddhapalita’s Commentary, Chandrakirti’s Clear Words, Lama Tsongkhapa’s Ocean of Reasoning, True Eloquence, Rizong Rinpoche 2013).

The Buddha’s wisdom, called the perfection of wisdom [prajnaparamita in Sanskrit], can only eliminate the fundamental ignorance (Heart Sutra, Perfection of Wisdom in 700 Lines, Perfection of Wisdom in 8000 Lines, King
of Meditations Sutra). At the heart of the perfect wisdom is the dependent origination [tenjung in Tibetan] of all things, as Je Rinpoche says, the knowledge of dependent origination can only undo the fundamental ignorance (Lama Tsongkhapa’s Praise). All phenomena, mental or physical, exist in dependence on other phenomena that are their causes and conditions. They do not exist on their own by intrinsic nature, that is, by their true identity. Put differently, all beings as well as phenomena are empty of essence. The dependent origination was expressed succinctly in the Pali Canon (Paticca-samuppada-vibhanga Sutta, Bodhi Sutta):

Since this exists, that exists.
Since this arises, that arises.

In the interdependent world of Buddhism which is one of the pillars of the old-age environmentalism, human beings are not “that” different from non-human beings. They are all sentient beings or sattva in Sanskrit or semchen in Tibetan which means a mind possessor (refer to Chapter 4 for definitions). Sentient beings, compelled by their past actions, that is, their karma, turn in the cycle of existence through the realms of humans, gods, asura, animals, hungry ghosts, and hell beings (Maha-nidana Sutta, HAR 2023).

In this wisdom, as Lama Tsongkhapa advises, one should regard other sentient beings as if they were your mother at some past lives, from which you should develop deep love and compassion toward them, which is another pillar of the old-age environmentalism of Buddhism (Nagarjuna’s Bodhicitta Commentary, Shantideva’s Bodhisattva Way). This resolute mind [haksam in Tibetan] is the foundation of all good qualities, which is good in the beginning, in the middle, and at the end of the Buddhist path (Lama Tsongkhapa’s Foundation of All):

May I develop the unique love of a mother
For those who malign me
And harbor ill designs upon my life,
My body, or my possessions (Lama Tsongkhapa’s Beginning-Middle-End Prayer);
By reflecting on all your mothers who suffer such conditions,
Generate the supreme awakening mind [bodhicitta]. (Lama Tsongkhapa’s Principal Aspects)

What propels sentient beings through the cycle of existence is their karma (Lama Tsongkhapa’s Stages of the Path). The law of karma and consequences is the unbreakable rule of sentient beings according to the perfection of wisdom (Narada Mahathera 1998). “Karma is indestructible,” as is said by Nagarjuna (Nagarjuna’s Fundamental Wisdom). Therefore, the maladies of the environment or the nature or the sentient beings are the results of the past
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karma of people and other sentient beings, individually or collectively. This means that the human society must accept the consequences of their karma. One way to do that is to pay for the cleanup of the environment or the restoration of ecological systems, possibly through a government taxation, a global treaty, or other policy instruments (Tietenberg 1999, Nordhaus 2008, Muller and Mendelsohn 2009).

Of the karma, many problems in the environment and nature are the results of a collective karma, rather than a single individual’s karma. The collective karma is formed by the actions of the people in the society or even in the global community as a whole. The releases of pollutants from automobiles or power plants are an example of the collective karma. Everyone loves to ride their automated vehicles to their dream destinations, not realizing that the gases and dusts emitted, when aggregated in the atmosphere, cause harm to the environment and to the people including themselves (USEPA 1970a, UN 1972, Likens and Bormann 1974). The same can be said of the carbon dioxide emission, when aggregated in the atmosphere, which causes a planetary climate change (UNFCCC 1992). The theory of karma and consequence [kamma and vipaka in Pali] is the third pillar of the Buddhist environmental thought.

According to the Buddha’s unobstructed vision, the world is depicted as the Indra’s Net (Avatamsaka Sutra). Imagine a giant net whose ends cannot be perceived by a human mind. Notwithstanding, we can start with a single knot anywhere in that imaginary net. At each knot of the Indra’s Net is a crystal ball. From the crystal ball, the six threads expand in the six directions to fasten the ball to the net. What is amazing about this net is that the entire Indra’s Net is reflected into the single crystal ball. Even further, inside that crystal ball, there are countless crystal balls reflected into it, each of which again contains the entire Indra’s Net. As such is the specification of it, in the Indra’s Net, the universe is limitless (Vasubandhu’s Abhidharmakosa, Kalachakratantra). The Indra’s Net is a Buddhist microscope as fine as any modern microscope as well as a Buddhist telescope as far-reaching as the James Webb space telescope of NASA (National Aeronautics and Space Administration) (NASA 2023).

In the world of interdependence as complex as the Indra’s Net, a malady in the human environment or a problem in the natural resource uses by the human society can be easily expected by common people. In the Buddhist thought system, a solution to any of the environmental and nature’s disorders should arise from a clear-eyed investigation into the problem at hand. This approach is also what common people without prejudice take. An approach based on fear, alarmism, and threats would only worsen the problem under investigation as they further cloud the judgments of common people regarding the complex web of events in the problem.

In this context, a tale of a frightened rabbit told in the Buddha’s former birth stories gives us a glimpse into the Buddhist environmental approach (Jataka,
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Jatakamala). The story in the Tibetan Kangyur is translated as the “Run of the Beasts.” A lion saw all the animals in the animal nation run wildly to the ocean and to the precipitous cliffs, screaming “the world is breaking up.” Upon stopping them and inquiring what happened, it was found that a fruit from a vilva tree fell to the palm leaf with a big thud sound, which prompted a frightened rabbit to start to run shouting the world is coming to an end (Cowell et al. 1895, Seo 2018). This tale is described in more detail in Chapter 8 of this book. The run of the beasts to the cliffs occurred in this case because of the fear of the community arisen from and driven by ignorance or lack of rational attitude. This rational attitude looking into the complexity of the Indra’s Net is another pillar of the Buddhist approach to environmental and nature protection.

A rational attitude not only dispels the fear and threats about fabricated realities from sentient beings, one can find ample anecdotes and doctrines in the Buddhist literature that it often provides a solution or a remedy to the seemingly unsolvable situations that sentient beings are faced against. The Jataka literature is in large part devoted to the stories of the rational attitude and ingenuity of the Buddha who was in various animal forms in previous “unenlightened” lives, through which he rescues his fellow animals from danger and in shackles. The story of a water demon, depicted as having a white face with big bulging green eyes and red feet and claws, is one of them in which we can interpret from the context of this book the water demon as a water pollution problem in the society. A great monkey king, after seeing with extraordinary perception that the community’s favorite pond is possessed by a water demon, instructs his fellow monkeys to devise a bamboo shoot straw through which the water demon is avoided while the monkeys continue to enjoy the clean water from afar by the pond possessed by the water demon (Piyatissa and Anderson 1994). This story is told in detail in Chapters 5 and 8.

The present author provides a brief review of the Buddha’s perfection of wisdom in Chapter 2, from which the instruments of the Buddhist way of environmental and nature protection, the aforementioned eleven in total, are put together in Chapter 3. The description of Chapter 2 will be done also for the environmentalists, nature activists, and climate enthusiasts, who are the primary readers of this book, in an easy-to-understand manner but comprehensive of the concerned topic. The exposition of the perfect wisdom is based on the incomparable treatises of Lama Tsongkhapa written in Tibet during the 14th–15th century (Lama Tsongkhapa’s Collected Works).

5. ECONOMICS SOLUTIONS VS SCIENTIFIC SOLUTIONS

The modern environmentalism or conservationism or climate activism, by which I mean the corpus pertinent to the modern environmental, nature, and
climate protection, is vastly different from the Buddhist approach to these issues. As stated before, the Buddhist way is a millennia-old way of thinking about and addressing them, which has influenced profoundly humanity’s relationship with the nature and environment. How is this system of thought different from the contemporary ways of thinking?

The modern environmentalism – or we may call it the Western environmentalism as well – was given birth by the influential writings of authors such as Henry David Thoreau, Aldo Leopold, and Rachel Carson, and subsequently solidified with the associations with the United Nations’ various initiatives since its foundation in the mid-20th century as amply pointed to thus far in this chapter. Henry David Thoreau’s *Walden: Or, Life in the Woods* (Thoreau 1854), Aldo Leopold’s *Sand County Almanac: And Sketches Here and There* (Leopold 1949), and Rachel Carson’s *Silent Spring* (Carson 1962) had strongly influenced the environmental thinkers and activists of the latter half of the 20th century.


The modern economic analyses on these issues with their unique solutions were well clarified; to mention some of the representative works, the writings of Pigou’s theory on externalities (Pigou 1920), Samuelson’s theory on public goods (Samuelson 1954), Coase’s theory on social cost (Coase 1960), Nordhaus’s theory on climate change superbly titled *Managing the Global Commons* (Nordhaus 1994), Mendelsohn and others’ integrated environmental damage assessment models (Mendelsohn and Olmstead 2009, Muller and Mendelsohn 2009, Hanemann 1994, Chay and Greenstone 2003), Weitzman’s
theory of biodiversity protection entitled the Noah’s Ark (Weitzman 1998), Stavins and others’ analyses on sulfur dioxide (SO₂) allowance trading program and other environmental policy programs in the USA (Stavins 1998, Schmalensee and Stavins 2013), and an ongoing field of environmental accounting such as green Gross Domestic Product (GDP) (Nordhaus and Kokkelenberg 1999, Muller et al. 2011). This is a very short list based on the present author’s personal acquaintances with these authors.

The modern economic analyses on natural resource uses goes further back to the beginning of modern economics (Seo 2023). To name just some signature publications, David Ricardo on crop farming and land uses (Ricardo 1817), von Thunen’s theory on spatial land use (von Thunen 1826), Martin Faustmann’s optimal forestry harvest rotation (Faustmann 1849), Hotelling’s rent in fossil fuel extractions (Hotelling 1931), Fisheries’ bio economics (Gordon 1954), Ostrom’s institutional analysis on commons (Ostrom 1990).

The present author also has published during the past two decades with a focus on climate change: on adaptation strategies in agriculture and natural resource sectors (Seo 2006, 2015), behavioral adaptation models (Seo 2016), climate change policy analyses (Seo 2017), global climate catastrophes (Seo 2018), global climate fund allocations, viz. the Green Climate Fund (GCF) (Seo 2019), globally shared goods (Seo 2020), climate change and youth generations (Seo 2021), behavioral economics and climate change (Seo 2022a).

The economic solutions are saliently different from the scientific solutions, both of which are also markedly different from the Buddhist way of thinking about these issues. This point will be clarified throughout this book. Having said that, the Buddhist way of thinking is not well elaborated in the modern literature, which is also quite understandable given that the former does not “specialize” in these issues (Schumacher 1973, Sivaraksa 2010, Seo 2024). Buddhism is a religious system of thoughts with probably over a billion followers even just at this point of time in history, with a vast range of institutions, as well as with a vast number of treasures including statues, tankas, and temples.

Summarized in the briefest way with our focus on environmental protection for the sake of this introduction, the economic solution lies at the core of balancing the benefit and the cost of environmental pollution or an environmental policy. The environmental damage from pollution on the society must be avoided, economists would argue. But they would also argue that the cost of the policy in reducing the environmental damage must be minimized (Hahn and Dudley 2007, Muller and Mendelsohn 2009, Seo 2020). Simply put, the cure must not be worse than the disease and the cure must not limit people’s choices!

By contrast, the core of the range of scientific solution lies at the prevention of a severe damage to the society and people. Therefore, if the damage of
a certain pollutant starts to rise sharply at a certain level of emission of the pollutant of concern, scientists argue that the society should put a strict limit through a regulation on that level of pollution or ban the pollutant entirely. That level is called a critical value or threshold (Seo 2018). One of the best known to the public of such critical thresholds is the 1.5-degree Celsius increase threshold in global temperature that scientists have argued fervently for (UNFCCC 2010, UNFCCC 2015, UNEP 2017, IPCC 2018). Initially, a 2-degree Celsius threshold was suggested at the Cancun Climate Conference in Mexico in 2010, which was then made more stringent to a 1.5-degree Celsius threshold at the Paris Climate Conference in 2015 (UNFCCC 2010). Since then, this threshold has become an undisputed target of the global climate conferences, which can be seen in the IPCC’s 1.5 °C report and the UNEP’s Emissions Gap report (UNEP 2017, IPCC 2018).

Another example is the National Ambient Air Quality Standards (NAAQS) in the US Clean Air Act (CAA) set for the selected criteria air pollutants: carbon monoxide, lead, ground-level ozone, nitrogen dioxide, particulate matter, and sulfur dioxide (USEPA 2008, USEPA 2010). As per the particulate matter (PM) which is the main focus of Chapter 5 of this book, the PM\textsubscript{2.5} 24-hour primary and secondary standard set by the US Environmental Protection Agency for the purpose of public health and welfare protection is 35 micrograms per cubic meter (µg/m\textsuperscript{3}) of air averaged over 3 years (USEPA 2023, Refer to Table 5.1 in Chapter 5).

This approach broadly espoused by the scientific community is referred to by various groups as various names such as a command-and-control approach, a precautionary principle, a critical value approach, or a standards policy (Weitzman 2009, Seo 2020, 2022c).

As this book will highlight, Buddhists can share common ground with either economists or scientists or both. To begin with, the economic solution and the scientific solution as described in the preceding paragraphs are not always mutually exclusive, although they might appear worlds apart at first. They are different but not in an unnegotiable manner. They too share common ground both rationally and empirically. This will be elaborated throughout the book. As far as the Buddhist way is concerned, both can be embraced as long as the situations put forth are right, that is, effective as well as stand to reason. In other situations, a compromise between the two may not be feasible, in which case Buddhists can favor one approach over the other.

6. STRUCTURE OF THE BOOK

This book is composed of four Parts, the flow chart of which is presented in Figure 1.1. Part I is an introductory chapter which is Chapter 1, which provides an overview of the inquiry of the book and a roadmap of the entire book.
Part II is a presentation of a survey of the pertinent Buddhist literature, spread out to Chapters 2 and 3. Chapter 2 gives an exposition of the Buddha’s enlightened wisdom as explained by Lama Tsongkhapa while Chapter 3 gives a survey of the tools and ideas in Buddhism which are pertinent to the environment and nature protection.

Part III is a presentation of the four major issues addressed in this book, spread out to Chapters 4, 5, 6, and 7. Chapter 4 gives an exposition of the modern literature on species protection including such topics as mass extinction, biological diversity, endangered species, whose target includes both sentient beings and other embodied beings (refer to Chapter 4 for definitions). Chapter 5 gives an exposition of the modern literature on environmental pollution such as air pollution, water pollution, toxic and hazardous substances. Chapter 6 gives an exposition of the modern literature on natural resource uses as per depletable resources such as fossil fuels, renewable resources such as forests and fishes, and recyclable resources such as copper, lithium, and silicon. Chapter 7 gives an exposition of the modern literature on global climate change.

Part IV synthesizes the expositions of the preceding seven chapters and provides a conclusive synthesis on the inquiry of “Protecting Nature with Buddha’s Wisdom.” Chapter 8 is titled as the Buddhist way of protecting nature and environment, in which the essential points of the Buddhist approach are concisely described for each of the four major environmental and nature issues dealt with in this book.
7. MOVE FORWARD

Now, you are all well set to begin a journey into the world of the Buddha’s fascinating wisdom and tales of magical activities in protecting sentient beings in the following two chapters. May peace and joy follow you all the way in reading through these rather difficult (at least at first) but profound chapters!

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Protecting nature with Buddha's wisdom


