Questioning the Eco-Ethics of Future Colonialism and Terraforming of Mars:

Tracing the Crises

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For Defne and Selim,

And for the Children of the Future

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Dr. Seher Özsert

I

INTRODUCTION

Crises exist in almost every part of our lives, including political, economic, social, cultural, ecological, philosophical, and psychological spheres. The main concern of this book is to analyse and provide insights into the roots of the ecological crises, which are both the reasons and the outcomes of the catastrophes. This book adopts a holistic and comprehensive approach. It examines the causes of ecological destruction from philosophical, phenomenological, Marxist, postcolonial, and postmodern perspectives, which are indeed closely connected. Such a multidimensional and interdisciplinary approach is helpful for a better understanding of the true nature of the ecological crises.

Joel Kovel (2002) argues that the ecological crises are "structured by forces that systematically degrade and finally exceed the buffering capacity of nature concerning human production, thereby setting into motion an unpredictable yet interacting and expanding set of ecosystemic breakdowns" (23). Kovel maintains that humans are not only the creators but also the victims of the ecological crises. As a result of the disunity and breakdown in the relationship between the human and non-human world, we witness "the desynchronization of life cycles and the disjoint of species and individuals, resulting in the fragmentation of ecosystems human as well as non-human, along with profound changes in species composition, as well as the more formal environmental aspect of things" (23).

Kim Stanley Robinson (2014) sets out to present the inevitability of an upcoming universal crises in his novels: "The coming century will bring to one degree or another a global ecological crisis, but it will be playing out at planetary scales of space and time, and it's possible that except in big storms, or food shortages, things won't happen at the right scales to be subjectively experienced as crisis" (243). The crises are inescapable for our future, but the time and the amount are indefinite as they depend on human activities. Slavoj Žižek (2009) also points out the strong possibility of disaster in the future: "We have to accept that, at the level of possibilities, our future is doomed, that the catastrophe will take place, that it is our destiny—and then, against the background of this

acceptance, mobilize ourselves to perform the act that will change destiny itself and thereby insert a new possibility into the past" (151). He warns us to rethink our decisions and actions. There are two possible versions of the future waiting for us, as Robinson (2014) clearly states: "This coming century looks like the moment in human history when we will either invent a civilization that nurtures the biosphere while it supports us, or else we will damage it quite badly, perhaps even to the point of causing a mass extinction event and endangering ourselves" (244). Robinson is not pessimistic about the future of the world. He insists that we should strive for a better future and urgent action is required: "Since we know now that we can greatly improve the situation by what we do, we should start now, and shoulder the frustrations of how long it will take without too much whining or quitting" (247).

Stewart Brand (1971) also suggests that a "shit storm" is approaching shortly, which is "Not a nice clean earthquake or satisfying revolution, but pain in new dimensions: world pain, sub-continents that starve and sub-continents that eat unable to avoid each other" (34). Bill McKibben (2006) draws attention to the fact that the end of the world is closely tied to the end of nature: "We have built a greenhouse, a human creation, where once there bloomed a sweet and wild garden" (78). Concerned about the effects of global warming, which is an inconvenient truth for the capitalist mentality, Kovel (2002) maintains that we must choose between the end of capitalism and the end of the world. As Kovel states, "The ecological crisis is a great and proliferating set of ecosystemic splits, both natural and human, subjective as well as objective – a fraying of the fabric of the ecosphere" (116). It is fraying, but mending what is frayed is possible. He suggests that the damaged ecosystems can be cured by creating "a flourishing ecosystemic boundedness" (116).

It is not just the existence of capitalist production but also a human desire to intervene in the processes of natural life that encourages humans to manipulate nature. According to Kovel (2002), even ancient human beings cannot be claimed to have lived in harmony with nature. They were not kind towards nature, and they unknowingly caused the extinction of some species: "That under original conditions, the human being is not merely capable of living in 'harmony with nature'" (118).

Kovel (2002) argues that neither science, technology, nor industry can be held responsible for the ecological crises. Especially, capitalism leads to eco-destruction along with Christianity, which is not eco-friendly. Kovel quotes from Genesis, which depicts how Yahweh gives Adam "dominion over the fish of the sea, and over the birds of the air, and over the cattle, and over all the earth, and over every creeping thing that creeps

upon the earth" (1:26-31). This attained dominion over the creatures comes from the belief that "God created man in his own image, in the image of God he created him" (Genesis, 1:27); thus, humans assume themselves as Godlike creatures mastering the universe by the right given by God directly.

Kovel (2002) urges us to free ourselves from the delusion of the capitalist master and of claiming private ownership over the universe. When we realise this delusion, we will hold on to the reality of usufruct; in this way, we will enjoy living on another's property like a guest but improving it, as it is our home. James Lovelock (2007) also supports the view that the biggest problem is our greedy usage of land for agriculture or some other means; however, besides taking precautions for banning chemicals or cutting back emissions of greenhouse gases, "we have also to stop using the land surface as if it was ours alone. It is not: it belongs to the community of ecosystems that serve all life by regulating the climate and chemical composition of the Earth" (139). As Kovel (2002) asks, why not enjoy Earth as the principle of usufruct says, and at the same time, why not take pleasure in setting Earth free from its captivity under human domination? This way of thinking will improve our way of thinking:

> The underlying feeling may be that anything would be better than now, and that only a big break will free us from the chains we have forged and wrapped around ourselves. But this is mostly hoping for an easy way out, an alternative to revolution where we don't have to do anything. These dystopian scenarios would break the hold of the present order, yes, but they would also make things even worse. We would be freed of some constraints, but worse ones would replace them" (Robinson 2014, 255).

Undoubtedly, it is argued that it is necessary to be free from chains on us, on Earth, or any celestial body in the universe before the outcome within the period of existence comes for all. The message is that there will be an end for all creatures, species, planets, and space, whether we see it or not. However, it is implied that we have a role in creating a destiny for our end, and as Kovel (2002) says, "We should not allow the exit to occur under the cold, cruel hand of capital; it is an ending unworthy of the beauty of the world" (279). William Blake once wrote at the end of his "Jerusalem":

> ALL Human Forms identifièd, even Tree, Metal, Earth, and Stone; all
> Human Forms identifièd, living, going forth and returning wearied
> Into the Planetary lives of Years, Months, Days and Hours; reposing,
> And then awaking into His bosom in the Life of Immortality.
> (Bartleby, n.d.)

The message within these lines is that all mortal beings will vanish one day, and after we are gone, even the traces of our existence might be erased. The ideology of the works analysed in this book also complies with this view. It is directly or indirectly referred to in the works covered in this book that, generation after generation, the only trace of our existence would be our contributions to the universe. Our story should be a worthy one devoted to saving the planet, not like a king living in prosperity by leaving only a broken gravestone in despair in a desert, as in Percy Bysshe Shelley's poem, "Ozymandias":

> My name is Ozymandias, King of Kings;
> Look on my Works, ye Mighty, and despair!
> Nothing beside remains. Round the decay
> Of that colossal Wreck, boundless and bare
> The lone and level sands stretch far away. (Poetry Foundation, n.d.)

Robinson (2014) maintains the idea that Earth is our "home" that will be "the only place we'll ever know", and thus, he illustrates the possibility of life in the whole vast universe: "Our solar system exists at human distances and constitutes our home, or our potential home—Earth our home, the solar system a potential home—while the universe beyond the solar system exists beyond human distances and will forever remain a backdrop only, to be observed but not visited" (248).

Kierkegaard notes in an epigram echoed by Darko Suvin that "We literally do not want to be what we are" (qtd. in Suvin 2010, 218). He implies that it is our innate desire to change our stance, hoping for the better. While writing about the future of our planet, Robinson does not forget the history; on the contrary, he repeatedly presents it to help shift it onto a utopian path as Jameson (2005) notes: "the attempt repeatedly to begin history over again […] is the very subject of [Robinson's Mars trilogy]" (227). Morrissey also writes that in his Mars trilogy, Robinson engages the readers in a "search for a vision that can sustain us in the future" (qtd. in Pak 2016, 386). Robinson (2014) imagines the possibility of having a galaxy within reach; he states that it is something "like the land of Cockaigne" (248). Rather than thinking about the morality of the action, he assumes that we would only save the environment to keep ourselves alive; "I suppose if we had entire galaxies to play in, we could be more careless about housekeeping without killing ourselves. That would shift ecological thinking and morality both, I'm sure. But it is too much of a hypothetical [situation]" (249).

When discussing the terraforming project of Mars, there has been a great variety of views and ideologies for decades on scientific research.

First of all, it is helpful to note that Mars has no visible features eligible for human life according to the scientific measurements as Robert Markley (2009) notes: "Mars's atmosphere is 95 percent carbon dioxide; its atmospheric pressure is about six millibars (little less than one per cent of Earth's), its mean surface temperature is -56 degrees centigrade, it has no surface water, and because it has only trace amounts of oxygen, it has no ozone layer, so the surface is bathed in ultraviolet radiation" (127). However, it is interesting that it has been at the centre of numerous debates for the last decades among the scientists and planetary engineers who have devised various strategies for creating a biosphere for human life in this barren landscape. According to Markley, the emerging thought experiments at the literary and scientific level "envision massive technological interventions to terraform Mars, their rhetoric invokes seemingly antithetical myths of humankind's relation to a terrestrial Nature: the idealized visions of restoration ecology and the endless generation of wealth through exploitation" (128). On the other hand, Chris McKay expresses the human struggle to master the planet through the help of technology and engineering from a postmodern allusion to the quasi-fairy tale in which Mars can be restored to its very ancient form by human touch in the debate moderated by Shirley (2004): "Mars lived fast, died young, and left a beautiful body – the Sylvia Plath approach to planetary science. We could play Ted and just ignore it, or we could do something better and bring it back to life". Jeremiah Creedon sees terraforming as an extravagant fantasy that "belongs to a special kind of American virtual reality – a make-believe world full of things the public pays for but never sees" (qtd. in Markley 2009, 129). On the other hand, the astronomer David Grinspoon observes the process as a teaching experience at an intellectual level: "terraforming will remain a purely intellectual exercise for the foreseeable future" (qtd. in Markley 2009, 130).

Enlightened by a multitude of divergent perspectives on the issue of terraforming, this book seeks to articulate the necessary eco-ethical stance required for a sustainable future, thereby mitigating potential catastrophes. Drawing upon a range of theories and philosophies as applied to Robinson's Mars trilogy, the discussion aims to provide a comprehensive analysis of the ethical dimensions involved. Chapter 1 establishes a foundational theoretical background, setting the framework upon which the subsequent analyses are constructed. The chapter discusses the prevailing ecological and eco-philosophical views on the relationship between human and nature for centuries, from the anthropocentric writings of Bacon to the more cosmical ideas of Einstein, Bohm, and Næss. Rather than holding the ancient master-slave version of the hegemonic binary

structures, the perfect harmony of the universe, with each interconnected part equally contributing to the whole system, is appreciated on the grounds of the eco-philosophy of this book. Husserl and Heidegger's philosophies offer profound insights into the existential perspective that shapes our understanding of "being." Through their phenomenological approaches, they elucidate the intricate relationship between human existence and the concepts that underpin it. This exploration is crucial for addressing a variety of human-centric issues and dilemmas, providing a foundational framework for both comprehension and resolution of such challenges. By delving into the depths of our existence, their work underscores the significance of philosophical inquiry in navigating the complexities of human life. Then, Marxist analyses are introduced to explain the economic and political reasons behind the crises in nature and the human world. Karl Marx and Frederick Engels' provocative doctrines are primarily argued in search of a more ecologically considerate system. Said's postcolonial approach critically examines the pervasive mentality of the coloniser that predominates in Western thought. This framework elucidates how animosity towards "the other" manifests within the Neo-Malthusian logic characteristic of the Postmodern era. Such a perspective highlights the underlying ideological structures that perpetuate differential power dynamics and reinforce colonial legacies in contemporary discourse.

Chapter 2 provides an in-depth exploration of the terraformation process on Mars through the lens of various ideological perspectives as articulated in the Mars trilogy. It critically examines the conservative stance of the Reds, focusing on Ann's concept of "mineral ethic," which prioritises the intrinsic value of the Martian rock over rapid scientific interventions that could disrupt the planet's natural state. In juxtaposition, the chapter analyses the views of the Greens, particularly under the leadership of Sax, who advocate for enthusiastic terraforming driven by colonial and capitalist ambitions. Furthermore, the spiritual connection to the Martian landscape is articulated through Hiroko's philosophy of "viriditas," emphasising a deep philosophical relationship with the land. The latter section of the chapter delves into the natural areoforming processes occurring on Mars, leading to a synthesis of the divergent ideologies held by the Reds and the Greens. This synthesis results in the emergence of a third colour, symbolising a unified perspective. Through the evolution of both physical and conceptual elements, this third colour—blue—emerges as a representation of the interconnectedness of living and non-living entities within the universe, encapsulating the complexities of terraformation and the myriad of viewpoints surrounding it.

Chapter 3 critically examines the economic and political systems as pivotal forces influencing cultural and social developments within the Mars trilogy. The analysis is anchored in Marx's theory of Marxism, revealing that capitalism serves as a driving force behind the aspiration to transform Mars into a colony of Earth following the colonisation of various locations on Earth. As noted by David Harvey (2010), "Capitalism came into the world, as Marx once put it, bathed in blood and fire" (250), indicating that capitalism is often associated with destruction and death in the contexts it permeates. This chapter investigates the detrimental effects of capital hegemony, elucidating the intricate relationship between the ecologies and economies of Mars and Earth, alongside the political dynamics at play on both planets. It delves into eco-ethics related to the colonisation of Mars and posits the emergence of a novel system, referred to as "eco-economics," as a potential remedy for the prevailing deficiencies within the existing economic framework, underscoring its promising ideological underpinnings. Furthermore, the chapter reflects on historical failures, such as revolutions and wars, aiming to glean insights that might prevent the repetition of past mistakes. It engages with Edward Said's concept of "the Other" to critique the tendency to attribute blame for catastrophes to external parties, highlighting how such attitudes can foster conflict, animosity, and enmity among individuals, thereby generating significant social challenges. The text also engages with Thomas Malthus's logic of Malthusianism to explore the underlying factors contributing to contemporary crises.

The book concludes upon the critical examination of the Mars trilogy that building a better future depends on humanity's willingness and determination to tear down old values and systems to render a completely bright possible future. Robinson (2014) emphasises his purpose for writing science fiction and his hopes for a more scientifically oriented community for future generations: "We're still allowing capitalism to shape our actions and wreck the Earth, meaning our bio-infrastructure, meaning ourselves. So our culture is not yet scientific enough; when it becomes so, we will be making more rapid progress toward both justice and sustainability, as the two are stranded parts of the same project" (260). The Mars trilogy serves the purpose that Robinson's struggle towards justice and sustainable futures should not only be his story but also be followed by many for a better future for all living things.

Harvey (2010) suggests that "feasible future possibilities arise out of the existing state of relations between the different spheres" (229); that is, the differences are naturally placed in human life. Of course, they have various reasons to be on Mars, and the people who send them have

different intentions, and all of them bear attainable future possibilities. Ideological, cultural, and political differences cause conflicts and create big storms in this new society, but as John Boone, the protagonist in *Red Mars*, metaphorically explains in his last speech, these human conflicts are like meteor strikes "melting the permafrost at our social base, melting all those frozen institutions away and leaving us with the necessity of creation, the imperative to invent a new social order that is purely Martian" (Robinson 1993, 378-79). To explain more, it is in our genes, partially distributed to different individuals in a handful of people, and it is like the genetic engineering they work on in the labs. The final words of John Boone as a hero are the last statement to humanity to understand what we are made of and how we are going to realise the best by considering the future generations:

> We have the DNA pieces of culture all made and broken and mixed by history, and we can choose and cut and clip together from what's best in that gene pool, knit it all together the way the Swiss did their constitution, or the Sufis their worship, or the way the Acheron group made their latest fast lichen, a bit from here and there, whatever's appropriate, keeping in mind the seven generation rule, thinking seven generations back and seven generations forward, and seven times seven if you ask me because now it's our lives we're talking about extending way off into the years, we don't know how that will affect us yet, but it's certainly true that altruism and self-interest have collapsed together more tightly than ever before. But also it's still and always our children's lives and our children's children and on down forever that we have to think of, we must act in a way that gives them just as many chances as we have been given and hopefully more, channeling the sun's energy in ever more ingenious ways to reverse the flow of entropy in this little pocket of the universal flow. (Robinson 1993, 379)

II

THE THEORETICAL BACKGROUND

Where nothing is in its place, lies disorder
Where in the desired place there is nothing, lies order
—Bertolt Brecht- (qtd. in Baudrillard 1994, 155)

To give a brief outline of this chapter, it first discusses some of the main eco-ethical and eco-philosophical theories to provide a broad perspective on analysing the nature of ecology, the problems in ecology, the reasons behind them, and the possible solutions that could be offered. In this first part, the Western anthropocentric approach towards nature is challenged through Deep Ecology[1], which celebrates the intrinsic value of all creatures in the universe with a more ecocentric perspective. The dominant anthropocentric worldview, which is evident in the classical literature placing man as the master of the universe with the duty to control the rest of creation, as can be seen in Francis Bacon's *The New Atlantis*, is replaced by a more ecocentric and cosmocentric view considering the human interactions with the nonhuman world and the planets in the infinite universe not in terms of a master-slave relationship but as intimately connected entities. In this sense, David Bohm's (2005) theory of "undivided wholeness" is a great help by opening a new horizon that overthrows the hegemonic power structure through the revelation of interconnectedness, oneness, and wholeness of all entities according to the New Physics that was introduced by Albert Einstein's theory of relativity. For eco-philosophical considerations, Næss' concept of ecosophy is introduced as an enlightening view of every aspect of our lives through

[1] "Deep Ecology" is a term invented by Arne Næss in his 1973 article "The Shallow and the Deep, Long-Range Ecology Movement: A Summary" as a radical ecological worldview emerging against the Western anthropocentric approach towards nonhuman nature, in contrast to the dominant shallow worldview which he depicts to be the typical environmentalism as an extended approach of this Western human-centered instrumentalization of nature. (*Encyclopedia of Environmental Ethics and Philosophy*, 206)

reconsidering our value systems in ecology and philosophy. Secondly, this section will analyse how phenomenology serves as a pivotal philosophy for understanding the ecological crises through the perspectives of Edmund Husserl and Martin Heidegger. Husserl's phenomenology, as articulated in his works (1970a), offers profound philosophical insights into both the causes of and potential solutions to ecological crises. Additionally, the exploration of the existential dimensions of these issues leads us to Heidegger's (1962) fundamental inquiry into the meaning of "Being" within an eco-philosophical framework. Furthermore, ecological Marxist perspectives, drawing upon the analyses of Hegel, Marx, and Engels, introduce another dimension to the discourse on ecological challenges. In the fourth section, we will evaluate eco-ethical actions directed towards a new planetary future in the wake of ongoing global crises. Here, Edward Said's postcolonial approach will be employed to critically examine the potential for new forms of colonialism on Mars. This section will also address the apocalyptic Neo-Malthusian worldview, which represents a contemporary manifestation of animosity towards "the Other."

2.1. Exploration of Eco-ethics and Eco-philosophy

Radical environmentalists posit that humans exist as an integral part of the global environment, conceiving of our role as a subset within the broader context of nature. As noted by J. M. Buchdahl and D. Raper (1998), "Human needs, therefore, are secondary to the natural order of things, where equilibrium exists between life and death, growth and decay. Rather, we should strive for a sustainable harmony of nature" (93). This perspective delineates two primary viewpoints: the first, anthropocentric and instrumental, prioritises human social and economic needs, while the second advocates for a non-anthropocentric and intrinsic valuation of nature. However, these theoretical frameworks alone may not suffice to ensure the successful implementation of sustainable development. Buchdahl and Raper argue for the necessity of incorporating ethical values, which encompass "the object of environmental value, the nature of value, the source of value, the theory of value and the attribution of value" (Buchdahl and Raper 1998, 92-93). In their analysis, the authors challenge the traditional dichotomy between anthropocentrism and non-anthropocentrism by advocating for a reconciliation of the two perspectives. They underscore the importance of differentiating between the object of value and its source, asserting that "Having rejected anthropocentric perspectives of the object of ethical value, and an

objectivist source of ethical value, we are left to consider the role of non-anthropocentric subjectivism as an alternative ethical doctrine for justifying sustainability" (96). Consequently, these dimensions of value are recognised as both distinct and interdependent. Buchdahl and Raper (1998) elucidate the ethical dimensions of non-anthropocentric subjectivism, characterising it as "ecocentric, inherentist, anthropogenic prescriptivist, subjectivist, and hierarchical," thereby positioning it as a critical foundation for fostering sustainable development:

> The doctrine presupposes ecocentrism, because nonhuman entities, including inanimate objects, can be logically included within the Moral Club, inherentism (rather than instrumentalism or intrinsicalism), because whilst value in nonhuman nature is dependent upon human consciousness, some of this value does not derive from traditional human values, anthropogenic prescriptivism, because the source of the ethical valuing experience is unique to humans, who engage in such behaviour through convention, therefore, subjectivism and finally, hierarchical attribution of value, since most people would presumably wish to rank the ethical status of themselves above other living species and inanimate objects. (96-97)

The relationship between humans and nonhuman nature cannot be adequately understood through a lens of separation or a Hegelian master/slave dynamic, as exemplified in classical literature such as Shakespeare's *The Tempest.* Instead, these entities exist in a state of interdependence. Their mutual dependencies highlight the notion that they represent interconnected facets of a complete whole, which is fundamental to the concept of sustainable development. Interpretations of creation in religious texts—such as the Bible and the Quran—underscore a dominant ideology that positions humanity as a "shepherd" and nature as mere "resources." This perspective generates competing demands between the pursuit of natural harmony and the welfare of humans, as articulated by various scholars. The persistence of this idea across literary sources from historical to contemporary times reflects its deep-rooted influence in human thought. It is crucial to recognise the dual role of nature in meeting both economic and social needs, wherein it serves an instrumental purpose while simultaneously possessing inherent value independent of human appropriation. This recognition is a vital moral imperative for achieving sustainable development in the future. Such an understanding fosters a more equitable and ethical relationship between humanity and the natural world, which is essential for long-term sustainability.

The reason for the dominance of this anthropocentric worldview, as reflected in culture and literature, is "rationalism" for some critics. Val

Plumwood (2002) blames rationalist culture for destroying many dimensions of human life by stating that this reason-centred culture of the West is at the very root of the deepening ecological crises. The temporary advantage of the dominant culture over the conquerable and oppressed ecologically adapted cultures on Earth has brought us to the biophysical limits of this planet, and ironically, it is at the mercy of the capitalist powers to save us all. The prevailing ethos of our capitalist system operates under a success-oriented paradigm that subjugates not only diverse cultures but also humans and nonhuman nature. Plumwood contends that the triumph of this economic framework is intricately linked to "our long-term ecological and ethical failures," presenting us with a stark dichotomy: "change this culture or face extinction" (5). She suggests that the ecological crises cannot solely be attributed to rational thought; rather, it is compounded by imprudent and irrational manifestations that have evolved within "the framework of rationalism and its dominant narratives of reason's mastery" (5), which neglect the interconnectedness of natural forces. This narrow conception of reason diminishes the significance of the ecological and physical world, prompting a need for a transformative re-evaluation of our value systems. Plumwood asserts, "Reason has been made a vehicle for domination and death; it can and must become a vehicle for liberation and life" (5). When applied judiciously, reason can serve as a catalyst for scientific and technological advancement, potentially positioning itself as a saviour for humanity, as expressed in her assertion, "Science will save us, provided we do not lose our nerve or our faith in techno-reason and our will to continue along our current path" (Plumwood 2002, 6). She emphasises the necessity for critical self-reflection within this anthropocentric culture, advocating for a reassessment of the limitations imposed by human constructs rather than relegating the nonhuman elements of our ethical relationships to the background (11).

The discourse surrounding the ecological crisis has undergone significant transformation, with figures such as Plumwood critiquing rationalism as a contributing factor. In this context, Greg Garrard (2014) articulates the concept of "environmentalism" as a multifaceted social, political, and philosophical movement, which is fundamental to addressing the various crises we face. This movement has birthed several distinct eco-philosophies that are closely intertwined with environmentally focused disciplines in philosophy as well as social and political theories. Garrard specifically identifies "deep ecology" as the most influential and radical manifestation of environmentalism. Proponents of deep ecology argue that a reduction in human population is essential for the sustainable flourishing of both human and nonhuman life. They posit that the rapid expansion of

the human population is a primary driver of environmental degradation. Furthermore, deep ecologists differentiate themselves from more mainstream environmentalists by rejecting an instrumental view of nature, which seeks to protect the natural world solely for human benefit. Instead, they advocate for recognising the intrinsic value of nature, regardless of its utility to humanity. This perspective is eloquently encapsulated by Russian poet Tiutchev, who emphasises the inherent worth of the natural world:

> Nature is not as you imagine her:
> She's not a mold, nor yet a soulless mask-
> She is made up of soul and freedom
> She is made up of love and speech… (All poetry, n.d.)

The paradigm of deep ecology advocates for a profound transformation in the way we perceive and interact with the natural world, moving away from an anthropocentric framework prevalent in Western philosophy, culture, and religion. This shift critiques colonial perspectives that empower humans to assert ownership over so-called "wild" and "untouched" nature, as exemplified in literary works such as Defoe's *Robinson Crusoe* and Conrad's *Heart of Darkness*. Deep ecology promotes a nature-centred and biocentric value system, positing that all entities, species, and ecosystems possess intrinsic rights. In parallel, the concept of cosmocentrism argues for the inherent rights of the universe itself, asserting that humans should refrain from colonising or altering other celestial bodies. This perspective firmly opposes the idea of terraforming uninhabited planets for human habitation, advocating instead for the preservation of pristine natural conditions across all planetary systems. Under this framework, Mars, and other celestial bodies, are recognised as having their own rights to exist independently of human interests. Critics from the deep ecology perspective reject the anthropocentric colonial viewpoint illustrated within Robinson's trilogy, articulating that the universe is fundamentally ecologically centred. They contend that humanity is not entitled to exert dominion over nonhuman worlds or planets, thereby challenging the notion that it has absolute authority to control and manipulate nature for its own purposes. This shift in understanding underscores a broader ethical obligation to recognise and respect the autonomy of all forms of existence beyond human-centric values.

As one of the pioneers in environmental criticism and deep ecology, the Norwegian philosopher Arne Næss (2003) emphasizes the two choices human beings are faced with: "to contribute to the maintenance and development of the richness of life on Earth" or "to fritter away our chances, and leave development to blind forces" (23). He sadly enunciates

that the reason behind the catastrophic crises in ecology lies in the fact that our ecological knowledge is crucially limited, and our ignorance of the significant facts brings ecopolitical consequences. He reveals that it might be surprising for many people nevertheless, "The scientific conclusions are often statements of ignorance: 'We do not know what long-range consequences the proposed interference in the ecosystem will beget, so we cannot make any hard and fast conclusions'" (Næss 2003, 26). The "ecological doomsday prophesies" do not go any further than being catastrophic statements unless new policies are brought; however, we neither know the extent of these policies nor the critical time of this change either instantly or radically (27). He affirms that the more we study ecosystems, the more conscious we become about our ignorance, enabling us to take conservation steps. He proposes two types of movements: The Shallow Ecology Movement, which requires a "fight against pollution and resource depletion. Central objective: the health and affluence of people in the developed countries", and The Deep Ecology Movement, which involves the "rejection of the man-in-environment image in favour of the relational, total-field image" (qtd. in Næss 2003, 28). The Deep Ecology Movement observes the organisms as "knots in the field of intrinsic relations", supporting a kind of "biospherical egalitarianism - in principle. The 'in principle' clause is inserted because any realistic praxis necessitates some killing, exploitation, and suppression" (qtd. in Næss 2003, 28).

Deep ecology aims to end the master-slave relationship by declaring the intrinsic relation between the two things and the equal rights to live for every species. Næss (2003) suggests eight necessary formulations of deep ecology to comprehend his philosophy. To recapitulate his points, Næss explains that the intrinsic value of human and nonhuman life forms are distinctively appreciated in their richness and diversity, which will contribute to the flourishing of more life forms; humans have no right to reduce this except satisfying their vital needs, the human interference to the nature is enormous and getting worse day by day, the flourishing of human and nonhuman life necessitates a substantial decrease in human population, there is an urgent need for a radical change in economic, ideological, and technological policies, the ideological change is only possible through the recognition of the intrinsic value of things with the awareness of having a reasonable standard of living away from the excessiveness and those who recognise the points mentioned earlier are obliged to participate in the attempts of carrying out the necessary changes (29). These formulations can be considered to prevent the ecological crises in our world and any possible worlds in the universe, like Mars in Robinson's narration, and to escape a future catastrophic scenario foretold

to us through science fiction. Deep ecology not only saves humans from these crises but also helps them to increase the value of their lives. Næss categorises the ultimate goals in human life as being of three primary sorts: pleasure, happiness, and perfection. He further adds that it is challenging not to fall into the third category, which is the core of the crises in our world, through the help of science. Nevertheless, he ratifies that within the deep ecology, the personal quality of life holds the primary place, up to fulfilling basic objectives (84). Næss asserts that the future of deep ecology holds both hopes and fears on account of the conscious change in ecology:

> It is my hope that beings endowed with a brain like ours, developed through hundreds of millions of years in close interaction with all kinds of life will inevitably support a way of life not only narrowly favourable to this species, but favourable to the whole ecosphere in all its diversity and complexity. A uniquely endowed part of this ecosphere will not turn into its eternal enemy. (212)

On the other hand, Robinson (2014) argues, "Deep ecology seemed to be suggesting that humanity was a planetary disease that would run its course and then die back or die out. This did considerable harm to the environmental cause, thus ultimately to the environment" (256). For Robinson, deep ecology makes visible the reason why "environmentalism needs Marxist critical theory" as Marxism mainly uses a great immersion of "ecological thinking" (256). Even though Robinson approves some of the initial observations of Næss (2003) to be scientifically accurate and to be praiseworthy within their context, he still thinks that "adding the adjective "deep" was a mistake" because for him, "the point should have been that plain old ecology was already at the right depth to be very helpful" (256).

The hope for a diverse universe depends on using science and technology in a considerate way for the good of the human and nonhuman world. As Bertolt Brecht (2007) reflects on the function of science through his character Galileo in his *Life of Galileo*, "One of the main reasons for the poverty of science is that it is supposed to be so rich. The aim of science is not to open the door to everlasting wisdom, but to set a limit to everlasting error" (43). He further adds, "the only purpose of science is to lighten the toil of human existence" (64). Thus, new science is practised for the sake of human existence and the nonhuman world. Quantum Mechanics and The New Physics, through Einstein's theory of relativity, opened the gates of "an entirely new perspective to understand the universe by deconstructing the mechanistic worldview of nature as evident

in the narrations such as *Moby Dick, Robinson Crusoe,* and *The New Atlantis"*. The theory reveals the constant interaction between matter and energy, space, and time as a part of a larger whole rather than the old mechanistic worldview that categorises all organisms as separate particles and orients humans as observers and controllers:

> Relativity theory calls for this sort of way of looking at the atomic particles, which constitute all matter, including of course human beings, with their brains, nervous systems, and the observing instruments that they have built and that they use in their laboratories. So, approaching the question in different ways, relativity and quantum theory agree, in that they both imply the need to look on the world as an undivided whole, in which all parts of the universe, including the observer and his instruments, merge and unite in one totality. (Bohm 2005, 13)

There is harmony and unity of all things in one and an undivided whole. Bohm (2005) calls this "undivided universe" in which every particle is intrinsically interconnected with each other and acts interdependently as a particle of "undivided wholeness and implicate order", which suggests that the universe is an unbroken whole and everything is interrelated to everything else:

> Nowhere is there a break or a division. Thus, the classical idea of the separability of the world into distinct but interacting parts is no longer valid or relevant. Rather, we have to regard the universe as an undivided and unbroken whole. Division into particles, or into particles and fields, is only a crude abstraction and approximation. Thus, we come to an order that is radically different from that of Galileo and Newton – the order of undivided wholeness. (158)

Bohm's (2005) emphasis is that the observed instruments are not entirely distinct from the observer; they exist in interaction, destroying the dualistic analysis and creating hegemonic structures. It is a direct reference to the old scientific methods in which scientists proclaimed themselves as the master observers who were free to do whatever they desired with the nonhuman world by justifying their oppression through the scientific method, which sees the world as a clockwork machine and by defending their invasion as a God-given right. Bohm highlights the equal coexistence of all particles and creatures: "Ultimately, the entire universe (with all its 'particles', including those constituting human beings, their laboratories, observing instruments, etc.) has to be understood as a single undivided whole, in which analysis into separately and independently existent parts has no fundamental status" (221).

Bohm and Hiley's (1995) analysis of the "participatory universe" connects the human and nonhuman world to the rest of the universe, and human nature always seeks that wholeness (134). When this wholeness is broken, the destruction, crises, and war, as in Robinson's trilogy, are inescapable because he claims that fragmentation causes confusion and creates enormous problems, which is the root of pollution, disruption of the natural balance, overpopulation, and economic and political disorder around the world. Accordingly, the universe is a complete whole, and each living/nonliving organism is a part of this "participatory universe", which refers to the interactions between Mars and Earth. Quantum contextualism articulates that there is no separation but an essential bond between human and nonhuman worlds. It demonstrates the existence of correlated non-local connections between the seemingly separate particles. Similarly, Robinson's character Hiroko mentions that the possible connections can be established with the soul of the place if the people who arrive on Mars listen and wait tenderly, as we are all participants of the perfect universe, not separate entities.

Bohm's (2005) analysis of the interconnectedness of human and nature leads us to a deeper philosophical analysis of ecology, as can be observed in Næss' (2003) portrayal of "eco-philosophy" as "the study of common problems to ecology and philosophy" and when "the questions involving ourselves and nature" are concerned, the meaning of the world "philosophy" becomes "ecosophy" (36). He defines ecosophy as "a philosophical worldview or system inspired by the conditions of life in the ecosphere" (38). As Serpil Oppermann (2003) interprets, Næss's argument encapsulates the basic principle of our unique universe: "All are intimately interconnected" without any boundaries in this "organic wholeness"; everything is naturally interrelated through rhizomes (connections) in the postmodern analysis of ecology (24). Næss specifies his explanation, "Ecophy T", a philosophical viewpoint "inspired by ecology, but it cannot be derived from ecology or any other science" (39). Ecosophy T offers a critical perspective on the interplay between human existence and environmental consciousness, highlighting the significance of both unity and diversity in life. It proposes essential changes across various dimensions of human activity—technology, economy, and politics—addressing the escalating environmental crises that society faces. The fundamental aim of Ecosophy T is to underscore the responsibility of individuals, as integrated beings, to formulate their responses to contemporary ecological challenges based on a holistic understanding of their surroundings (Næss 2003, 163). This philosophy posits a deep connection between life and nature, advocating for the acknowledgement of "the universal right to self-

unfolding" and recognising the intrinsic value inherent in every life form (164). Through ongoing interactions with both organic and inorganic entities, individuals enhance their sense of self and self-respect, thereby cultivating their identities rooted in belonging, home, and existence. The notion that no individual social unit can be wholly isolated is paramount; it asserts that distancing oneself from nature is impossible, as nature fundamentally constitutes a core aspect of human identity.

Ecosophy T also defends equal rights for all life forms: "The right of all the forms to live is a universal right which cannot be quantified. No single species of living being has more of this particular right to live and unfold than any other species" (166). Nonetheless, Næss (2003) warns us against the misunderstanding that the biospheric egalitarianism defending equal rights does not mean that "human needs should never have priority over non-human needs", and he underlines the fact that the uniqueness of humankind should never be underestimated as the only present living one among almost a hundred million extinct species since the beginning of life on Earth (169–170). Ecosophy values this uniqueness while protecting the rights of the other species as well: "The uniqueness of Homo sapiens, its special capacities among millions of kinds of other living beings, has been used as a premise for domination and mistreatment. Ecosophy uses it as a premise for a universal care that other species can neither understand nor afford" (Næss 2003, 171). Ecosophy suggests a kind of empathy based on identification towards other creatures through self-realization of oneness, wholeness, and diversity in our universe. From that aspect, it is necessary to take a distinct approach to four fields of phenomena:

(1) Identification with living beings individually (distributively) and within limited life situations;
(2) Identification with living beings collectively or in their essence (life itself, ecosystems, species);
(3) Ethical judgement (by different scales) of the individual beings in specific situations;
(4) Ethical judgement of life collectively or in its essence. (Næss 2003, 181)

Næss (2003) also validates his argument on the oneness of the whole creatures through examples from the religious accounts, the Bible, and the Quran. He refutes the interpretation of man's placement as the lord of the other creatures that are told to be created to serve him. He is against the view that religion conflicts with ecology by claiming that the privilege mentioned to be given to humans by God, as stated in many parts of Holy Scriptures, is misinterpreted by humans:

> God blesses all equally: each thing is blessed separately and referred to as good. "And God saw that this was good." A strong value judgement was made even before He created Adam. The individual parts of the creation are afforded intrinsic value. Nothing that is created has value only as a means. Nothing is created only for the sake of human beings alone or solely for any other earthly being. A principal point in "egalitarianism in the biosphere" is thereby won: every living being is equal to all others to the extent that it has intrinsic value. (Næss 2003, 184)

He emphasises that Earth does not belong to humankind as it belongs to God, and all creatures share the universe within the limits of their individual spaces. Næss (2003) favours the slogan "everything hangs together", appreciating the interrelatedness of everything in the universe, and he stresses that the limits in ecopolitics are multidimensional, which can be interpreted for every life possibility in our universe, on Earth, on Mars, or any other planet. He suggests an ecosophical lifestyle and consciousness with a central slogan, "Simple in means, rich in ends", which celebrates "opulence, richness, luxury, affluence" (Næss 2003, 88). Næss underlines the necessity of having an ecological consciousness on the level of personal lifestyles through ways of living and having organizations for people working upon the alternative ways to help each other like the movement "The Future in Our Hands", whose main principles are "preservation of the natural and whole biological environment, with humans as an integrated part, is a necessary condition for the development of the life quality of mankind, and its maintenance in the future" (88-89). The primary objective is to concurrently transform the consciousness and lifestyles of individuals both within and beyond specific communities, facilitating the pursuit of more sustainable futures. Rather than attributing blame to existing systems, a fundamental shift in mentality is essential across multiple domains—including technology, lifestyle, politics, and the economy—to effectively address the environmental crises.

In this context, Næss (2003) advocates for the adoption of "soft technology," which aims to minimise our impact on the Earth in alignment with an ecosophical lifestyle. He underscores the necessity of reducing reliance on intricate technologies, particularly in the industrial nations of the Global South. Næss asserts that "change in technology implies change in culture" (102). Furthermore, it is imperative for economic frameworks to incorporate eco-ethical considerations, as these elements are fundamentally interconnected, as expressed by ecosophers like Næss: "Humans' gross interference in nature mirrors our economic activity. Protection of what is left of free nature depends largely on the way humans are willing and able to change their ways of production and consumption - and the ideologies

justifying the present economic misuse of the planet" (129). Similarly, Næss elaborates that ecological concerns cannot avoid politics as well. Again, an ecosophical consciousness is required for the essential ecopolitical areas such as pollution, population, and resources. He implies that better social conditions depend on the development of self-determination in terms of ecopolitical considerations. Then, an international consciousness is an obligation for the total in order to set the balance between the rich and the developing countries by changing the former's policy towards the latter from exploitation to mutual aid (150). He highlights the vitality of green political activism and deep ecological movement for prosperous future life conditions on the planet with the motto, "There is no point of no return", thus he gives the message that it is time to stop the accelerating devastation of life conditions in our present world wherever it applies.

2.2. Ecological Insights of Phenomenology as the Key Philosophy to Understand the Crises of Our Lives

Considering human actions are directed by the vital force of the psychological mind, it is crucial to understand the real motives behind the nature of the crises in our lives. Philosophy has a function of enlightening human lives for ages, and phenomenology is a key philosophy for human interactions with each other and the nonhuman world. Thus, the phenomenological logic will help identify the reasons for the ecological crises and find the possible solutions. The connection between Husserl's (1970a) phenomenology and ecology is that the more we understand human nature, the better we comprehend our place in the universe in harmony with the other species and nonhuman worlds. The meaning of our experiences from a phenomenological perspective is closely related to the experiences with the actual status of nature, as Næss (2003) asserts: "Phenomenological viewpoints are valuable for the development of consciousness of a non-instrumental, non-utilitarian content of the immediate experience of nature" (51). If humans on Earth, akin to the characters portrayed in Robinson's Mars trilogy, were to adopt a phenomenological attitude towards the crises facing their environments, including potential habitats on Mars, their endeavours could yield more successful outcomes rather than leading to further destruction. The phenomenological approach proves to be a crucial strategy in addressing crises across various domains, promoting the preservation of life on Earth while fostering ethical and ecologically sound relationships with future extraterrestrial ecosystems. By centring human experience and perception,