CONTEMPORARY ENVIRONMENTAL DISCOURSES AND ECOLINGUISTICS: A STUDY OF CHANGING LINGUISTIC SPECTRUM

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ISLAMABAD

DECEMBER, 2023

Contemporary Environmental Discourses and Ecolinguistics: A Study of Changing Linguistic Spectrum

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M.Phil, Qurtuba University of Science and Information Technology, 2015

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

In **Linguistics**

To

FACULTY OF ARTS & HUMANITIES

NATIONAL UNIVERSITY OF MODERN LANGUAGES, ISLAMABAD

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I, a candidate for **Doctor of Philosophy** at the National University of Modern Languages do hereby declare that the thesis **Contemporary Environmental Discourses and Ecolinguistics: A Study of Changing Linguistic Spectrum** submitted by me in partial fulfilment of PhD degree, is my original work, and has not been submitted or published earlier. I also solemnly declare that it shall not, in future, be submitted by me for obtaining any other degree from this or any other university or institution.

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ABSTRACT

Title: Contemporary Environmental Discourses and Ecolinguistics: A Study of Changing Linguistic Spectrum

The recent global ecological crisis has sparked environmental concerns in a variety of discourses. Environmental discourses are generally intended to raise ecological awareness and to educate people about the devastating effects of human policies and actions that harm life and the ecosystems that life depends upon. As a nation that has been largely on the receiving end of global environmental degradation, Pakistan has always raised alarm bells on all international forums raising voices about the environmental especially through its English newspapers. The current study intends to ecocritically analyse linguistic features in environmental texts as published in Pakistani English newspapers to expose the stories we-live-by. To identify and analyse stories underlying, two of the important linguistic features i.e. linguistic metaphor and novel compounds, the current study invokes Stibbe's (2015) theory of ecolinguistics as a framework and uses a mix of corpus and manual techniques to extract data and analyse it. Further, semi-automatic methods are used to build a specialized corpus that suits the requirements of this study. The corpus contains texts from three leading Pakistani English newspapers from January 2011 to December 2020. For metaphors, Pragglejaz Group's (2007) method of metaphor identification procedure (MIP) has been adopted for the identification of conceptual metaphors and Stibbe's four-step methodology of critical analysis of conceptual metaphors is used for the ecocritical analysis of the identified conceptual metaphors. The prevailing stories in discourses affect human treatment of other more vulnerable humans, other life forms and the physical environment. The results show that most of the stories analysed are harmful to life, and wider ecosystems that life depends upon. Three of the most dominant stories are found to be malevolent. They are: consumerism is good, technology can fix environmental issues, and humans are the centre of the ecosystem. Hence, by exposing the stories for their camouflaged malevolent discourses, the researcher expects the writers as well as the public at large to develop a deeper understanding of human discourses about the environment, and decide whether a linguistic feature should be used, improved or rejected.

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LIST OF ABBREVIATION

MWOD	Merrian-Webster Online Dictionary
OED	Online Etymology Dictionary
D.C	*Dictionary.com*
AILA	Association Internationale de Linguistique Appliquée or International Association of Applied Linguistics
CM	Conceptual Metaphors/ Cognitive Metaphor
CMT	Cognitive metaphor theory
CL	Corpus Linguistics
MIP	Metaphor Identification Procedure
ODEC	Oxford Dictionary of Environment and Conservation
IEA	International Ecolinguistics Association
ECDA	Ecocritical Discourse Analysis
EPDA	Ecocritical positive discourse analysis
PEC	Pakistani Environmental Corpus
CDA	Critical Discourse analysis
VHEMT	Voluntary Human Extinction Movement
OOLD	*Oxford Online Learner's Dictionaries*
MEDAL	Online Macmillan English Dictionary for Advanced Learners
SOEDHP	Shorter Oxford English Dictionary on Historical Principles

ACKNOWLEDGEMENT

First and foremost, I would like to express my gratitude to my supervisor Dr. Zawar Hussain Hashmi, Head of the Department of English (UGS), at the National University of Modern Languages, Islamabad. Thank you for accepting me under your supervision at a difficult time. Your support, valuable comments and constructive advice throughout the process of writing helped me think outside the box.

I also want to thank Professor Salikoko Mufwene, Academic Director, at the University of Chicago, Chicago, USA. Thank you for hosting me at the University of Chicago for a year. Words cannot express my gratitude to Professor Mufwene. I could not have grasped insight into the field without those insightful academic meetings with you every Wednesday. Thank you for providing me with insight into the area. I am also grateful to you for helping me get out of stress during the pandemic.

I further extend my thanks to Dr Arran Stibbe, Professor of Ecological Linguistics at the University of Gloucestershire, UK; Dr Brigitte Nerlich, Professor of Science, Language, and Society at the University of Nottingham, UK; and Dr Muhammad Safeer Awan, Dean, faculty of Arts & Humanities at the National University of Modern Languages, Pakistan for helping me conceptualize the idea and motivating me throughout the process. Without your selfless help and constant encouragement, it would not have been possible for me to complete this tiresome project.

Lastly, thanks to family and friends for their encouragement and support. Ammi and Baba, thank you for your prayers and support. Thank you Javeria Haroon for the scholarly discussion. Thank you, Shoki for the late-night cups of coffee. The gossip during these five-minute coffee breaks was more refreshing than the coffee itself. Thank you, Kajal, my dear sister, for taking me out when I was stressed out. I also want to thank Samar Zakki for helping me arrange the references for the study at the end. Without you all, it would not have been possible for me to go through this nerve-wracking process of writing.

Peshawar, August 31, 2022

CHAPTER 1

INTRODUCTION

The current study intends to ecocritically analyse linguistic features in environmental texts as published in Pakistani English newspapers to expose the stories-we-live-by. Recent visible signs of environmental degradation led to environmental concerns in various discourses. Environmental discourses have recently started highlighting ecological degradation through different linguistic features, including but not limited to, linguistic metaphors, novel lexical items, novel compounds and so on. The environmental texts are primarily written to show environmental concerns or to sensitize people about their actions that damage non-human life forms. However, it has been noted by a few studies that even while using an environment-friendly discourse, people intentionally or unintentionally use language patterns that are not good for life and the larger ecosystems that life depends upon. The need is to conduct some extensive studies to examine linguistic features in environmental discourses to identify the type of stories they underlie. The current study attempts to do so in the Pakistani scenario. However, it analyses only linguistic metaphors and novel compounds to identify two forms of stories i.e. conceptual metaphors and frames. The study is based on the argument that prevailing stories in discourses affect the human treatment of other humans, other beings and the physical environment. Hence, exposing the stories will be helpful for writers, especially mass media writers, to decide whether a linguistic feature should be used, improved, or rejected. Since Stibbe's (2015) stories theory also argues for this; this study invokes Stibbe's (2015) theory as a suitable framework.

Stibbe's stories theory of ecolinguistics comes under a specific area of linguistics i.e. ecolinguistics. However, ecolinguistics is a developing field and has been understood by different scholars differently. Hence, this chapter first gives a brief overview of the field and then conceptualizes the study within that field. The upcoming section gives the background of ecolinguistics.

1.1 Background

The current study comes under the area of ecolinguistics. Ecolinguistics is still in its evolutionary process. Its roots are in two fields: the ecology of language, and language and ecology. Ecological linguistics stems from the concept of ecology which shows interrelation (German wechselwirkungen) and forms of mutual impact.

As far as the roots of the term ecolinguistics are concerned, Couto (2018) claims that the term 'ecolinguistics' was first defined by Haugen. Although Haugen did not use the term 'ecolinguistics' in his work, he was the first one to use the term verbally. In documents, 'ecolinguistics' was first used by Gobard (1976) in his work. According to him, Joe Darwin Palmer proposed a distinct field, ecolinguistics in 1974. Palmer proposed that ecolinguistics was to be a discipline to discuss the ethno-psycho-sociolinguistics of cultural policies. Salzinger, in 1979, used ecolinguistics in a psycholinguistic sense. French linguist Hagège (1985) used the term in his work *L Homme paroles* in which he disapproved the 'the centralizing policies that were used in the French Revolution' and asked for an ecolinguistic analysis to raise his voice against the prevailing monocultural policies (Fill, 2018, p. 2; 2001, p. 44). There are some other instances where the term was slightly touched upon in different senses during the 1970-80s after Haugen's work *The Ecology of Language* (e.g., Marcellesi, 1975).

However, if we trace the current interpretation of ecolinguistics, we may argue that Sapir (1912) was the first one to introduce a vague idea of ecology in linguistics when he associated 'language' with the 'environment' where the latter stands for language context. However, the concept of ecology was explicitly introduced in linguistics first by Einer Haugen in 1972. Consequently, he is called 'the father of ecolinguistics' (Couto, 2018). Haugen too, like Sapir, talked about the 'social' and the 'natural' environment in relation to language. However, he used the concept of 'ecology' explicitly in his work. One major difference between Sapir and Haugen is that where Sapir does not talk much about the mind as an important ecology of language, Haugen recognizes the mental ecology of a language; "language exists only in the minds of its users, and it only functions in relating these users to one another and to nature" (Haugen, 1972, p. 325). Ecolinguistics started with Haugen's seminal talk in 1970.

Here it is interesting to note that when Haugen talked about 'the ecology of language', he intended to take linguistics out of the boundaries of the 'structures' and study interactions between languages in both the human mind and in multilingual communities. However, the scope of the *ecology* within linguistics widened and it was used in pragmatics, anthropological linguistics, language teaching research, theoretical linguistics, and many other areas of linguistics (some of which are discussed above).

The field started developing immensely after Halliday's historical speech at the Association Internationale de Linguistique Appliquée or International Association of Applied Linguistics (AILA) in 1999. Halliday established a very different kind of link between language and ecology during this historical speech; he stressed that applied linguists should use language research to combat the contemporary environmental issues as manifested in the economic and environmental discourses of the century. Halliday can be termed a pioneer of the kind of ecolinguistics that the current study can be placed in. So, now ecolinguistics studies how humans treat each other, other living beings and the natural world and how these sociocultural processes are influenced by our individual thoughts and collective worldviews, all, in turn, are reflected in and shaped through language. Stibbe (2015) argues that our economic systems are constructed through language, and similarly, when those systems are perceived to cause tremendous misery and ecological harm, they are resisted and other forms of economic systems are created through language. So, Haugen and Halliday came up with differing ideas within ecolinguistics though both took the basic idea from the term 'ecology' Ecolinguistics is coined by combining 'eco' of ecology with 'linguistics'. So, the different meanings attached to the word 'ecology' and the way this term is approached have triggered different definitions of the term (discussed in detail in section 2.1).

Now, discussing the etymology and definition of 'ecology' is important because this sets the conceptual background of the present study. If we look at the term 'ecology' from a historical perspective, then this term has its origin in the 19th century. This was the time when Darwin came up with his theory regarding the evolution of 'organisms' (Fill, 2018). According to the *Online Etymology Dictionary* (OED), the term *ecology* (Okologies) was first used in 1866 by German biologist Ernst Haeckel who was one of the followers of Darwin. He defined it in more or less in the same sense that the dictionary

defines it today. He considered ecology as the "study of the interrelationship between organisms and their living and non-living surroundings" (1866/II, p. 286; editor's translation). Hence, according to him, ecology emphasizes the study of the interactions between living beings and the interactions of these living beings with their environment. However, this is only one definition of the term used today. The initial concept of ecology gave birth to many other concepts, for example, the concept of 'ecosystem' which was first coined in 1935 by Tansley. These concepts gave ecology various meanings. In the 1960s, the terms 'ecology' and 'ecological' were pinned with different meanings like 'environment friendly', 'natural' or 'nature' etc (Fill, 2018). By the time Haugen introduced the term 'ecology' in the realm of linguistics, it had already got the connotation of 'natural' and 'environmentally friendly' mainly due to Carson's revolutionary work *Silent Spring* published in 1962. That is why one of the meanings of 'ecology' in *Merriam-Webster Dictionary* (MWD) is, 'environment' and in *Dictionary.com* (D.C) it is, 'advocacy for the protection of natural resources from pollution, or its effects; environmentalism'. This meaning of 'ecology' has been taken by Western scholarship to the term *ecolinguistics*. However, ecolinguistics is a complex term having a variety of approaches (discussed in detail in section 2.1). In a nutshell, the term 'ecology' has undergone different stages which gave it various meanings of which the most prominent ones, according to D.C, are:

1. the relations and interactions between organisms and their environment, including other organisms; and
2. advocacy for the protection of natural resources from pollution or its effects; environmentalism.

The above-mentioned interpretations of the term 'ecology' set the present prominent tone for the field of ecolinguistics. The current study also adopts this tone.

The second part of 'ecolinguistics' is the term 'linguistics'. For Stibbe 'linguistics' in ecolinguistics is "simply the use of techniques of linguistic analysis to reveal the stories we-live-by, opening them up to question, and challenge them from an ecological perspective" (2015, p. 09). This, although, is only one perspective of 'linguistics' in the term ecolinguistics, the current study takes this perspective of linguistics in ecolinguistics.

Keeping in view the above explanation of ecology and linguistics, a general and simplified definition of ecolinguistics may be, “ecolinguistics deals with the role of language concerning the environment (in its biological/ecological sense)” (Fill, 2018, p. 3). A more specific definition of ecolinguistics that is more relevant to the current study, can be that of Wandel who defines the ecological approaches to language/ecolinguistics as, “the complex web of relationships that exist between the environment, languages and their speakers” (C.f. Skutnabb-Kangas and Harmon, 2018, p. 11). Hence, Wandel like many considers interrelationships between the ‘environment, language and their speakers’ as the focus of ecolinguistics.

Stibbe focuses more on the critical aspect of language interaction. For Stibbe (2015), ecolinguistics is “about critiquing forms of language that contribute to ecological destruction and aiding in the search for new forms of language that inspire people to protect the natural world” (p. 1). This is the definition of ecolinguistics that the current study takes (Discussed in detail in Chapter 3 of the study).

History shows that ecolinguistics covers a wide range of topics. However, it is also evident that it lacks clear-cut methods and theories. The current study is more focused on the language and its relation to the environmental/ecological crisis in line with the Hallidayan stance. It aims to find out the underlying stories in the environmental discourses by analysing the linguistic features of the language used. It further critically analyses these stories if they are beneficial, ambivalent, or harmful to the well-being of humans, other living beings and the larger ecosystems that life depends upon.

1.2 Environmental Crisis and Language

Humans’ relationship with the environment started getting worse about 250 years ago with the discovery of coal’s combustible promise (Malm, 2016). So, ecological disturbances started long before the Industrial Revolution (Hughes, 2009; Diamond, 2011). However, the relationship got much more disturbed in the wake of the twentieth century (McNeill, 2001). The environmental concern made linguists investigate human language to know if it is beneficial or harmful to the environment.

In the beginning, the focus in ecolinguistics was on the grammar of languages. Many linguists found issues with the inner layer of grammar and the lexis. As far as English

is concerned, Halliday (2001) is among the pioneers who point out in his work that the grammar of the English language is not healthy for us. He says that certain aspects of grammar construct reality in such a way that is 'not good for our health as a specie' (p. 193). He further explains that mass nouns like 'soil' and 'water' promote the idea of abundance rather than a limitation of supply. Similarly, words like 'growth' and 'bigger' have unmarked positive poles; however, their opposites like 'shrinkage' and 'smaller' have a negative pole attached to them. This makes 'growth' and 'bigger' look positive which is not good for the ecology of the earth. Lastly, the pronouns 'who' and 'what' make humans different from other species on the earth. Chawla (2001) also talks about the inadequacy of grammar. She states, "the language habits of fragmenting the mass, quantifying intangibles and imaginary nouns, and perceiving time in terms of past, present and future are factors in our inability to perceive the natural environment holistically" (p. 121).

Similarly, Goatly (2001) further strengthens the idea that the grammar of English is promoting environmental degradation. He says that in our current grammar actors and affected participants are separate which should not be the case because today actors are also affected by their actions, for instance, car drivers are actors because they are polluting the environment but at the same time, they are affected by the environmental pollution to which they are contributing. In the same way, Muhalhausler (2001) also talks about the inadequacy of the English language to encompass the present environmental issues. Muhalhausler argues that the reason for the inadequacy of the English language is due to a lack of environmental consciousness until recently.

The initial grammatical studies are mainly objected to as the grammar of the language cannot be planned. This ecological concern in linguistics has recently been shifted to the analysis of linguistic features in texts. The focus is now more on the discourses/ the way language is used rather than criticising and planning the inner layers of language. The present study also focuses on the way language is used rather than arguing for change in the inner layers of grammar. Different discourses including the environmental discourses have been recently investigated for the thinking that they promote (For instance, Stibbe, 2015; Harré et al, 1999). Like Harré et al, the current study also uses environmental discourse as its main aim is to find out whether what is written basically for promoting environmental consciousness and concern serves the purpose linguistically as well or not.

Environmental discourse/greenspeak/ green discourse is usually defined analogically as the discourse that deals with the environment. The current study takes environmental discourse as any text material that discusses a diverse range of environmental topics including but not limited to environmental issues. Environmental issues according to Dryzek (2013) are very complex and deal with natural phenomena such as ecosystems and the climate. So, environmental discourse is any text written or spoken that talks about the environment. However, the environment can be physical, psychological, social and so on. Similarly, the text points towards visual, spoken and written. The current study takes the 'environment' in its physical sense only. Similarly, the text is also restricted to written text only.

Further, the language of environmental discourse is analysed to know the kind of stories that the linguistic features underlie. 'Story' is an important cognitive concept that is used in the current study. However, the study takes the concept of the story that Stibbe (2015) has defined in his theory of ecolinguistics which is the framework of the study as well. Story, according to Stibbe (2015), is not the usual narrative that appears in novels and has a beginning middle and end. For Stibbe, stories are mental models which are reflected in texts. He stresses figuring out the stories which are causing ecological destruction and looking for some new stories which promote ecological balance.

So, the environmental concern gave rise to change in the spectrum of environmental discourses. Environmental discourses now mostly focus on either expressing environmental concern or motivating others to protect the environment. However, the environmental discourses that promote environmental concern have been found to promote ecologically destructive stories hidden in the way the language is used in these texts. For instance, while evaluating environmental English language books taught in ELT classes in Japan, Stibbe (2014) finds that though these books are meant to create environmental sensitivity among English language learners; however, in reality, these books are promoting mere shallow environmentalism. Stibbe (2015) further investigates the issue and concludes that our economic and technological discourses are embedding stories that promote capitalist consumerism and hegemonic social reality. Hence, Stibbe (2014, 2015) concludes that consciously or unconsciously the use of language in discourses that are to

bring environmental sensitivity is promoting linguistic features that underlie ecologically destructive stories.

So, there have been some studies criticizing the grammar of the English language for promoting ecological imbalance in the world. Similarly, there have been some other studies that critically analyse the language of discourses to find hidden stories (positive or negative) in these texts. Here it is noteworthy that the more people started talking about the environmental/ecological issues, the more change in language especially at the lexical level started happening. There are very few small-scale studies discussing lexical creativity in discourses due to environmental crises (for example, Nerlich & Koteyko, 2009a; 2009b; Nerlich, 2012; Koteyko et al., 2010). These studies recommend extensive studies in the area which shows that there is no extensive study that discusses lexical creativity in environmental discourses. The current study tries to fill this gap. It identifies and analyses compounds and metaphors to reveal the underlying stories.

The recent environmental degradation has brought about 'new compounds' like carbon compounds which have become an important part of the English language. We have compounds like 'Carbon footprint' and 'low carbon diet'. However, less has been researched about the effect of the nature of these compounds and how these compounds portray the internal stories. Carbon compounds are only one of the numerous lexical clusters that have emerged and are emerging in the environmental discourses. A whole new language around different phenomena is evolving that needs to be investigated and checked to know if these new linguistic patterns are good for the well-being of life and the larger systems that life supports, or not. The present study analyses the contemporary Pakistani discourses about the environment in the newspapers to identify and reveal the changing linguistic spectrum. It focuses on actual language to find out dominant stories that are embedded in the environmental discourses. The focus of the study is on novel compounds that play a major role in framing environmental issues and linguistic metaphors that Stibbe (2015) calls words that trigger conceptual metaphors (CMs).

As stated earlier, to talk about a new reality, new linguistic items emerge. These new lexical items are called neologism. 'Neologisms', according to Newmark, are "newly coined lexical units or existing lexical units that acquire a new sense" (1988, p. 140). There are many methods through which neologisms are formed. Agleo (1993, 1980), Ayto (1999)

and Crystal (2003) describe these methods with slight differences. The most common methods are outlined by Agleo (1993) who gives six basic categories that describe how neologisms are formed: creating, borrowing, combining, shortening, blending, and shifting. However, the recent development in word formation processes is discussed by Lieber (2010). According to Lieber (2010), there are several ways through which a new word is formed in the English language. The most common ways are affixation and compounding. Some other processes, as discussed by Lieber, are conversion, coinage, blending, clipping, backformation, acronyms, and initialism. The present study focuses only on major compounds (Carbon, green, and eco) in the environmental discourses.

So, compound, which is one of the linguistic features analysed in the current study, is a lexical item and if it has newly emerged it is called neologism. *Compounds* are linguistic signs and a way of creating a sense of our surroundings. These are clusters of words having certain meanings. Compounds can consist of two or more words that work as a single unit (Lieber, 2010). According to Sinha, compounds are "both transformative cognitive tools and constitutive of human cultural ecologies" (2006, p. 114). Compounds make ways to sense our surroundings, and new understanding not only makes ways of sensing around but can also influence how we act upon it. There are many types of compounds but in literature, much importance has been given to noun-noun compounds since they have been a source of trouble for linguists for a very long time. For instance, the compound *headache pill* removes headache, *fertility pills* produce fertility and *heart pill* helps the heart (Nerlich & Koteyoko, 2009, p. 346). The present study focuses on the novel compounds only. It takes the three most dominant compounds i.e. carbon, green and eco compounds as the compounds that emerged in our discourses to talk about the current environmental problems.

Novel compounds are compounds that have emerged recently and may or may not be institutionalised (Nerlich & Koteyko, 2009). Like Nerlich and Koteyko, the present study also terms novel compounds as newly emerged compounds. In addition, the present study takes metaphorical novel compounds only. So, exocentric compounds are novel compounds. Exocentric compounds are metaphorical compounds in which the head of the compound does not give meaning to the whole compound. For instance, pickpocket is a compound in which pocket is the headword. However, a pickpocket is not a type of pocket.

So, the pickpocket is an exocentric compound, but it is not a novel compound as it became part of the dictionary in the sixteenth century (Online Etymology Dictionary). On the contrary, carbon credit is an exocentric compound as the meaning of the compound does not depend upon the meaning of the headword of the compound. Further, the compound clusters around 'carbon' and is used in environmental discourses while communicating environmental issues. This sort of clustering started appearing in discourses towards the end of the twentieth century. So, carbon credit is a novel compound. Further, the study takes only two words novel compounds.

These compounds are indicators for observing how human environmental changes bring changes in human cultures and languages and the response shows how we take this environmental threat. Recently, a few carbon compounds have been analysed for the way they frame environmental issues (Example, Nerlich & Koteyko, 2009).

The current study explores novel compounds around eco, carbon and green to know the kind of frames that these compounds evoke (discussed in detail in Chapter 5). *Frames and framing* are important concepts in linguistics. Frames are schemata or encyclopedic knowledge attached to words/concepts. We cannot understand a word without knowing the worldly knowledge attached to that word in our minds. For instance, we cannot understand *sell* until we have access to otherworldly information like selling, buying, goods, sellers, buyers and so on. Framing is the cognitive act of using frames from one area of life to conceptualize another area of life (Stibbe, 2015). Different framing of environmental issues entails different meanings and some of them might be beneficial for life and the systems life depends upon. Similarly, some other frames might not be beneficial for the environment. For example, framing climate change as a problem entails that this problem can be solved. This thinking may make humans believe that they can temper the physical environment for their benefit and can reverse the damage done to the environment. Hence, framing climate change as a problem is harmful to the natural environment (Stibbe, 2015).

Metaphor is another important feature that the current study analyses. Over the years metaphors have been attributed with different meanings. The current study looks for linguistic metaphors to identify the underlying conceptual metaphors. The linguistic metaphor is the surface realization of the conceptual metaphor (CM). The lexical item in the text that triggers an underlying conceptual metaphor is a linguistic metaphor

(Skinnemoen, 2009). CM is the cross-domain mapping. According to Lakoff and Johnson (1980), metaphor is a tool that is used by people to understand difficult-to-grasp concepts like the abstract concepts of time and responsibility. Metaphors make us understand one concept in terms of another. Linguistic metaphors lead toward identifying conceptual metaphors.

The study argues that metaphors and compounds construct reality and reveal hidden ideologies. They have rarely been analysed the way they are used in the environmental discourses in Pakistan. As Stibbe (2014, 2015) identifies that the discourses that are apparently to show environmental concern have language used in such a way that it promotes environmental destruction. He points out that some of our discourses are taking an environmental shield as a way to promote the same consumerism approach. For instance, instead of less production of cars, the discourses stress energy-efficient cars which, according to Stibbe, are just "small technical fixes" (Stibbe, 2015, p. 183). This according to Stibbe is *shallow environmentalism*. He further explains shallow environmentalism as the reaction to "ecological destruction by addressing immediate physical symptoms" but refusing "to address the underlying cultural, political, and psychological causes" (Stibbe, 2004, p. 242). Hence, shallow environmentalism assumes that if we are more concerned about nature then we can continue with an increase in "human populations, technologies and economies" and that will not cause any harm to the environment (Henning, 2002, p. 78). However, the need is to question our values and world views rather making mere technical changes (Henning, 2002).

In contrast, we need *deep ecology* which is a Western movement that says that the root causes of ecological destruction should be addressed and that could be done if we bring about cultural and political change in our society (Devall & Sessions, 1985; Naess, 1990). Deep ecology believes in the intrinsic values of all things and stresses equal rights. Deep ecology is an analyst's ethical view of how the environment should be treated. This ethical view is called as ecosophy. The present study uses an ecosophy that is a mixture of many ecosophies including deep ecology (Discussed in detail in Chapter 3). Using this lens, it analyses the responses to environmental destruction in detail to know whether it is promoting deep ecology or shallow environmentalism.

1.3 Statement of Problem

Language not only reflects the stories we live by but also constructs social reality. The global environmental crisis has given rise to environmental consciousness. This consciousness has been expressed in scientific, literary, moral, and political discourses. In the context of Pakistan, ecological consciousness has been calibrated in literary writings. However, since Pakistan stands on the receiving end of global environmental disasters, its newspapers, especially those published in English, have been active and alive to the global and local ecological discourses. Among several linguistic features, the current study focuses on metaphors and metaphorical novel compounds that are used in environmental discourses or greenspeak. The present study particularly aims to investigate how the stories we live by are manifested in the metaphors and the novel compounds in the environmental discourses, especially in selected Pakistani English newspapers. It discusses whether they constitute stories that are benevolent, ambivalent, or malevolent to life and the larger systems that life depends upon. More specifically, whether these linguistic features in the discourses promote ecological balance/nature-friendly attitude or replicate the language of capitalist consumerism and hegemonic social discourse.

1.4 Research Objectives

The project has the following objectives:

1. To find the dominant metaphors and novel compounds in environmental discourses
2. To unveil the 'linguistic signatures' inherent in environmental discourses employed within Pakistani English newspapers to cultivate a critical understanding of the implicit and explicit patterns of environmental thought
3. To give a critical analysis of the frames and metaphors to reveal the entailments that they have and the actions they call for
4. To reveal the linguistic landscape on which the battle for environmental communication is being fought

1.5 Research Questions

1. What are the major environmental topics represented in the selected Pakistani English newspapers?
2. Which conceptual metaphors are used in the environmental discourses in these newspapers?
3. How do these metaphors depict benevolent, malevolent or ambivalent thinking towards life and the ecosystems that life depends upon?
4. Which frames do the selected novel compounds in these environmental discourses evoke?
5. How far are the frames that these novel compounds evoke beneficial, or harmful to life and the ecosystems that life depends upon?

Q1 can be seen as the starting point to reach the basic aim of the current study. It is very difficult to manually extract all of the metaphors and compounds from a large corpus that is created for the current study. Q1 provides support to overcome the limitations of the usage of corpus techniques in the current study. Q2 and Q3 are to get the basic findings of the current study. They provide the basis for providing answers to the other research questions. Q3 and Q5 concern the primary aim of the thesis. They provide the basic findings with a broader perspective.

1.6 Significance and Rationale of the Study

The global ecological crisis has given birth to Ecolinguistics. Ecolinguists promote the rule of ecology whose principle is interrelation and forms of mutual impact. Ecolinguistics try to find out the importance of discourses in addressing ecological issues. At the same time, environmental issues have affected discourses and to encompass the discursive change, change in language is bringing about. The present study aims to find how the linguistic features (metaphors and compounds) are incorporated/used in the environmental texts in Pakistani English newspapers, and whether the thinking that underlies these linguistic features promotes environmentally benevolent, ambivalent, or malevolent attitudes toward the environment. The current study is of significance in many ways. It analyses metaphors as used in environmental discourses, in detail that has not been studied much in the

Pakistani context. Further, it analyses the novel compounds that emerged due to environmental communication. These linguistic clusters constitute a whole new language around environmental discourse that needs to be monitored. In this way, the study helps to make the mass media and other stakeholders take care of the discursive tools they use in the environmental texts.

Similarly, the present study bridges the gap in the literature which paves the way for many other studies. It points out Pakistani readers' attitudes towards nature/environment and ultimately tries to sensitize people about the effect of our discourses on the environment. The need is to make our people aware of these problems. Language shapes as well as reflects our thinking, and our actions are dependent on our thinking. The right incorporation of linguistic features may bring positive changes to our country. The study exposes the type of underlying thinking which are useful for further improvement and incorporation of environmental sensitivity in our discourses.

By analysing linguistic features, the study can contribute to raising awareness about environmental issues. It helps people understand the impact of their language on the environment and encourages them to be more conscious of their words and actions.

Public opinion plays a vital role in environmental decision-making. By recognizing benevolent language, we can help build a more favourable perception of environmental initiatives and foster public support for actions that protect the environment.

1.7 Theoretical Framework

Stibbe's (2015) theory of Ecolinguistics is taken theoretical framework of the present study. This framework comes under the Hallidayan paradigm. For any work in ecolinguistics, the first important task is to define the term ecolinguistics. The current study takes Stibbe's conceptualization of ecolinguistics that he does at the very beginning of his theory. While defining ecolinguistics, Stibbe defines 'ecology' in ecolinguistics from the perspective of crucial relations between humans, other living beings, and the natural environment that these living beings rely upon. Stibbe further states that ecology is linked to language because language shapes our way of thinking and conceptualizing the world. Hence, language determines the way humans interact with each other, other living beings,

and the natural environment. For instance, the frequent use of the metaphor THE EARTH IS OUR MOTHER shapes our relationship with the Earth. This mother-son/daughter relationship influences our treatment of the Earth. It entails that like mothers are treated well, the Earth being our mother, should also be treated well. Hence, the linguistic features that we are exposed to influence how we treat living beings and the natural environment. So, for Alexander and Stibbe,

> [ecolinguistics is] the life-sustaining relationships of humans with other humans, other organisms and the physical environment, with a normative orientation towards protecting the systems that humans and other forms of life depend on for their wellbeing and survival.
>
> (2014, p. 105)

The present study takes the above definition of ecolinguistics and tries to identify the kind of relationship developed between humans, other living beings, and the environment by the language used in environmental texts in Pakistani English newspapers. The focus is more on the relationship between humans and the natural environment.

To identify if this relationship constructed by language in discourses is healthy or harmful to the ecology, ecocritical discourse analysts use ecosophy (ies). *Ecosophy* is the ethical vision of an analyst. Naess (1995) was the first who put forward his ethical standard regarding ecological consideration and named it ecosophy.

Different people may have different ecosophies depending on their social, cultural, and educational backgrounds. Ecosophy is important as it is the stand of the analyst and it decides if an event is ecologically acceptable or not. For instance, the anthropocentric ecosophy of an eco-analyst will make him think of natural resources as useful if they are meeting human needs.

Stibbe's ecosophy, which is adopted by the current study, is a unique combination of many already existing ecosophies. The basic foundation of the ecosophy is that human beings are a part of nature; so, we should respect other parts of nature. We should not harm each other, other life on the Earth, and the natural environment (discussed in detail in Chapter 3).

In his integrated ecolinguistics framework, Stibbe (2015) puts forward the eight forms of story i.e. ideology, framing, metaphors, evaluation, identity, conviction, erasure,

and salience. Among all these forms of story, the current study analyzes two forms of story i.e., metaphors and framing (discussed in detail in section 3.1).

Ideology is the way we understand the world mostly together as a social group. It is an umbrella term that covers all the other seven stories, so it is explained first in this study. Ideology is realized by a certain discourse type (for instance, a story) or a combination of discourses (for instance, five or six stories). These discourse types are constructed by certain linguistic features. The three types of discourses according to Stibbe are, beneficial, destructive, and ambivalent. The mixture of different stories constitutes an ideology. An ecolinguist needs to know if a story promotes environmental protection or not. The beneficial discourses should be promoted, the destructive discourses resisted, and the beneficial part of ambivalent discourses should be promoted and the destructive part resisted (beneficial and destructive to the environment and life).

The concept of *metaphor* that Stibbe describes is based on Lakoff's (1988) concept of CM. Metaphor is a mapping from the source domain to the target domain. In texts, they are evoked by trigger words. Metaphor, according to Stibbe, is an important cognitive structure that not only helps us understand the world but also influences the way we think and behave. So, metaphors influence our interaction with the environment and other living beings.

Frame, according to Stibbe, is another form of the story that is activated by trigger words. It reflects how people behave in a certain area of life. These mental structures help us understand the world and reality. An ecologically friendly frame may make people treat the environment in a better way.

1.8 Methodology

As discussed earlier, ecolinguistics is an emerging research paradigm hence it has not established any distinct method of its own. To attach an ecological perspective to language, the present study cobbled together help from different established disciplines i.e., Linguistics, cognitive linguistics, lexicography, English studies, cultural studies, and communication studies.

Methods and Analysis Procedure

Briefly, the research is divided into the following major steps:

Step 1: Corpus Development

First, a corpus of newspapers is developed based on the lexical items related to ecology (including environment, nature, natural resources, carbon etc.). The corpus contains texts from Pakistan's three most influential newspapers: Dawn, The News, and The Express Tribune. The corpus contains specific articles from the above-mentioned newspapers from January 01, 2011 to December 31, 2020.

Corpus linguistics, the sub-field of linguistics that studies actual language use, fits best in the present study. Since the present study requires analyzing a large amount of actual language use in the form of text, hence, corpus linguistics made it easier to yield desired data.

Step 2: Identification of Lexical Categories

This step helps to answer research question 1. In this step, a wordlist of the whole corpus is generated with the help of LancsBox and the hundred most frequent words are analysed to identify major environmental issues, and concerns or themes concerning the Pakistani context.

Step 3: Identification of Metaphors and Compounds

This step answers Q2 and 4. For metaphors, the Pragglejaz Group's (2007) method of the metaphor identification process (MIP) has been adopted (discussed in detail in section 3.4.3). For compounds, the list generated in step 1 has been checked for identifying the most frequent compounds used in the corpus around the words in the list. Compounds having any of the 'carbon', 'green', and 'eco' as their hub are identified as being most frequently used in the corpus.

Step 4: Ecocritical Analysis

This step answers questions 3 and 5. Stibbe's (2015) four-step ecocritical methodological framework has been used to analyse the extracted metaphors and frames. Finally, the metaphors and frames are analysed according to the ecosophy of the study.

1.9 Delimitation

The present study is to analyse the language of environmental discourses to highlight the underlying stories, and how these discourses reflect our behaviour towards the environment. Since it is difficult to analyse all the discourses, data is collected only from mass media i.e. from Pakistani English newspapers. Again, due to time constraints, only three newspapers from January 2011 to December 2020 are analysed. To delimit the study further, only metaphors and novel compounds are analysed; phonetic, grammatical and other language changes are not discussed. Further, macro-level issues due to environmental changes like language death or shift are not discussed in the present study.

Similarly, the focus is only on linguistic signs related to environmental issues, other modes like pictures, which may also depict underlying stories are not discussed in the present study. Moreover, the focus is not on the real pragmatic effect of these discourses on the reader. The thesis simply analyses the linguistic features to identify the different stories they underlie to bring awareness and resilience. Finally, other ecosophies might give a different interpretation to the same linguistic features. The stories identified in the present study are analysed according to Stibbe's ecosophy.

1.10 Chapter Division and Outlines

The present study is organized into six chapters. As noticed, the current chapter is an introduction to the whole thesis. It introduces the study briefly. An extensive review of the literature (Chapter 2) follows the current introduction chapter. Apart from a formal introductory section at the start and a conclusion at the end, it has a total of 7 sections with almost every section having multiple subsections. Section 2.1 dissects ecolinguistics and provides historical traces of the field. This basic information is important for understanding this newly emerging yet complex field of linguistics. It also lays the ground for the upcoming sections. Section 2.2 discusses the two dominant strands of ecolinguistics. Section 2.3 narrows down the field and discusses different studies in the Hallidayan paradigm. This section not only mentions the previous related studies for background information but also identifies gaps in the literature that the current study fills. Section 2.4 and 2.5 explains two of the major components of the study i.e., ecosophy and

environmental discourse. Section 2.4 first defines ecosophy and then critically analyses some important ecosophies. Section 2.5 like all the other sections, starts with basic definitions and then explains the working definition of environmental discourse. Next, sections 2.6 and 2.7 give basic information and a critical review of the two important features: cognitive metaphor and frames respectively. The sections are important to understand the nature of cognitive metaphor and, frames and framing.

Following the literature review is chapter 3 which mainly explains the theoretical and methodological frameworks of the study. First, relevant sections of Stibbe's ecolinguistics framework are explained in section 3.2 and its subsections. It starts with the basic concepts of the theory. It further explains the story ideologies which is a much more basic story as Stibbe states. It then explains the two relevant stories framing and metaphors. Basic information in chapter two makes it easier to understand these concepts as Stibbe's theory develops upon that basic information. For instance, Stibbe's story of metaphor develops upon the cognitive metaphor theory (CMT) as presented by Lakoff and Johnson (1980, 2003); although he mentions this in his book, he does not explain the CMT in his book. So, CMT as critically explained in Chapter 2 provides a base for the framework of the current study as explained in Chapter 3. Section 3.3 explains the material and methods of the current study. It starts with explaining the material, corpus tools, and methods used in the study. Then, it explains the methodological framework applied in this study. Thus, section 3.3 explains the methodologies that are employed in this study. It also provides limitations of these methodologies.

The following chapter (chapter 4) presents and discusses the findings. It starts with a more thorough outline of the chapter and then presents the overview of the corpus used in the current study. It mentions the major themes/topics that the corpus has. This section (4.2) answers Q1 of the current study. The rest of the chapter discusses the metaphors around these topics as got from the material. Section 4.3 answers Qs 2 & 3 of the study. It not only identifies the metaphors in the corpus but also analyses them (ecocritically) as per the current study's methodological framework.

Chapter 5 also represents and discusses the findings. It documents the three dominant compounds clustered around carbon, green, and eco. These are further classified

into the frames that they evoke, and how these compounds frame the environmental issues. The different types of frames that these compounds evoke are further discussed ecocritically, according to the ecosophy of the current study. The discussion is concluded in the last part of the chapter.

The last chapter of the study is the conclusion of the thesis. The conclusion chapter first summarizes and synthesizes the whole thesis. It then gives recommendations based on the conclusion. Section 6.2 discusses the limitations of the study and finally, section 6.3 gives suggestions for future work.

The next chapter gives a thorough analysis of the relevant already existing literature.

CHAPTER 2

REVIEW OF LITERATURE

Introduction

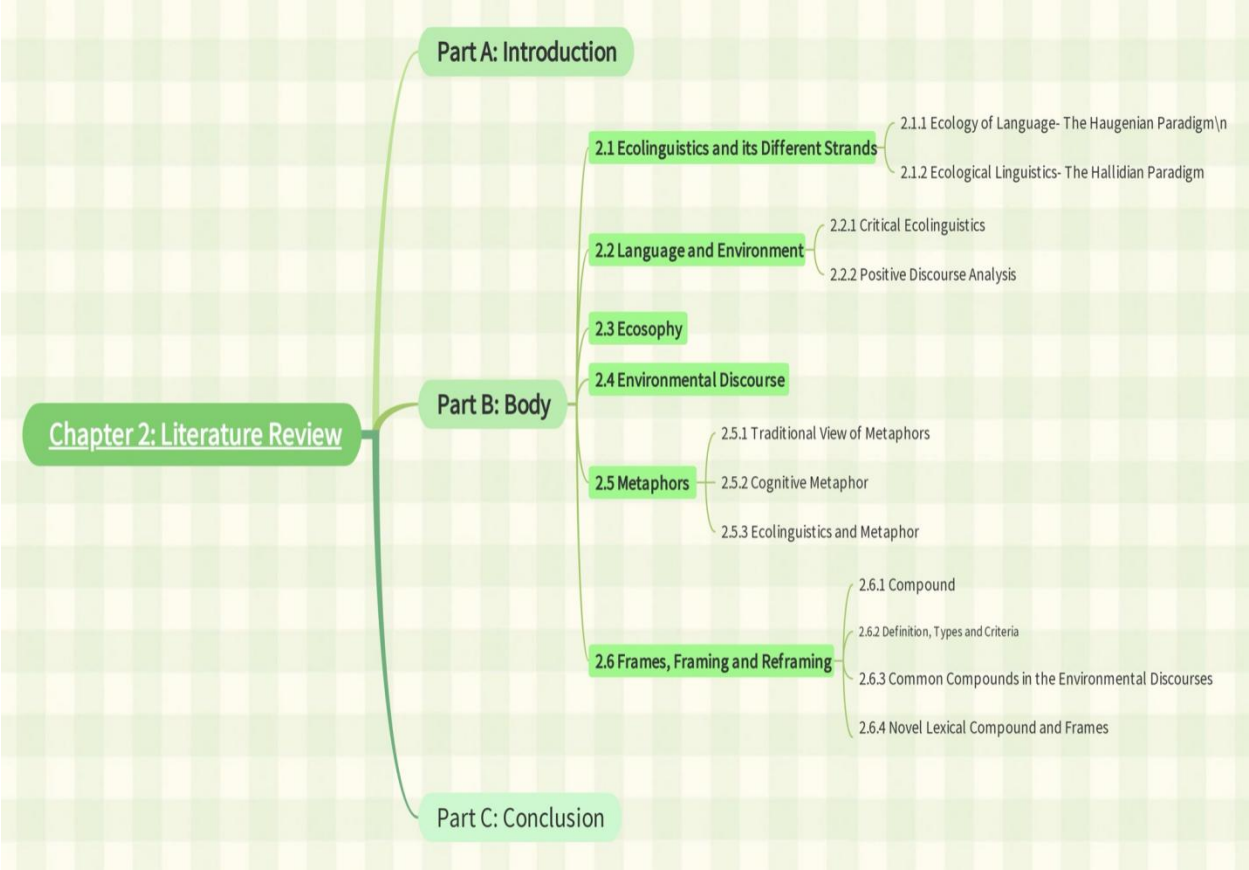
The present chapter provides a comprehensive review of relevant literature, essential for understanding the core elements of ecolinguistics, environmental discourse, metaphors, and frames within the context of this study. The chapter includes an introductory overview, a main body and a concluding section.

The introduction serves as an overview of the chapter, outlining its main areas of focus.

The main body is divided into seven sections, each reviewing relevant studies, providing definitions of core concepts, and identifying gaps for further research. The sections start with discussing the main concepts ecolinguistics, ecological linguistics, and ecology of languages. It goes on to review ecological linguistics literature, emphasizing critical and positive approaches, introducing "ecosophy" as a critical lens. Environmental discourse is discussed, differentiating between environmental and climate change discourses. Further, studies related to conceptual metaphors are explored, focusing on conceptual metaphors and their persuasive nature in eco studies. The framing section covers the persuasive nature of frames, especially in ecocritical studies. The sub-sections of the framing section, elaborate on compounds as a linguistic tool and discuss relevant framing literature.

Finally, the conclusion summarizes the chapter's relevance to this study's objectives and its link to the following Chapter 03. It also explains how the reviewed literature informs the rationale for this research. Figure 2.1 gives a mind map of the chapter.

Figure 2.1



A Mind Map of Chapter 2

2.1 Ecolinguistics and its Different Strands

The current study belongs to the emerging area of linguistics i.e., ecolinguistics. Since ecolinguistics is a relatively emerging area of linguistics, it has no fixed margins (Fill, 2018). As discussed in section 1.1, the definition of the term ecolinguistics is problematic because "there is no generally accepted definition and if there is any definition then it is bound to either be so vague that it is meaningless (e.g., the study of language in an ecological context) or it excludes approaches which someone, somewhere considers to be ecolinguistics" (Alexander and Stibbe, 2013, p. 104). To review the relevant literature in ecolinguistics, it is important to first review studies in the different strands of ecolinguistics.

As mentioned earlier, the term ecolinguistics has been used to refer to a wide range of approaches. It is an umbrella term used for various approaches. Researchers have assembled different ideas in the same field. Hence, there is no absolute number of approaches. Scholars are divided even over the strands of ecolinguistics.

Steffensen and Fill (2014) also realized the troubling definition of ecolinguistics. They identified the problem in the identification of the ecology of language and pointed out that the different approaches to ecolinguistics are due to differences in opinion about the environment of a language and described the development of the field of ecolinguistics (due to different interpretations of the environment of language) into four conceptual strands since the 1970s:

1. Existence of language in a symbolic ecology: this approach investigates the co-existence of languages within a given area. Haugen, 2001; Crystal, 2000 are some of the scholars who worked in this strand of ecolinguistics.
2. Existence of language in a natural ecology: this approach investigates how language relates to the biological and ecosystemic surroundings like topography, climate, fauna, flora, etc. Sapir, 1912; Hegege, 1985; Mühlhäusler, 1995, 1996; Nash and Muhlhausler, 2013; are some of the studies in this strand of ecolinguistics.
3. Existence of language in a sociocultural ecology: this approach investigates how language relates to the social and cultural forces that shape the conditions of speakers and speech communities. Van Lier, 2002; Blackledge, 2008 are some of the studies in this strand of ecolinguistics.
4. Existence of language in a cognitive ecology: this approach investigates how language is enabled by the dynamics between biological organisms and their environment, focusing on those cognitive capacities that give rise to organisms' flexible, adaptive behaviour. For instance, the work of Hodges and Fowler, 2011.

Although Steffenson and Fill (2014) have given different interpretations of the ecologies of language, they know that the distinction between these ecologies should not be taken as rigid one as language cannot be studied keeping in view only one type of ecology and neglecting the other perspectives on ecology. On the contrary, different

scholars look at language in terms of different ecologies but do not neglect the other perspectives of ecology. If we take Steffenson and Fill's division of the field, then the present work is more concerned with the second type of ecology. However, it considers other ecologies, particularly the fourth one, as well.

It is evident from the above discussion that ecolinguistics may be broadly divided into two complementary paradigms:

i. The Haugenian paradigm – the ecology of language(s)/ ecology as metaphor: The role of language concerning the environment in a metaphorical sense

ii. The Hallidayan paradigm - Ecological linguistics: The role of language concerning the environment in a biological sense.

The seminal talks of Haugen and Halliday triggered these two approaches to ecolinguistics. It is important to talk about these two approaches briefly to get an overview of studies in ecolinguistics and place the current study in a suitable paradigm.

2.1.1 Ecology of Languages - The Haugenian Paradigm

Scholarship under this paradigm takes the concept of *ecology* in its metaphorical sense. The environment of a language is taken as other languages. In this symbolic ecology, ecosystemic interactions occur between symbolic entities i.e., the languages. When the concept of ecolinguistics emerged in the 1960s, the term was mainly associated with ecology as a metaphor. Carl and Voegelin were the first who used ecology in connection to linguistics in 1964 while studying American languages. They used the term to talk about languages of a particular area. They talked about 'interlanguage and intra-language ecologies and argued that "in linguistic ecology, one begins not with a particular language but with a particular area, not with selective attention to a few languages but with comprehensive attention to all the languages in the area" (Voegelin and Voegelin, 1964, p. 2). The current study does not focus upon the placement of a specific language and in its relationship to the other languages in that physical area. Hence, studies like these, though part of ecolinguistics, are not related to the current study.

Haugen, like Voegelin, took language ecology as a symbolic ecology. In his seminal talk in 1970, he, according to Eliasson (2015), gave birth to the concept of language ecology. In his paper, he discusses the theory of Voegelin and Voegelin as well. However,

his theory is much more developed than Voegelin and Voegelin's work. He defines the ecology of language as "the study of the interaction between any given language and its environment" (Haugen, 2001, p. 57).

He compares languages with the whole species rather than organisms. There are studies before and after Haugen in which languages have been compared to organisms which take birth, grow, live their lives and then die. Similarly, languages take birth, grow, have a life of their own and may die due to political policies, the death of the speakers or many other reasons. Haugen, on the contrary, compared languages with species and stressed upon language existence in their environment rather than in isolation.

Haugen's paper is remarkable in the time when Chomsky (1961), Saussure (1916/1972), and Hjelmslev (1943, 1961) and their successors attempted to delimit the study of language to structures represented as 'la langue' by Saussure (1916/1972), and competence by Chomsky (1965). In his 'Ecology of Language', Haugen criticizes these prevailing structural approaches to language that merely focus on the components of language i.e., lexicon, phonology, grammar and so on. To him, the ecology of a language is the environment in which it is embedded. The true environment of a language, according to Haugen, "is the society that uses it as one of its codes. Language exists only in the minds of its users, and it only functions in relating these users to one another and to nature, i.e. their social and natural environment" (2001, p. 57). Haugen further explains the social and the natural environment as cultural and cognitive ones. Haugen explains the terms in such a way to give a metaphorical description of language as ecology i.e., language starts, grows, develops and is used in a specific cultural environment. However, in certain environments (culture and mind of a speaker) there exist many other languages as well. Languages compete in certain environments for their survival.

At the end of his paper, Haugen poses ten ecological questions, some are:

- What is a language's classification in relation to other languages?
- Who uses it?
- What internal varieties does the language show? (Haugen, 2001, p. 65)

Despite some shortcomings, Haugen's theory is a landmark in the area of ecolinguistics. One of the strong points of the theory is Haugen's emphasis on "functional" and "practical" notions of language. These terms show that Haugen considers language

which interacts with its surroundings, and which is an adaptive and changing process. Moreover, Haugen insists on more investigation into the notion and states that "the analysis of ecology requires not only that one describe the social and psychological situation of each language, but also the effect of this situation on the language itself" (2001, p. 63). Haugen, as stated above, talks about the environment of language but for him the environment is more psychological and social rather physical one. Further, he also mentions the interrelationship, but his focus is more on the interrelation among languages rather than the entities in the world.

Haugen's metaphor has been so successful that it has been integrated into the area of ecolinguistics as one of its two paradigms. Usually called the *ecology of language*, this paradigm focuses on languages in their "environment" rather than merely on the structure (syntax, lexis, phonetics etc). Language is considered to be a dynamic force which plays an important role in the interaction between thought systems and the world as well as between cultures. Many eminent researchers used this notion/paradigm of ecolinguistics and expanded the Haugenian notion of ecolinguistics; some of them are Joe Darwin Palmer and Peter Muhlhausler. The current work does not contribute to this strand of ecolinguistics. It does not take the ecology of language in its metaphorical sense. On the contrary, it takes ecology in its literal sense. Hence, it takes a more critical approach. However, it does build upon the fact that the recent environmental consciousness affected language and discourses. However, it focuses more on how and in what way the changing linguistic spectrum reflects and affects the natural environment.

There have been some studies on all the traditions mentioned above; however, the next section will discuss only studies that aim to explore how language is contributing to the existing environmental crisis or how language should be used to mitigate the environmental crisis.

2.1.2 Ecological Linguistics - Hallidayan Paradigm

> Ecolinguistics explores the role of language in the life-sustaining interactions of humans, other species and the physical environment. The first aim is to develop linguistic theories which see humans not only as part of society but also as part of the larger ecosystems that life depends on. The second aim is to show how

> linguistics can be used to address key ecological issues, from climate change and biodiversity loss to environmental justice.
>
> (IEA, online)

This quote from the Ecolinguistics Association website terms ecolinguistics to be more practical and applied. It defines 'ecology' in the literal sense and terms linguistics to show how to deal with environmental and biological issues. The definition is more or less the current definition of ecolinguistics at least in Western societies. This is in line with the objectives of the current study as well.

The second strand of ecolinguistics that gained momentum in the 1990s after Halliday's speech at the *AILA* conference is more policy-oriented or 'concrete' (Fill, 2001). In this approach, the word, ecology is not used in its metaphorical sense but in a biological sense. So, ecology is taken in its literal sense - the relationship of humans with each other, with other organisms, and with the physical environment. Other humanities disciplines like ecopsychology and ecocriticism also share the same sense. This branch does not discuss language diversity and related topics; it looks at how the use of language can affect and reflect the surrounding environment. It focuses on the role of language concerning the environment more specifically on how language creates, aggravates, or/and solves environmental problems.

Hence, ecological linguistics widens the field of sociolinguistics and takes into account not only the social context in which a language is embedded but also the wider ecological context (other species and the physical environment). The seminal talk of Halliday in the 1990s provided a stimulus for linguists to consider other than human creatures and the consequences of language. He argued that "language does not passively reflect reality; language actively creates reality" (Halliday, 2001, p. 179), and applied linguists should interpret the grammatical reality. His views here more or less coincide with that of Sapir. Halliday stresses upon the connection of linguistics with the overarching contemporary issues, especially the destruction of ecosystems by human beings. To explain this, Halliday gave many examples like that of "economic growth". He points out that our discourses give messages that growth is good: "many is better than few", big is better than small, more is better than less, growth is better than shrink and so on. These messages lead to the destruction of the physical environment (Ibid).

Although he did not mention the term ecolinguistics in his talk and the word *ecological* occurs once in his paper (2001, p. 193), the topics he addresses have made their place in modern ecolinguistics. In that sense, he was the first who raised questions that concerned the role and effect of language/linguistic patterns in the survival of humans and other species' well-being on Earth (Stephen and Fill, 2014). These traits of the strand align with the objectives of the current study. Hence, the current study comes under this strand. The paradigm has developed immensely and in several directions after Halliday's speech. The upcoming sections review the most relevant and important studies in this strand.

2.2 Language and Environmental Crisis

Since the rise of environmental issues, ecolinguistics has been trying to explore the relationship between language and the physical environment. Ecolinguistics studies, especially after 1990, aim to explore how language is contributing to the existing environmental crisis or how language should be used to mitigate the environmental crisis. Some studies focus on identifying linguistic patterns that are harmful to the natural environment and to humans and other beings. Similarly, some studies identify the linguistic patterns that contribute to the wellbeing of humans, other beings, and the natural environment. The upcoming subsections give a critical view of these studies and relate them to the present study.

2.2.1 Critical Ecolinguistics

The wake of the twentieth century brought with it a lot of environmental issues. When these issues became severe, our discourses started reflecting concern for environmental issues (Stibbe, 2015). Now, the concern is ecological rather than religious or cultural.

Initially, studies like that of Abram (1996) discuss the effect of the environment on the language and that of the language on the environment. Abram (1996) supports linguistic diversity and emphasizes the importance of local languages for they are the bearers of traditional environmental knowledge. He terms the more than human world responsible for shaping language in oral cultures. This helps locals attune to their environment and live sustainably within it. He further states that the spread of dominant languages like English poses a threat to local languages and hence to the environmental knowledge embedded in

these local languages. So, for Abram connection with the local languages is the recipe for environmental harmony. Abram's study, though important in its sense, is more focused on the change in language rather than the kind of thinking that the discourses prevail.

Afterwards, several studies started questioning the role of language in creating, aggravating and solving environmental issues. Hagège (1985) notes that many contemporary ecolinguists prefer to ask how language affects natural phenomena in the human environment. Do linguistic patterns affect the survival and well-being of the human species as well as other species on Earth? (Steffensen and Fill, 2014). Many others focus on the relationship between language and the broader environment.

Questions like the above made ecolinguistics more critical than descriptive. For instance, according to Stibbe (2015), humanities subjects have stressed human distinctiveness till the recent past. He further states, "These areas of scholarly inquiry have traditionally studied and celebrated rationality, language, a sense of history, religion, culture, and literature as aspects which distinguish us from, and, implicitly, make us better than, animals" (p. 7). Orr (1992) claims that our major subjects like social sciences, and humanities etc. have celebrated human domination for the past five hundred years. These attitudes have made humans think that they can temper nature to any extent which ultimately led to ecological disturbances. There are many studies with various focuses under the Hallidayan paradigm. The upcoming section discusses the development of critical studies of ecolinguistics. The main purpose of this is to find the linguistic elements in texts/discourses and either to change them or challenge them.

As mentioned earlier, the concern for environmental issues became severe in linguistics after the seminal speech of Halliday in 1990. Many of the studies focus on finding linguistic features that are contributing to the degradation of the environment. In the beginning, the focus of such studies was on the change in the grammar and lexis of the languages. Halliday (2001) himself points out in his work that the lexis and grammar of the English language are not healthy for us. He says that certain aspects of grammar construct reality in such a way that is "not good for our health as species" (p. 193). He further explains that mass nouns like "soil" and "water" promote the idea of abundance rather than the limitation of supply. Similarly, words like "growth" and "bigger" have an unmarked positive pole; however, their opposites like "shrinkage" and "smaller" have a

negative pole attached to them. This makes *growth* and *bigger* positive which is not good for the ecology of the earth. Lastly, the pronouns 'who' and 'what' make humans different from other species on the earth. Halliday's work is more of a critique of the lexicogrammar of language. However, he himself points out that the grammar and lexis of a language cannot be planned. The work is important to the present study because it criticizes lexical items of English like the present study. However, the current study analyses lexical items the way they are used in the context rather than their intrinsic meaning. Further, Halliday's stance is a more general one rather than based on properly planned research. He does not mention any specific analysis methods.

Further, Goatly (1996) and Chawla (2001) also talk about the inadequacy of grammar. They point out that the current grammatical features of English like the separation of agents and affecters, or perception of time impede a holistic world view which is an important factor in tackling ecological/ environmental issues. Chawla (2001) says, "the language habits of fragmenting the mass, quantifying intangibles and imaginary nouns, and perceiving time in terms of past, present and future are factors in our inability to perceive the natural environment holistically" (p. 121). Goatly (1996) analyzes that "ordinary language, especially the transitive clause, is inadequate to the representation of the world demanded by modern scientific theory, especially ecological theory" (p. 537).

Goatly (2001) further strengthens the idea that the grammar of English is promoting environmental degradation. He explains that in our current grammar actors and affected participants are separate which should not be the case because today actors are also affected by their actions; for instance, car drivers are actors because they are polluting the environment but at the same time, they are affected by the environmental pollution to which they are contributing.

Similarly, Mühlhäusler (2001) also talks about the inadequacy of the English language to encompass the present environmental issues. He comments that all is not well with SAE (Standard Average European) languages, especially with the English language. He explains that language related to environmental issues is deficient in three areas: "referential adequacy", "systematic adequacy" and "social adequacy". The reason for these deficiencies, according to Mühlhäusler, is that the environmental problems are only

recently been noticed as before the industrial revolution these issues were extremely limited to be noticed.

These and many other studies brought forth the idea that to save the world, it is crucial to bring deep change in the inner layers of grammar. It may be deducted that without such a change any talk about environmental issues will be a "surface ecologisation" of discourses as put forward by Fill (2001, p. 69). Hence, the products with linguistic strategies to appear as environmental strategies are merely an example of surface ecologisation (Ibid). This empty environmentalism or shallow environmentalism has been feared and researched by many scholars (e.g., Harré *et al.* 1999, Alexander 2009. However, it is not possible to plan the grammar of any language. For instance, language planners cannot bring change into the perception of time or the subject or object phenomenon of grammar as rightly pointed out by Halliday (2001), "I do not think…language professionals…can plan the inner layers of grammar; there is an inherent antipathy between grammar and design" (p. 196). Similarly, Mühlhäusler (2001) praises Aiwo for some of its environmentally friendly grammatical features and wishes that English borrows features like 'ka' (which talks about the entities "which are, for most of the time, inert but are liable to sudden dramatic changes of behaviour") to English but he knows that it could not be done with the help of planning (p. 37). The present study does not aim to analyze the inner layers of grammar to change it; it analyses certain linguistic features in the environmental discourses to find the hidden stories, as depicted in the language, for challenging (if they depict stories that are destructive for the wellbeing of humans, other beings and the environment) or promoting it (if they depict stories that are beneficial for the wellbeing of humans, other beings and the environment).

Ecolinguistic studies are not limited to finding problems with the current inner layer of grammar; many studies investigate the use of linguistic elements in language/discourses that are harmful to the environment, and the whole life-sustaining broader ecological system of the world. As Stibbe (2015) concludes in his book *Ecolinguistics: Language Ecology and the Stories We Live by*:

> While it may be impractical to change the language of English itself to encourage more ecologically beneficial behaviour, what is possible is to use the English

language, however imperfect or flawed, to tell different stories about the world (p. 185).

As discussed earlier, the basic stand that these ecolinguists take is that discourses play a major role in shaping people's world view which in turn makes people behave in a certain way, especially towards the environment (Alexander, 2018). This reinforces Sapir and Whorf's hypothesis of language relativity, "human beings do not live in the objective world alone…but are very much at the mercy of the particular language which has become the medium of expression for their society" (Sapir 1949, p. 162).

The first important work that points out destructive linguistic strategies, especially grammar and word choice is that of Halliday's speech at *AILA* in 1999 (reprinted in 2001). Halliday (2001) takes his standpoint from Sapir and Whorf's hypothesis of linguistic relativity. Sapir (1949) said earlier that human beings are "at the mercy of the particular language which has become the medium of expression for their society" (p. 162). Halliday also puts forward the idea that language not only passively reflects reality, but it actively creates reality. In his speech, Halliday criticizes the vocabulary used in contemporary discourses saying the discourses today promote the idea that "growth, more and many" are positive words. This notion consequently leads to ecologically destructive practices.

Goatly (2018) has also taken the Sapir-Whorf hypothesis and analysed the effect of lexicogrammar on our perception of and action on the environment. He analyses text to figure out how grammar and lexis represent nature. He points out that we use different linguistic strategies like passives, metaphors, dispute terms, and normal lexis to pollute, destroy and degrade nature and then the solutions we provide are more "human interventions and action on a relatively powerless nature" (p. 238). The analysis of grammatical patterns and commonly used verbs shows that nature is a commodity that is for the use of humans. These anthropocentric ideologies underpinning the lexicogrammatical use of human beings in discourses allow humans to overuse or mis-use the environment (Goatly, 2018). Studies like that of Halliday and Goatly criticize the inner layers of grammar and lexis. However, as mentioned earlier the grammar and lexis of any language cannot be planned. However, the use of language in discourses can be consciously taken care of.

A few linguists working in the realm of ecolinguistics find issues with the existing lexical resources and propose 'correct' lexical items. Kemmerer (2006) finds that humans use the word *animal* in such a way that is misleading because it gives the impression that humans are not animals. From an ecological point of view, this may make humans think that they are not part of the environment like all other animals and may lead to ecologically destructive behaviour. Kemmerer proposes to use a new term *anymal* which refers to 'all animals, unique and diverse, marvellous and complex, who do not happen to be *homo sapiens*' (Ibid, p. 11). While Goatly and Halliday just point out the issues with lexicogrammar, Kemmerer study gives alternate lexis to be used to stop the use of environmentally degrading vocabulary. This attempt could have been successful if the alternatives were given from the same existing language. However, Kemmerer takes the alternate lexical item from another language and proposes to be used in English.

Schultz's *Language and the Natural Environment* (2001) also comes under the pioneer works that find issues with lexical categories used to serve the purpose of commercial users. She, too, uses the corrective approach. The study describes that language can be used to protect or, at the same time, to exploit the natural environment. The focus is more on how "people who promote the protection of the natural environment also use the language of exploitation" (p. 109). Moreover, these people are not willing to change the expressions although they have "readily available alternative expressions" that promote an ecologically sustainable world (p. 109).

Schultz (Ibid) describes the 'three main linguistic devices' that commercial users practice and that are harmful to the natural environment. These are first, "the use of apparently neutral words' with connotations favouring exploitation; second, the use of devices like 'euphemism' i.e. to call an 'unpleasant thing' by a 'pleasant name'; and third, the use of 'less common, but equally powerful, device of calling neutral or pleasant things by pejorative terms" (p. 109-110). Throughout the paper, Schultz teases out the implications of the three linguistic strategies. For instance, according to Schultz "develop" seems to be a neutral word but it has a "connotation laden with values favourable to the exploitation of the natural environment" (p. 110). Similarly, expressions like "improving on nature" suggest that "there is more value in the products of human endeavour than in nature's creation" (p. 111). Finally, words like *waste, litter* and *thrash* are used to

downgrade, debase or denigrate natural things to control, harm and/or destroy them. Schultz's work is more relevant to the current study as it identifies the issues with the way language is used in terms of its usefulness to the environment. However, her approach is more simplistic, and she does not intervene the cognitive aspect in her approach.

The investigation of the use of euphemism in discourses has been the topic of many other ecolinguistics studies (e.g. Gigon, 1983; Brauns, 1986; Trampe, 1991) as well. Gigon (1983) collected euphemisms for extermination and extinction in nature and landscape protections. For instance, he noticed that in discourses "population decline" is used instead of "destruction of population". Brauns (1986) argues that the use of clever euphemism is not only employed by consumerists but is adopted by the so-called ecological movement. Trampe (1991) discusses four environmentally destructive features in agricultural discourse. One among them, according to Trampe, is euphemism. Trampe argues that the neo-agricultural discourse conceals facts with the help of euphemism, for example, the replacement of "poison" with words like "pesticide", "biocide" or "plant protection device". He further adds that some of the euphemisms like neologism might not have non-euphemistic counterparts.

Kahn (2001) also explores euphemisms in scientific writings, especially in wildlife writings. She notices that the scientists use euphemisms to "shield themselves from the accountability and moral responsibilities for their actions" against other living and non-living things (p. 243). Usually, scientific writing is known for its cold, dry and objective style. Kahn argues that scientists use passive voice as a mean to avoid the appearance of any responsibility for actions that they do against living beings. Passive voice serves the same purpose as in passive constructions the subject is not mentioned, and the doer is replaced with the deed itself. This shows the lack of any human input in such actions. Kahn further states that this "obfuscation of language to deny or shift responsibility" is called "doublespeak" (p. 243). The use of euphemistic expressions in doublespeak makes negative as positive, unethical as ethical, unpleasant as pleasant and, where so ever needed, vice versa. Hence, the animals used in experiments are not depicted as living beings who are caged, poisoned, and manipulated rather they are shown as test animals.

Schultz (2001) talks about the change in the use of lexical items in the later part of her work, *Language and the Environment*. She proposes a list of alternative words and

expressions to be used instead of harmful environmental expressions/words for a sustainable society. Here the point to be noted is that she doesn't come up with new words in the dictionary of language but uses the already available words for forming new expressions like 'alien species' should be replaced with 'introduced species', and 'global warming' with '[human-induced] climate dislocation'. She stresses that the teachers should encourage their students to use alternative environmentally friendly words/expressions. The question here is whether the vocabulary of any language can be proposed/planned or not. As mentioned earlier, Halliday (2001) states that we cannot bring about change in the lexicogrammar of a language. However, Shultz's work is different as she asks for replacing the harmful terms with already existing green vocabulary.

Trampe (1991) lays the ground for systematic linguistic debate about the ecological crisis. He critically analyses the language of agricultural discourse as published in two French newspapers. The analysis shows 'four language-political tendencies': first, Reification i.e. living beings are treated like commodities that are "produced, managed, optimised and utilised"; second, "concealment of face", for instance, we use "pesticide" instead of "poison" to hide the negative effect of the term; third, "increasing resentment against anything that smacks of traditional farming", for instance, the word "rural" and "peasants" evoke associations like "dirty" and/or "retrograde"; fourth, the use of slogans and phraseological elements to portray that the destructive process of rural cultural forms is following the laws of nature, for instance, the use of the slogans "grow or drop out" (p. 237-239).

Critical ecolinguistics, today, is not limited to environmental communication research but it expands to visual communication research as well. Visual environmental communication was a neglected area of research till the 1990s although from the very beginning visuals have been used to sensitize people regarding environmental destruction (Hansen, 2018). In his paper, Hansen describes the importance of the visual in sensitizing masses about the environment. Since the study of visuals is a multidisciplinary area, researchers from the film (Mitman, 2009), news magazines (Meisner & Takahashi, 2013), and advertising (Howlett & Raglon, 1992; Ahern et al., 2013) have been working in this

diverse field. Since this study does not take into account the visual aspect of communication, it will not further focus on these studies.

There are some studies which bring forth philosophical and cognitive aspects to ecolinguistics. One of the earliest examples of such works is the study of Chawla (2001). She suggests that language habits, philosophical assumptions, and attitudes of a certain society towards the natural environment have a close relationship. She further explains that for her 'philosophy' is 'the world view' (2001, p. 115). Moreover, reality is of two dimensions (i.e., 'objective and cognitive') when we speak of human beings and the natural environment relationship (115). "Objective reality is the natural environment – air, water, oceans, mountains, climate, etc. Cognitive reality is human perception and creation" (p. 115). The creative part of cognitive reality "modifies objective reality", for instance, to build a hut or a skyscraper (p. 115). Language facilitates cognitive reality for modification of the objective reality, for instance, by evoking imaging and complex ideas. Hence, language is the "origin of most of human cognitive activity" (p. 115). Chawla here, to some extent, stresses upon the co-influential helix of language and environment for she suggests that on one hand, our perception of the physical environment contributes towards the modification of the environment; on the other hand, language shapes our perception of the natural environment which in turn influences the way we treat the environment. To reveal how language is connected to the objective environment, Chawla says, "the language habits of the community influence our perception and experience; they predispose us toward certain choices of interpretation and action" [the study does not reveal how these "choices of interpretation and action" in turn affect the language] (p. 116). To explain her point she brings forth examples exposing "how language habits of fragmenting the mass, quantifying intangibles and imaginary nouns, and perceiving time in terms of past, present and future" make us unable to perceive the physical environment holistically (p. 121). Only thinking holistically may make us treat the environment with more care. These ecologically harmful language habits are being adopted by other cultures as well due to the globalization of the English language and because English is the language of technology. Hence, other cultures may also treat the environment the same way English-speaking countries do.

Stibbe (2015) also takes the relationship of environmental degradation with the mind. He is of the view that language and environmental destruction are not superficially related i.e. one causes one to be affected because of the other. The relationship is much more complex. Language depicts and shapes the stories-we-live by. Stories, which to him are the mental models, in turn, influence our actions and the way we treat the environment and other beings. The current study takes this stance as the framework of the study (explained in detail in chapter 03).

So, as discussed, the initial studies in ecolinguistics' Hallidayan paradigm focused more on finding the eco-issues with the language. Initially, Halliday, Goatly, Mühlhäusler and others mentioned the intrinsic eco-issues with the inner layers of the English lexico-grammar. The current study does not focus on the issues with the grammar of the English language because as discussed language is descriptive so the grammar of a language cannot be planned. Slowly, the field started growing and the initial concern of the shortcoming of lexis is not tried to be covered up with the proposition of altogether new words; for instance, the study of Schultz proposes alternative existing words to cover up the eco-issues with the lexis. Unlike Schultz, the current study does not propose alternative existing frames and metaphors. Although Chawla brings forth the cognitive aspect in ecocritical studies. However, as mentioned her approach is too simplistic. Hence, the present study takes into account the theoretical framework of Stibbe (2015) which is recent, complete and more suitable to attain the objectives of the current study.

Almost all of the above-mentioned studies aim to find the linguistic features which are harmful to the environment and life. The next section mentions the studies that aim to find linguistic features that are beneficial for the natural environment and life. It is important to mention studies that focus on identifying the ecologically harmful features of language as well as studies that identify ecologically beneficial features of ecolinguistics because the current study intends to search for both types of linguistic features.

2.2.2 Positive Discourse Analysis

"If discourse analysts are serious about wanting to use their work to enact social change, then they will have to broaden their coverage to include … discourse that inspires, encourages, heartens; discourse we like, that cheers us along" (Martin, 1999, p. 51–52). This type of analysis is called positive discourse analysis (PDA). So, PDA searches for linguistic elements of a language that promote the well-being of living beings and the systems that life depends upon, according to our set standards (Macgilchrist, 2007). For Stibbe (2018), PDA is an analysis of discourses/texts "to base society on; for example, discourses which promote "being more" rather than *"having more"*, "wellbeing" rather than "growth", and respecting rather than conquering nature" (p. 165).

Ecolinguistics, after Halliday's talk in 1990, developed to focus more on exposing the ecologically destructive linguistic features/ discursive strategies in our most dominant discourses (as discussed in the previous section). Gradually the scholarship started realizing that only pointing out ecologically destructive linguistic features is not sufficient for a sustainable world. Exposing dominant negative discourses or revealing problems with our current ways of using language in these discourses is only the first step. The next task is to find alternative positive ways of using available resources of language. The new task for ecolinguistics is to search for discourses that promote "…wellbeing rather than growth and respecting rather than conquering nature" (Stibbe, 2018, p. 165).

This notion was present in the earlier studies of ecolinguistics done by Halliday (2001) and Muhlhausler (2001). Halliday in his criticism of grammar and lexis of languages for their incompetency in promoting ecological notions commented that although we cannot bring change into the inner layers of grammar i.e., cryptogrammar, we may do a lot with the lexis and the outer layer of grammar, "replacing war discourse by peace discourse, the discourse of borrowing by that of saving, the discourse of building by that of keeping under repair" (p. 197).

Mühlhäusler (2001), while exposing the semantic, lexical, and grammatical inadequacy of English and other SAE languages, found some positive linguistic elements in the grammar of some non-SAE languages like that of Aiwo. Mühlhäusler noticed that in Aiwo nominal classifier "nu" is used with nouns which depend on something else for their existence. The use of the classifier "nu" with animals including humans, and the environment signifies that all of them are interdependent which will contribute towards a

more sustainable ecological system. However, like Halliday, Mühlhäusler also concludes that the deep structures of another language cannot be borrowed within English through planning. Although we cannot bring change into the deep structure of a language through planning, we may search for the available positive linguistics resources within the same language (Stibbe, 2018). Positive linguistic resources here mean the discursive strategies that promote the protection of the ecological system that life depends on.

The correctness approach is furthered by Schultz (2001), Dunayer (2001) and Kemmerer (2006). Schultz stresses upon correction of expressions like "clearing forests" to "native vegetation removal" (p. 111). Similarly, Dunayer (2001) advocates animal rights and provides a glossary of common terms with a substitute ecological term. For instance, the term "wildlife" should be replaced with "free-living non-humans" to stress upon the individuality of the animals (p. 193). Kemmerer (2006) likewise objects to the current lexical items and their associations. For instance, the way we use "animal" is misleading as it excludes humans from the category of animals. This exclusion is ecologically harmful as it gives a sense that human beings do not depend on other beings and the environment for their survival as other animals do. Kemmerer goes to the extent that he proposes a new term "anymal" that should include all "animals, unique and diverse, marvellous and complex, who do not happen to be homo sapiens." (p. 11).

However, as discussed in the previous section, it is difficult to plan the grammar and lexis of a language through people"s choice of lexis and grammatical patterns that may be talked about for awareness. Hence, it is not necessary to change the grammar, lexis or any other part of the English language as there are some writers and speakers who have tried to make a difference to the world using the same English language with all its imperfections (Stibbe, 2018). Carson"s *The Silent Spring* is one of the examples of such works. Carson, Leopold, Eiseley and many other writers talked about the environment in such a lyrical yet scientific way that they have been called imaginative naturalists by Macfarlane (2013). Since they used the same standard English grammar and lexis but arranged the words in such a way that promotes respect and care for nature, their discourse may be termed as positive discourse. The ultimate purpose of PDA is to find such ways of using language that may motivate people to be sensitive toward nature, protect ecosystems that life depends on and build societies based on just. Since then, studies have been

conducted to find such linguistics features in many topics and discourses including autobiographies, romantic poetry, haiku, anti-globalisation activism, newspapers, and so on.

Martin (1999) puts forward the concept of PDA when he was analysing Nelson Mandela's autobiography. Martin mentioned PDA to find hope and change and as a complement to the CDA which is usually associated with deconstructive exposure. "we need to move beyond a singular focus on semiosis in the service of abusive power – and reconsider power communally as well, as it circulates through communities, as they re-align around values, and renovate discourses that enact a better world" (Martin 2004: 197). Hence, PDA searches for positive uses of language that is an alternative to negative discourses (Stibbe, 2018).

Goatly (2000) also did an ecolinguistic investigation of positive discourses in his study in which he compared linguistic features of *The Prelude* with that of an edition of *The Times* newspaper. Goatly focused on the linguistic features that celebrate nature. Goatly found that Wordsworth's *The Prelude* has more eco-friendly grammatical features than the edition of *The Times* newspaper. For instance, Wordsworth represents nature as an active force by making it an active participant in the clauses and the Sayer. Macgilchirst (2007) took the same concept of PDA but applied it to a different discourse i.e. media discourse.

Goatly and Martin's framework of PDA was further developed by many successive studies, for instance, that of Bartlett (2012) in which he analysed the language of Amerindian communities of Guyana. The initial focus of ecolinguistics on finding shortcomings in language expressing the natural phenomenon and linguistics features that are harmful to a sustainable world was broadened to PDA.

Alexander (2003) does the PDA of Vandana Shiva's text who is an eminent scientist and environmentalist. He finds that the language of Shiva resists the dominant discourses of globalization and favours sharing, sustainability, and care for the natural world. According to Alexander, Shiva deconstructs the language of global corporations and Monsanto and finds that their language depicts local, handmade, and fresh as health hazards. Shiva's text is not in isolation but presents the larger discourse of anti-

globalization activists (Stibbe, 2018). Hence, more linguistic features may be drawn from such discourses.

Stibbe (2012) analysed Japanese haiku to find linguistic features that are alternative to dominant ways of animal representation in mainstream discourses. He finds that in the Japanese clause structure animals and plants are given traits of living beings. This encourages equal importance to other than human living beings.

Some of the studies focused on the representation of nature and the world in the native discourse in the belief that native discourses using language patterns are beneficial for the well-being of the ecology. Bringhurst (2008) analysed Native American discourse to identify environmentally beneficial linguistic patterns. Bringhurst found that the "Native American Saying" in the "Native American" literature is abundantly quoted in ecological works. The current study takes the stance that discourses can be ambivalent as well. And critical in (ecocritical discourse analysis) ECDA includes analysis of language for finding both the positive and the negative stories. Hence, CDA includes PDA as well.

Section 2.2 and its subsections thoroughly analyse the studies that discuss the relationship between language and environmental issues. These studies (section 2.2.1) discuss the importance of linguistic features especially the words of a language in terms of promoting environmentally destructive behaviours. It argues that the initial studies focused more on bringing change in the inner layers of grammar and lexis. Although the present study also critically analyses the linguistic features, it does not do so to bring change in the lexis of the English language. It aims to find the linguistic features to either promote them or challenge them, depending upon the kind of stories they depict. In this, the present study aligns with the studies discussed in the later part of section 2.2.1 and the one discussed in section 2.2.2. The analyses of these studies help in laying the background for discussion in Chapters 04 and 05. The important point here is that the current study takes a critical approach like that of Halliday, Schultz, Kahn, Trampe and others as discussed in the section, but this study focuses only on words and clusters of words that form conceptual metaphors or that frame environmental issues. It does not focus on grammar and other angles of the words. Metaphors, and compounds and the studies discussing them are analysed in sections 2.5 and 2.6 in detail.

It is important to first discuss how an ecolinguist decides whether a linguistic feature is benevolent, malevolent, or ambivalent for living beings and the larger systems that life depends on. The framework/standard has been termed as ecosophy. The upcoming section discusses it in detail.

2.3 Ecosophy

As mentioned above, ecosophy is important for any ecocritical study. The current study also explicitly mentions its ecosophy. Hence, it is important to review already existing ecosophies and their relation to the current study. The below-mentioned ecosophies and their review create a base of Stibbe's ecosophy that has been adopted by the current study.

The ethical vision of an eco-analyst has been termed an ecosophy or ecological philosophy. According to Stibbe (2015), every critical analyst uses the ethical framework when he/she analyzes discourse/language. Sometimes it is made explicit but oftentimes the ethical framework is implicit. For instance, an analysis of a sexist text is not seen as "an object for disinterested analysis of the technicalities of language" rather it is conducted within a framework that terms sexism as negative that should be questioned, challenged, and replaced (p. 11). The ethical vision regarding ecological issues is termed an ecosophy or ecological philosophy.

The etymology of the word ecosophy shows that it is from two Greek words "*oikos*" meaning "household", and "*sophia*" meaning "wisdom". So, the literal meaning of ecosophy is household wisdom (OED). However, "Oikos" means much more than just a household. Oikos may be termed as earth from the ecosophical perspective as Earth is our house. So, a simplistic literal definition of ecosophy is that it is a philosophical worldview. However, ecosophy is not merely an abstract system of thought. Ecosophy demands challenging long-established anthropocentric and destructive models and calls for a radical change of beliefs and views (Levesque, 2016).

There is no fixed ecosophy. Each ecologist will have their own ecosophy that he/she will use to judge discourses against. However, every ecosophy has a common trait of considering the "interrelationships of humans with other living beings and the physical environment" (Stibbe, 2015, p. 12). Since every linguist has his own ecosophy, there is no one correct or right ecosophy. However, ecosophies can be evaluated on two criteria: a)

whether the values confirm or contradict the evidence and b) if the set of values has internal consistencies or inconsistencies (Stibbe, 2015).

An ecosophy is formed by drawing values from different schools of thought like anthropocentric, ecocentric, neoliberal, social, anarchist, and pessimistic etc. These schools of thought can be traced in the ecosophies of different linguists. Lomborg (2001) comes up with an ecosophy that is drawn from the politically conservative school of thought, "cornucopianism". This ecosophy considers advancing technology as the solution to the present environmental issues. Humans can have all the goods through the industrial revolution. Hence, technological advancements are good for humans. However, this sort of philosophy does not take into consideration other beings and the environment. Below is a review of some of the ecosophies that are relevant to the current study in the sense that Stibbe takes traits from all of the mentioned ecosophies to form his ecosophy. It is noteworthy to restate that the current study has adopted Stibbe's ecosophy.

Naess (1995) was the first who used the term "ecosophy" to mention the set of philosophical standards based on which a text is to be judged for ecological consideration. He explains that ecosophy is the ethical vision of the analyst and through this vision, the analyst checks whether the linguistic features of discourse express mental models that build a kind of world that the critical analyst wants to see or not. The aim is to expose mainstream discourses that work against the ethical vision and to search for new discursive tools that align with the ethical vision. Naess terms his ecosophy as "Deep Ecology*"*.

Naess's deep ecology stresses upon the intrinsic worth of all living beings and the natural environment independent of human direct or indirect uses. It further aims to build human societies based on such ideas. It is called as deep because it aims to look at the relationship between different entities of the ecosystem deeply rather than the superficial anthropocentric one. The complex interrelationships between living beings and the other life-depending systems within the ecosystem demand eco-justice, as in this complex system the existence of one being is dependent on the existence of others. Further, we have been terming humans as the centre of this ecosystem which has already caused a lot of issues. Humans are just one part of the ecosystem. Hence, human interference and destruction of the natural world pose a threat to not only other life-depending systems and living beings but to humans themselves as well (Ibid).

Deep ecology is the opposite of shallow environmentalism which tries to solve the most recent environmental challenges through technology but refuses to dig out the underlying cultural and political reasons behind these challenges. Deep ecology takes a holistic view of the world and considers the different parts of the ecosystem to function as one unit. So, no part should be considered trivial as each part is dependent on the other parts for its survival (humans are one part of this system). Based on these assumptions the philosophy demands simple living and a reduction of population.

Deep ecology analyses just one dimension of the ethical vision that the current study focuses upon and misses the other dimensions. Hence, it is just one part of the ecosophy that the current study focuses upon.

Similarly, Bang (Cf. Stibbe, 2015), uses ecosophy to analyze the discourse. His ecosophy is based on the vision of a world that has cooperation, democratic dialogue, equal sharing, peace, equality, and ecological sustainability. So, any discourse promoting these values will be promoted and discursive tools depicting stories against these values will be challenged. The equality part of the ecosophy is more suitable to the objectives of the current study. Hence, this is another dimension of the ecological vision of the current study.

Further, Larson (2011) uses the ecosophy of "socio-ecological sustainability in his work on metaphors. He judges metaphors for whether they promote sustainability or not. However, as he mentions he does not favour just sustainability but "socioecological sustainability" (p. 10). He further explains that by socioecological sustainability he means that he wants a world having a sustainable relationship between humans and the natural world, not a sustained system without humans. For Larson, a sustained ecological system without humans will be a sign of failure. He further sees metaphors with this socioecological sustainability and poses the question if the metaphors we choose are "fertile, or effective for socioecological sustainability" (p. 17).

Bookchin (2005) favours social ecology - existing social hierarchies are the root of ecological destruction. Since humans oppress each other and treat each other as resources, they continue the same with their treatment of nature. So, Bookchin suggests changing the social injustices and oppression as the environmental situation will also improve with it. Adams and Gruen (2014) find the cause of the ecological crisis in the domination of men over women. Their ecological philosophy, ecofeminism, is based on the injustices due to

sex. They equate men's domination of women with humans" domination of other beings and the environment. They consider women more sensitive towards ecological issues and if women are been valued then their role in community building and subsistence will also be valued which will lead to more ecological societies.

Further, Drengson and Inoue's (1995) ecosophy is based on an ecocentric school of thought. It recognises the intrinsic value of all living beings and the environment. Plants, animal, rivers and other such beings and things have their own internal value. Their value does not depend upon their short-term use for humans. In other words, nature has its own value even if it does not benefit humans. Similarly, all living beings are valuable irrespective of their use for humans. Recognising the intrinsic value of nature will encourage people to protect the environment and other living beings. This is the same value that Naess's deep ecology puts forward.

Hopkin (2008) comes up with a philosophy of "resilience" which he terms as "The Transition Movement". The philosophy puts forward the idea that the environmental changes are immense so the key goal is "resilience". Kingsnorth and Hine (2009) see even resilience as an overly optimistic approach and consider environmental degradation as irreversible. Hence, humans will have to adapt to the new conditions to survive. The aim is to learn from past mistakes and come up with sensibilities and actions that do not further harm the ecological system that life depends upon. Their project is usually termed *the "*Dark Mountain Project".

McBay et al. (2011) came up with "Deep Green Resistance". According to them, industrial development is the root cause of the destruction of the environment and damage to all living beings including humans. The aim is to come up with such discursive tools that do not promote industrial civilisation. The Deep Green Movement considers humans as valuable as other living beings and the environment. However, some philosophies consider humans as the root cause of ecological disturbances, so the solution is to make humans extinct voluntarily to save hundreds of other living beings from becoming extinct. This movement as furthered by VHEMT (2014) has been termed as *Voluntary Human Extinction Movement.* The philosophy asks for a global decision of humans to withdraw their reproduction rights voluntarily. The philosophy is practically impossible and pessimistic in nature.

Hence, there are many ecosophies. However, each ecosophy should be based on evidence and should not have internal inconsistencies. Ecolinguists may either adopt someone else's ecosophy, may combine many existing ecosophies, or may devise their own ecosophies. A linguist may have even more than one ecosophy depending upon the different types of projects. Stibbe (2015) combines traits of many ecosophies and adds his own values to this combination. For instance, his ecosophy draws the traits of giving equal value to all living beings and the natural environment from deep ecology (as it is ecocentric), equal social values from social ecology, recognition and response to inevitable environmental change from *The Dark Mountain Project*, and care from ecofeminism.

He terms the gist of his ecosophy as "Living!". His ecosophy values the life of all living beings insists upon the high well-being of the natural environment and living beings, promotes the reduction of consumption, values the intrinsic worth of the natural environment for the ecological balance, and calls for equal redistribution of resources. The current study adapts Stibbe's ecosophy because it aligns with my ethical vision, and is more suitable to the objectives of the study (discussed in detail in chapter 03 of the present study).

2.4 ENVIRONMENTAL DISCOURSE

Environmental discourse is an important aspect of the present study. The current section first defines the environmental discourse that the current study takes and then critically analyses the ecocritical studies and the environmental discourse.

The present work uses environmental discourse and the genre, chosen for this study, in which it is manifested, is newspaper articles. Further, the present study focuses only on certain aspects of the discourse i.e., lexis and cluster of lexis (compounds), that constitute metaphors and frames. However, the selected texts contain metaphors and frames not only about environmental issues but also about other topics. The present study focuses only on the one related to environmental issues.

2.4.1 Environmental Discourses

The following section sheds light on the environmental discourse.

A simple analogical definition of environmental discourse may be that a discourse that deals with the topic of the environment is environmental discourse. "Environment"

according to OED originally in 1600 meant “state of being environed” and in 1827 changed to the meaning “the aggregate of the conditions in which a person or thing lives” and later in 1956 it got the specialized meaning that it has now- specialized ecology sense (etymonline.com). According to MWD, “environment” is, “the complex of physical, chemical, and biotic factors (such as climate, soil, and living things) that act upon an organism or an ecological community and ultimately determine its form and survival”. Teymur (1982) states the same in his work on environmental discourse and claims that today the concept of environment is used for the forest, air, wildlife, energy, world, cities and so on. He further states that this replacement is due to the current environmental discourse. Dijk’s (1998) meaning of discourse i.e., text and speeches also fit in this definition of environmental discourse. So, if we take Dijk’s definition of discourse then environmental discourse is any textual or spoken interaction that is about the broader environment.

As discussed earlier, there is an increased awareness of climate change, pollution, biodiversity loss, environmental degradation, and exploitation of natural resources among people around the globe. This has resulted in many studies taking and analyzing texts discussing these topics which in turn gave a sense as if environmental discourse is any text discussing environmental issues. In fact, there are a few studies that consider environmental discourse as the discourse that highlights the environmental issues which threaten the equilibrium of the earth. For instance, Harre et al. (1999) state that environmental discourse is the discourse of environmentalism and environmentalism for them is the advocacy for the ecological balance in the universe. They further state that any text written or spoken talks about “environmental issues (the language of ecology)” is the environmental discourse (p. 2). They coined the term “Greenspeak” as a catch-all term for all the ways in which issues of the environment are presented, be it in written, spoken, or pictorial form” (Preface, p. vii). Similarly, Skinnemoen (2009) takes environmental discourse as text on environmental issues. His thesis is on conceptual metaphors in the climate change discourse which he terms a sub-discourse of the broader environmental discourse.

Topics like nature protection, air quality, climate change, and toxic substances are sub-topics of environmental discourse. As Feindt (2002) states environmental discourse

encompasses diverse ways of talking about the environment. The texts on environmental issues usually display a moral appeal to the masses to alter their daily practices and behaviour towards the environment.

Environmental discourse is attributed to different innovative names for persuasive purposes. Harre et al. (1999) call it Greenspeak. Similarly, Yuniawan et al. (2017) term it as green discourse. They say: “The discourse about the environment or can be called green discourse is often found in everyday life, namely in print media such as newspapers and magazines, as well as electronic media such as radio, television and internet” (p. 292).

Moreover, environmental discourse contains texts usually produced to create environmental protection. On the contrary, the language of such texts may not be healthy for the physical environment as Schultz (2001) claims. She says, “People who promote the protection of the natural environment also use the language of exploitation…when this is pointed out to them, they seem unwilling to change their language, ... Many conservationists appear to be deaf to the potent messages of language and blind to its ability to influence people and society” (Schultz, 2001: 109). She is of the view that the environmentalists use “language of exploitation”. However, despite other healthy expressions available, they do not want to change their language. She considers the reason for this as their ignorance of the importance of the language and the power it carries. It will be interesting to see if her claim is approved through the analysis of environmental discourse in the present study or not. Chapters 04 and 05 discuss it.

The present study considers environmental discourse as any text material that discusses a diverse range of environmental topics including but not limited to environmental issues. Environmental issues according to Dryzek (2013) are very complex and deal with natural phenomena such as ecosystems and the climate. The study takes the analogical definition of environmental discourse which considers any text written or spoken that talks about the environment as environmental discourse. However, it is restricted to the physical environment only and the text selected is written one only.

The environment is not only part of environmentalist studies; there are many other discourses where environmental issues are highlighted. The current study takes the

environmental discourse in a specific genre i.e., newspapers. Alexander (2009) also finds environmental discourse from different genres. He analyses some of the texts from a variety of genres in which environmental and ecological issues are discussed. These include lectures, speeches, business studies, company websites, press articles, advertisements, and media press. Using the corpus to analyse discourses, Alexander shows how language is used in these discourses to articulate ecological and environmental concerns. The study critically analyses the language of business where the environmental issues have been integrated. Alexander terms The Body Shop as the best example of integrating ethical issues into its business. However, this may seem a bit controversial for some. On the other hand, greenwashing of some companies has also been revealed. The main aim of the study is to reveal greenwashing strategies as appear in the consumer discourses. The greenwashing may also be noticed in the analysis chapter of the current study.

2.5 Metaphors

Metaphor is one of the most important components that ecolinguists have studied in discourses to know if the language is used in a way that is healthy for the wellbeing of the ecosystem or if it promotes environmentally destructive behaviour. The current section first discusses the dictionary, traditional, and modern definitions of metaphor. Special attention is given to the CMT as this is the base of Stibbe's framework that the current study uses. It further discusses the persuasive effect of metaphors. The next section reviews the studies on metaphors with an ecocritical lens to contextualize the present study and discuss gaps in the literature.

2.5.1 Traditional View of Metaphors

Traditionally, there are two broader views about metaphor; the classical view, and the romantic view. Aristotle gives the classical view of metaphor in his work *Poetics*. In this view metaphor is defined based on "implicit comparisons" (Ortony, 1993, p. 3). This is the approach that is taught in literary classes at schools in Pakistan. According to this view, metaphor is just a figure of speech. So, the classical view considers metaphor as a specialized trait of ordinary language. It considers metaphor to be used in ordinary

language for special purposes like decoration, linguistic ornament, and constructing imagery in literature and poetry. It may also be used as a rhetorical device. Hence, the classical view considers metaphor something special which is optional and not a normal trait of language (Saeed, 2007). Most people have a classical view of metaphor.

A rightly pointed out by Deignan (2005, p. 2) that the classical view is "the decorative view of metaphor", and has nothing to do with thought. The metaphor may appear as a noun, a verb, or as an adjective; for instance,

A. He is a lion. (noun)
B. Her talent is blossoming. (verb)
C. A novice maybe green. (adjective)

The Romantic view considers metaphor as "integral to language and thought as a way of experiencing the world", and that all language is metaphorical in nature (Saeed, 2007, p. 346). Although the current metaphor theories reject the idea that the whole language is metaphorical but do back the view that metaphor is part of human thought. Saeed (2007) points out that the modern theories of metaphor are an extension of the romantic view for they consider metaphor as integral to language and human thought.

2.5.2 Cognitive Metaphor Theories

The current section describes cognitive metaphor theories in detail as the study takes an understanding of metaphor from these theories especially that which is presented by Lakoff and Johnson (1980, 2003). The basic concepts are taken from these theories. Further, the section describes studies that focus on the persuasive effects of metaphors.

The current metaphor theories are known as "cognitive metaphor theories" (CMT) as initially put forward by Lakoff and Johnson in 1980. They give the concept of conceptual metaphor. For them, metaphor is a tool used by people in ordinary language to understand/convey abstract concepts like time, feelings, mental activities etc. According to Lakoff and Johnson, "the essence of metaphor is understanding and experiencing one kind of thing in terms of another" (2003, p. 5).

Lakoff points out that the human conceptual system works in a specific way. We may understand some concepts directly from the "structured nature of bodily and social experiences" (1988, p. 121). So, these concepts are established in our sensory-motor

experiences. However, there are some concepts which we partially understand "from our innate capacity to imaginatively project from the certain well-structured aspects of bodily and interactional experience to abstract conceptual structures" (Ibid, p. 121). So, the complex abstract concept is understood in terms of the more physical concept and that mapping is called as CM. "We typically conceptualize the nonphysical in terms of the physical" (Lakoff & Johnson; 2003, p. 59).

So, for Lakoff and Johnson, metaphor is a mapping from the "source domain" to the "target domain". The target domain is the area to be explained and the source domain is the area that is well-known and is used to explain the target concept. The target domain is from the nonphysical domain and the source domain is from the concrete domain. They give an example of the metaphor, "Love is a journey". In this metaphor the target domain is "love" and the source domain is the "journey" from where the words and structure have been drawn (Ibid, p. 28).

To explain the existence of conceptual metaphors, Lakoff and Johnson give a list of expressions like TIME IS MONEY, ARGUMENT IS WAR, IDEAS ARE PLANTS, THE MIND IS A BRITTLE OBJECT and so on (Lakoff & Johnson 2003, p. 4). They further state that any person using any of the below-given list of sentences will have a conceptual metaphor ARGUMENT IS WAR in its mind:

Your claims are *indefensible*.
He *attacked every weak point* in my argument.
His criticisms were *right on target*.
I *demolished* his argument.
I've never *won* an argument with him.
You disagree? Okay, *shoot!*
If you use that *strategy*, he'll *wipe you out*.
He *shot down* all of my arguments.

(Lakoff & Johnson 2003, p. 4)

The expressions like "attacked, indefensible, right on target" point toward the CM, ARGUMENT IS WAR. In short, the aforementioned expressions are a shred of evidence that argument is understood in terms of war, and the utterance of these sentences is the *linguistic realization* of the conceptual metaphor ARGUMENT IS WAR (Lakoff, 1993).

Here, "argument" is the target domain and "war" is the source domain. The formula for CM is A IS B where A is the target domain and B is the source domain. CM is written in small capitals as in ARGUMENT IS WAR (Lakoff 1993, p. 206). The term grounding is used to talk about the correspondences between A and B. Not all of the characteristics of the source domain are mapped onto the target domain but only a few traits are mapped. The fact that only a few similarities between the source and the target domain are mapped, indicates that the mapping is highly structured. Lakoff (1993) mentions in his work that only certain features of the source domain correspond to certain features of the target domain. However, the grounding may not be provided within the context. For instance,

A. He is a lion.
B. He is a lion. He is courageous and strong.

In the above examples, A has no grounding; on the other hand, B has an obvious grounding. In the case of A, the reader, and listener figure out the grounding itself (Skinnemoen, 2009).

According to Lakoff and Johnson (2003), the CMs are culturally dependent i.e. the metaphors are not universal. All languages do not conceptualize time in terms of money. "This isn"t a necessary way for human beings to conceptualise time; it is tied to our culture" (Lakoff and Johnson 2003, p. 9).

Moreover, metaphors have "*highlighting and hiding*" characteristics. On one hand, they make us focus on some aspects of the concept; on the other hand, they bar us from focusing on other aspects (Ibid). As in example B above, only the "strength" and "courage" are mapped and hence, *highlighted.* As in the case of "her arguments were right on target", the traits of being on time, precise and determined in arguments have been highlighted. However, arguments may be to arrive at a mutual understanding as well. The metaphor, ARGUMENTS ARE WAR hides this feature of the argument. Thus, metaphors may distract people (Ibid).

Lakoff and Johnson's CMT is widely accepted by scholars. However, this theory neglects the linguistic manifestation of the metaphors. Semino states:

> (…) CMT is primarily concerned with conceptual metaphors, while metaphorical expressions in language are seen as secondary. This results in a lack of consideration for the textual manifestations of metaphor and for the authenticity of

> the linguistic data that is adduced as evidence. The main proponents of CMT mostly relied on artificially constructed examples to support their claims and did not develop an explicit methodology for the extrapolation of conceptual metaphors from linguistic data. This casts doubts on the reliability of claims about conventional conceptual metaphors, and the exhaustiveness of the CMT account of metaphor in language. (2008, p. 10)

Semino highlights the importance of the linguistic manifestation of the CM and states that this has been given less importance in the CMT. Lakoff herself mentioned metaphor as a cognitive process only and states that metaphor "has come to mean *a cross-domain mapping in the conceptual system*" while a metaphoric word or expression is a "metaphorical expression" and the "surface realization of such a cross-domain mapping" (Lakoff 1993, p. 203). So, he terms CM as a mental phenomenon and the linguistic expressions only realization of these expressions and not necessarily being so.

Some linguists believe that it is crucial to the research to know the difference between conceptual metaphor and linguistic metaphor. Goatly (1997) criticizes CM for its terminology and comes up with a definition of linguistic metaphors that uses the terms *vehicle, topic and ground* instead of target, source and grounding respectively. He terms metaphor as a pragmatic matter. Charteris-Black (2004) also considers metaphor as a pragmatic issue and criticizes CMT for devaluing linguistics in putting forward the metaphor theory. He claims that CMs are "the reverse of linguistic metaphors" because linguistic metaphors cause semantic tension while the CMs resolve these tensions (2004, p. 16). For him, CMs are statements. Hence, ARGUMENT IS WAR is a CM and it is a statement. However, "her argument was right on target" is a linguistic metaphor. So, we may notice that the linguistic metaphor creates semantic tension while on the other hand, the CM resolves that tension (Ibid). The *conceptual key* is the statement that serves to "resolve the semantic tension of a set of conceptual metaphors by showing them to be related" (2004, p. 21-22). CMs and conceptual keys help in describing and classifying figurative language, and in explaining the motivation behind the use of particular linguistic metaphors (Ibid).

The fact that Metaphors have pragmatic effects (as mentioned by Semino, 2008; Charteris-Black, 2004; and Goatly, 1997) points toward the persuasive effect of metaphors. Persuasion is a pragmatic phenomenon because it involves the speaker's intention and the hearer's interpretation. As Goodall mentions in his work that when we use a metaphor, we invite the hearer to evaluate the intentions of the speaker (cf. Mio, 1997). The same is endorsed by Charteris-Black that the speaker uses metaphor to invite the hearer "to participate in an interpretive act" and if the hearer resolves the semantic tension, then the speaker and the hearer get themselves engage in "a joint activity of meaning creation" (2004, p. 12).

Moreover, the "highlighting and the hiding" phenomena of metaphor also show its persuasive nature. Fill and Mühlhäusler (2001) state that metaphors are like searching lights that illuminate only certain phenomena and leave the other characteristics in the dark. Similarly, metaphor is like a solar eclipse that has characteristics of both hiding at the same time revealing the features of its object of study (Paivio cited in Mio 1997). Because of this "highlighting and hiding" property, metaphors are rarely neutral (Semino, 2008). Hence, metaphors are opinions and attitudes loaded.

Moreover, as earlier mentioned linguistic metaphors are realisations of CM; this claim shows that linguistic metaphors reveal our inner thoughts. Hence, metaphor can affect how people think and ''play a central role in the construction of social and political reality" (Lakoff & Johnson 2003, p. 159). Mio's (1997) information-processing model suggests that metaphor acts as a cognitive heuristic or "information processing tool" to handle tasks which might not be possible otherwise because of the limited ability of people to process information (p. 130). Further, metaphor is the most powerful tool in generating new knowledge (Harré et al.,1999).

We cannot understand complex concepts at all. Metaphor carries such an effect because we can understand complex concepts if only certain aspects of them are highlighted. At the same time, the other aspects of the concept are kept hidden and we will not pay attention to those aspects (Lakoff & Johnson 2003); hence, metaphors may distract or manipulate use. In this way, metaphors persuade us in a certain direction.

Mio (1997) reports in his work the importance of metaphors during public distress. The successful metaphors used in the President Roosevelt's governmental program New

Deal and the Cold War made the public understand the political turmoil and feel part of the political process which in turn may make them support the political decisions. Further, metaphors are persuasive because of their relieving effects. The semantic tension is relieved by metaphors and this experience of relief will result in persuasion (Ibid).

Lastly, metaphors usually express emotions and may stir the emotions depending on the hearer to hearer and contexts. (MacCormac; cf Goatly, 1997). These intentions may be revealed through critical metaphor analysis. This basic information paves the way for many other studies on metaphors. Due to such persuasive effects of metaphor, it has been studied in critical ecolinguistics as well. The next section gives an analysis of ecocritical studies on metaphors.

2.5.3 Ecolinguistics and Metaphors

As mentioned earlier, metaphors have been studied immensely not only in the realm of linguistics but also in politics, science, mathematics and so on. Metaphors have a very important place in ecolinguistics as well. As discussed earlier, Haugen's strand of ecolinguistics is founded upon metaphor. However, this section critically analyses studies on metaphors in critical ecolinguistics or more precisely in the Hallidayan strand of ecolinguistics.

Romain (1996) in her article analyzes metaphors and examines their role in scientific and environmental discourses (media reports about the environment) which she termed as “Greenspeak” (p. 175). She finds out that the metaphors as present in the particular environmental discourses are full of ideologies. She lists War as “the prime source domain” in metaphors around “environment” (p. 175). For her, the conceptual metaphor ENVIRONMENTAL DEGRADATION IS WAR relies on other conceptual metaphors like ARGUMENT IS WAR, and SPORTS IS WAR (p. 178). She identifies different participants using the War metaphors in Greenspeak; however, there is no consensus on who the enemies are. Similarly, the objectives of the war are also not the same for these different participants.

The second important metaphor that Romain discusses in her work is EARTH IS A GREENHOUSE. The thought to protect the Earth from harm and invasions is because humans think of the Earth as their home. She further states that if we consider war as a source

domain and combine it with the Earth as a greenhouse model then the earth becomes the battleground of the war on the environment (Ibid).

She further notices that earth and nature have been presented as living beings; she describes different types of personification of earth and nature like Gia. She claims that the personification of earth and nature makes humans harm the earth. Further, various words like "natural capital" and "ecological treasures" constitute conceptual metaphors that term nature as a resource that can be used, wasted, and saved (Ibid, p. 186).

In the study, Romaine not only finds a link between ENVIRONMENTAL DEGRADATION IS WAR and other war metaphors like ARGUMENT IS WAR but also the same between SUSTAINABLE DEVELOPMENT IS JOURNEY and LIFE IS A JOURNEY (Ibid, p. 187). She further points out that "Greenspeak and its issues are often charged with moral significance" (Ibid, p. 189). The participants attach moral significance to the environmental issues to have more impact.

The study is one of the pioneer studies on metaphors in the environmental discourse after Halliday's seminal speech at *AILA*. It sheds light on some of the very important conceptual metaphors in Greenspeak, as described above. However, Romaine does not describe the method for identifying conceptual metaphors. Moreover, the findings are not shared systematically. Similarly, the study is on a small scale and discusses only a few conceptual metaphors. However, the study analyses metaphors in the environmental discourse which coincides with the present study, so the study has been referred to in discussing the findings in chapter 4. However, the particular environmental discourse is different from the one used in the present study.

Meisner (1995) points out some other metaphors about nature i.e., "nature as economy", "nature as home", "nature as a living being", "nature as music", "nature as miracle", and "nature as an agricultural crop" (p. 11-12). Meisner gives a two-principle formula to judge the value of the metaphors of nature from an ecological perspective. The first principle is to know things like nature-human relationships, and the conceptual relationships the metaphor suggests for nature's internal organisation. The second principle is to know the sort of feelings that the metaphor evokes towards nature whether it is positive, caring, fearing or indifferent. Meisner explains this by taking the example of the metaphor, "NATURE IS A HOME". This, according to Meisner, is anthropocentric as it

portrays nature as a physical structure that is constructed for human beings. Moreover, this is dualistic because nature is a physical structure and human beings are not part of it (Ibid). Meisner's study is important as it identifies and criticises nature metaphors. It also gives a two-way principle for ecocritical analyses of metaphors which is much more developed in Stibbe's theory (2015) that is the framework of the current study. However, Meisner's study is limited in its scope for it identifies nature metaphors only.

One of the other important pioneer studies that discussed metaphors in environmental discourse is that of Harré et al. (1999). Greenspeak, according to them, is "a catch-all term for the ways in which issues of the environment are presented, be it in written, spoken or pictorial form" (p. vii). They state that linguistic representation of environmental crisis in the discourses is important because the environmental crisis is " at root a discursive phenomenon (p. 3). They analyze reports of the Rio Summit of 1992, the Manifesto of the British Green Party, and scientific papers from different scientific journals to know these linguistic features. One of the linguistic devices that they mention in their study is metaphor.

They claim that culture and context set a boundary between literal and metaphorical uses of language. For instance, the sentence "Human beings are apes" will be understood differently by an evolutionary biologist for whom it will be more literal, and by a person from Jehovah's Witnesses for whom it will be more metaphorical (p. 92).

Further, metaphor depends on knowledge and beliefs. They mention Mill's study in which he proposes the three most important metaphors around "nature" at different stages of the history of Western societies; that are the Middle Ages, the Renaissance, and the Enlightenment onward. In the Middle Ages, nature was taken more like a book written by God. In the Renaissance, on the other hand, nature was seen as more like a reflection of the human body. Lastly, from the Enlightenment onwards nature has been seen more like a machine. The machine kept on changing as per the advancement of technology; initially, nature seemed like a clock then a steam engine and finally like a computer. According to Harré et al. (1999), the nature as a machine metaphor is the most dominant in the discourses. This metaphor, as mentioned by Romaine as well, sees nature as possible to be used, manipulated, fixed and controlled by human beings.

The study of Harré et al, (1999) is also important for not only metaphors but also for other linguistic and theoretical phenomena. However, like Romaine, this study also does not reveal methods for eliciting and analyzing data. It is also focused mostly on nature metaphors.

Some other studies discuss the importance of the metaphor about "nature" in environmental discourses. Analysis of these studies is important for the present study for it grounds the study and it also argues for the gap that the present study fills. However, these studies are limited as they focus on the analysis of nature metaphors mostly.

For instance, Botkin (1990) argues that progress in environmental issues is not possible without correcting our basic assumptions about nature. The discourses need to withdraw the old toxic assumptions about nature and come up with a new view to have any progress in combating environmental issues. According to many ecolinguistics, this worldview is constructed by language and metaphor is one of the linguistic devices which construct this worldview (Verhagen, 2008; Stibbe, 2015; Ji, 2020).

In his study on metaphors of nature, Philippon (2004) provides an extensive list of nature metaphors. The source domain for nature metaphors can be someplace like a utopia, wilderness, or garden); a human relative like mother, sister, daughter, friend, brother; an actor like enemy, monarch, god, goddess, lawyer; a machine like an engine, clock, computer, spaceship; a network like tapestry, community, web; a mode of communication like a book; contested landscape like battlefield, commons; a built object like bank, sink, home, pharmacy, lifeboat, storehouse; or a state of being like balance, harmony, virgin.

Further, Yan Ji (2020) attempts to find the role of metaphors in nature conservation. He says that metaphors not only structure our perception and thinking but also our actions. He attempts to find the structure of the metaphor and how the structure makes the metaphor advantageous or disadvantageous for nature. The conceptualization of the environment comes from "multiplicity, duality, and cultural diversity of metaphors" (p. 370). He analyzes a few dominant metaphors of nature for their usefulness to the environment. He first analyzes NATURE IS A WEB metaphor and states that it seems to be an advantageous metaphor for it makes humans just part of a wider food system. It also makes an otherwise complex idea in a few words. However, it is important that simplicity should not be at the

expense of the detail and “at the risk of conflating it with other” similar metaphors in this case other “web” metaphors like World Wide Web (p. 371).

He further analyzes the Gaia metaphor and claims that although it seems advantageous for many linguists, there are some intrinsic issues with the metaphor. It reinforces the idea of dominance as the oppression of the earth by humans and that of women by men can be taken parallel.

Yan Ji further states that Metaphors may be advantageous, ambivalent, or destructive. Metaphors should be selected wisely in environmental discourses due to their persuasive nature. Moreover, the context should not be forgotten while selecting a suitable metaphor. The suitability of metaphor depends upon the context and culture. Finally, Ji suggests improving metaphors in representing nature “to improve upon the use of language for a harmonious relationship with nature” (Ibid, p. 370).

Verhagen (2008) claims that the relationship between human beings and nature has been communicated and constructed through language from the very start of civilization to the very present. There are many linguistic tools for that and one among such tools is a metaphor. He further states that the major metaphors in the discourses to describe the human-nature relationship represent a worldview that is either anthropocentric or biocentric. He uses the corpus techniques to analyze nine historical texts written by famous evolutionary biologists, historians, and cosmologists from Europe and North America.

Verhagen categorizes the metaphors “*Nature as scala naturae, Nature as machine”* in the anthropocentric worldview for they show mankind as the master of the world having the authority to temper nature according to his own benefits (p. 5). “Scala naturae” here means ladder of nature. This metaphor considers humans as the standard in the hierarchical system of living beings. Further, it excludes all extinct living beings from the system.

The biocentric worldview is the beliefs or ideologies that take the biosphere as the centre. It takes humans as a part of the web of life rather than the Master of It. Metaphors that promote this worldview include *Nature as mother, Nature as web, Nature as measure”* (Ibid, p. 7).

Verhagen’s study is important because it gives a thorough analysis of nature metaphors and places metaphors into three categories i.e. destructive, beneficial and ambivalent. The present study also keeps metaphors in these three broader categories during the analysis.

However, Verhagen's study uses a small corpus for the identification of metaphors and is focused on the analysis of nature metaphors only.

Recently, Mey (2018) finds a problem with the way ecological metaphors are presented in different discourses. She comments that the ecological problems reflected through metaphors are more complex than the resources. She praises the critical studies on ecometaphors but at the same time points out that metaphors may help us to see the problems more clearly but "to achieve a change towards a more ecological oriented system of production, distribution and consumption", every single person and nation on the planet will have "to pay his share" (Mey, 2018, p. 221). Her work gives an insight into the studies that work on the pragmatic effect of metaphors in discourses. The explicit pragmatic effect of metaphor is beyond the scope of the current study. It does not focus on how the pragmatic effect of metaphors on the readers as mentioned in section 1.9.

2.6 Frames, Framing and Reframing

Frame is an important concept in many disciplines like artificial intelligence, sociology, media studies, and linguistics. However, there is no fixed definition of frames. Framing has different interpretations across different fields and even within the same field. Moreover, frame, framing, and reframing are different but related terms. Frames are mental structures and "interpretive storylines" (Nisbet 2009). They help people to understand or create reality (Entman 1993; Gamson & Modigliani 1987; Kuypers 2009; Stone 1989; Lakoff, 2008).

To understand a word, a person needs to have access to the encyclopedic knowledge that is attached to that word. Otherwise, the person will not be able to understand that concept. Frames are schemata. For instance, the word "sell" triggers the commercial transfer situation. This transactional frame involves knowledge about the situation in which the seller, buyer, goods, price, and money are involved. It also involves the relationship between the participants and the actions that are involved in buying and selling. This packet of knowledge is in the mind of the individuals. Frames may also invoke emotions. For instance, in the transactional frame, the typical emotions may be pleased with getting goods. Similarly, one cannot understand the word "offside" if one does not have knowledge

of soccer. The word offside will activate the soccer frame which includes the related terms and knowledge of the game.

Linguists believe that frames are mental structures rooted deep in the synapsis of brain (Lakoff 2004, 2008). Humans are usually not able to comprehend the world around them completely because they do not want to put much effort into it. So, they become "cognitive misers and start depending more on frames and other heuristics devices to process worldly information efficiently and with less effort (Fiske & Taylor, 2013). The process becomes almost effortless because they take the information from stores of short and long-term memory (Scheufele & Tewksbury, 2007; Chong & Druckman, 2007).

This packet of knowledge may be different among individuals as a person's experiences and emotions are different from each other. However, a community may share similar experiences. When the knowledge is shared by many people then it becomes part of social cognition (Dijk, 2009). Hence, people in a community may have common frames.

Frames not only help people understand the world around them, but they are many times manipulated by authorities for political and other gains. Hence, frame can be a communicative strategy as well. They, like metaphors, are persuasive (Berinsky & Kinder 2006; Druckman 2001; Kinder & Nelson 2005). Frames make some points salient and hide the other points.

Many studies discuss the effect of framing on people. Zaller and Feldman (1992) claim that usually, people have many issues in their heads which are unresolved; meaning they do not hold any conclusive decision about these matters. The decisions about these matters are affected by the recent experiences or the way these issues are framed. However, many times the framing effect is not created intentionally, especially by common people. In an experiment to find the effect of framing, Zaller and Feldman (1992) finds that most of the respondents were ambivalent about most of the issues they were to frame for them in the experiment. Their answers were affected by the way the questions were framed, the order in which the questions were posed, the mental associations (packet of knowledge) that were prompted, or even the answer options that were provided. Simply, since the opinions are not anchored, they can be easily moulded with the help of framing the issue in a certain way (Sniderman & Theriault 2004; Citrin et al., 1990; Nelson & Kinder, 1996; and Zaller, 1992). Zaller and Feldman's study is an important addition to the existing

knowledge. However, the study is more focused upon the actual effect of frames on people rather finding frames in discourses.

The prospect theory by Kahneman explains the effect of framing further. Some respondents were asked to imagine a scenario regarding the outbreak of a disease and choose one option if they were in such a scenario. The issue was defined in terms of lives gained and lives lost. The framing of the scenario is directly attached to the degree of risk people were willing to accept (Kahneman & Tversky 1984; Tversky & Kahnman 1981). Kahneman later won a Nobel Prize in economics for posing the prospect theory. However, this theory can be explained in terms of the effect of framing as well. A hypothetical situation may be that a country is preparing to combat the outbreak of a disease and it comes up with two programs and the scientific outcomes of the programs are:

- Program A 400 people will be saved
- Program B The ⅓ probability is that 1200 people will be saved, and ⅔ probability is that no people will be saved.

In such scenarios, like in Kahneman's experiment, if people were asked to choose one of the scenarios, they would choose Program A because it has been framed in such a way that poses less risk. However, if the two programs are framed differently then the selection will also get changed:

- Program A 800 people will die
- Program B There is ⅓ probability that no one will die and ⅔ probability that 1200 people will die.

If the programs are framed in this way, then people will choose Program B because the way it has been communicated shows less risk. Both clauses "400 people will live" and "600 people will die" communicate the same idea but the phrasing invites us to think about the same idea in slightly different ways; which means it structures the same idea differently. Different aspects are focused on in each example. People usually select the options which are focused on saving at least some lives or having a chance to avoid any death. The decisions are made differently if we frame the situation in a different way so one can see the situation with different aspects being focused upon. In this example, the same situation is framed differently which resulted in different responses.

Table 2.1

Program A	Program B
400 people will be saved	The ⅓ probability is that 1200 people will be saved, and ⅔ probability is that no people will be saved.
800 people will die	There is ⅓ probability that no one will die and ⅔ probability is that 1200 will die.

The Effect of Framing

Kahneman's work is important in understanding the effect of framing. This study gives a bases of reasoning to many studies including the current study. However, the current study is not focused upon the actual effect of frames on people rather it analyses frames in discourses. Further, Kahneman's work is more general discussion of persuasive effect of frames. On the other hand, the current study is more focused upon framing in environmental discourses through compounds.

Framing is of particular importance to many issues due to its such persuasive effects. There are many other studies which explore the effect of framings on various issues; for example, government spending (Jacoby 2000), policy decisions (Kull et al., 2004), trade and globalization (Hiscox, 2006), and affirmative action (Kinder & Sanders 1990). Environmental issues are one among such issues. There are many studies which discuss framing for its effect on environmental and other policies (Sharp, 2008). However, the current study is more focused on the ecocritical perspective of the frames.

Since ecolinguistics' main aim is to challenge the ecologically destructive discourses for the purpose of ecological and social change, frames are of particular interest to ecolinguists. There are many eco-studies which analyse different discourses to investigate the frames used in it. Blackmore and Holmes (2013) investigated different online texts for frames and found that words like "discount", "customer" and "shopped" are used around nature. These trigger words indicate that protecting nature is framed using the transactional frame. They criticized this frame since it promotes the consumerist frames that are the root cause of natural destruction. Moreover, they criticise the way the Red Tape

Challenge initiative frames regulations as a burden as regulations on businesses are good for the well-being of the environment. Terming these regulations with negative connotations may promote stories that may hurt the environment. They further suggest replacing these short-term environmentally destructive frames with "green foundation" frames (43). The green foundation frames support all the regulations and laws that ensure the safety of humans, other beings, and the wider natural environment. Through such analysis of frames they came up with a structure for working with frames - first, to identify the values that the frames embody; second, to identify the possible response/no response; third, to know how the frame can be challenged; and finally, to find a new frame if required and possible.

Similarly, Darnton and Kirk analyse international development related frames and put forward that frames can be "positive" and "negative"(2011, p. 8). So, any framing against the ecosophy of the analyst is negative and the one that aligns with the ecosophy is positive. The example of a positive frame they give is that of which development is shown as a moral responsibility and that does not count "underdeveloped countries" as immature and backward. On the contrary, the example of a negative frame is in which underdeveloped countries are considered as backward and immature, and the developed countries are being given the responsibility to take the task of grooming such countries.

Next, Christmas et al. (2013) analyse the framing of biodiversity. They analyse the common frames and framing with an ecolinguistic, criticise the negative frames and search for more suitable frames (suitable for the well-being of the ecological system that life depends on). The most common stories through biodiversity framing that they discover are, "Nature finds a way", "Nature can't keep up", "Humanity finds a way", and "Humanity can't keep up" (p. 9). These stories are further criticised. For instance, the story, "humanity finds a way", gives the impression that humanity can solve all the natural environment related issues without relying on nature. They challenge this story and search for alternative framings that promote stories that encourage people to protect the ecosystem.

The World Wildlife Fund (WWF) report (2010) written by eminent linguists and social scientists analyse framing of social and environmental issues. This report put forward the idea of destructive and beneficial frames. The decision is made based on the effectiveness of the frames for the well-being of the living beings and the larger systems

that life depends on. It sheds light on the reframing of intrinsic value (like poverty) with frames having extrinsic values (economic growth, saving money, financial success etc). The environmental campaigns are basically for the protection of the environment. However, reframing environmental and social issues with frames that promote extrinsic values which are the cause of the issues in the first place will reinforce these destructive frames (Crompton, 2010).

Similarly, the report points out that the environmental campaigns stress upon the "green growth" by asking people to save energy or to reduce carbon emissions as it promotes saving money. Further, the money can be used to give yourself a treat. These sorts of instructions activate the consumerist frames. Ironically, consumerism is one of the leading causes of environmental issues. Once again Crompton (2010) stresses avoiding such destructive frames as these promote the same extrinsic stories that are the root cause of environmental issues. Moreover, such frames entail using the saved money to purchase technological instruments that one did not have before. This may further increase the carbon dioxide emissions rather than decrease it. Alcott (2005) calls this as Jevon's paradox. The irony here is that the extrinsic rather than intrinsic goals are highlighted through such frames. Hence, the report suggests caution in the selection of frames, especially in the environmental discourses. The right selection will make sure that the intrinsic goals are highlighted rather than the extrinsic ones.

Similarly, some studies identify the issue with framing climate change as a problem (Cachelin et al., 2010; Hulme, 2009; Nerlich & Jaspal, 2012). Cachelin et al. (2010) point out that the problem frame proposes that the problem can be solved once the measures are taken. However, this approach will result in the false hope that the problem can be solved by taking certain measures. The problem frame takes the focus away from resilience and may make people feel that they can temper the ecosystem as these damages can be fixed by taking certain measures (Hulme, 2009). Initially, the solution was reducing carbon emissions drastically; however, it is not possible. Hence, the solution has now changed from the reduction of carbon emissions to geoengineering the planet which keeps the problem frame alive (Nerlich & Jaspal, 2012).

All of the above-mentioned studies in the realm of ecolinguistics are important to understand the effect of framing on the environment. However, there is no study as

mentioned above that focuses upon how novel compounds in environmental discourses frame environmental issues and what kind of stories these frames prevail. The upcoming sections discuss a few studies that take novel compounds and discuss the frames they evoke.

2.6.1 Compounds

The present study focuses on the linguistic clusters i.e., compounds and how these compounds frame concepts/issues in the environmental discourses. Since it takes compounds as a linguistic source of analysis, it is important to have some basic information about compounds, especially the criteria for compoundhood and the working definition of novel compounds. It further takes some other studies that analyse compounds as a tool for framing environmental issues.

2.6.2 Definition, Types and Criteria

Compounding, according to Lieber (2009) is one of the common ways of lexeme formation. There has been much discussion on the definition of compounds. Several scholars defined compounds in their own way. For instance, Marchand (1969) defines compounds as units consisting of two or more words that are combined to form a morphological unit. Similarly, Katamba (1993) states that a compound is a morphological unit that has at least two bases which could be words or root morphemes. According to Fabb (1998), a compound is a word that itself consists of two or more words. Olsen (2000) also defines a compound as a complex word/morphological unit that is formed by combining two free forms or stems. Finally, Plag (2003) proposes a compound as a "word that consists of two elements, the first of which is either a root, a word or a phrase, the second of which is either a root or a word" (p. 135). Among all of the above, Plag's definition of a compound is the most comprehensive yet detailed one. Plag's definition not only identifies the fact that in the English language phrases can be part of a compound but also marks the difference between a phrase and a compound. The other definitions miss these two points. The present study will take Plag's definition of a compound. However, the study only focuses on the compounds having only two bases.

Lieber (2009) explains the composition of the compounds and says that English compounds are generally formed by combining free bases. We generally form free base compounds by combining two nouns as in dog bed, two adjectives e.g. red hot, an adjective and a noun e.g. greenhouse, a noun and an adjective as in cherry red. There are different ways of combining words. Some of the compounds formed by combining free bases are as below:

Compounds of two nouns: bus stop, fire-fly, football

Compound of an adjective and a noun: full moon, blackboard, software

Compound of verb and a noun: breakfast, washing machine

Compound of a noun and a verb: sunrise, haircut

One may notice that these free bases are of different grammatical nature i.e. verbs, nouns, adjectives etc.

Algeo (1993) also talked about different ways through which words are formed. In an attempt to investigate the most productive method of word formation, Angleo finds out that combining (68%) is almost twice as productive in making new words than all the other categories. Combining includes compounds and affixation. Other categories include shifting (17%) which is the second productive category in new words creation, shortening (8%), blending (5%), borrowing (2%), creating (below 0.5%) and unknown (below 0.5%). In another study Algeo (1999), once again, terms compounding and affixation as the most productive methods of word derivation in English. This finding was later supported by Ayto (1999) as well. He says that "combining existing elements…accounts for close to three-quarters of the new vocabulary coming into the language" (p. viii). Hence, compounding is one of the most productive ways of new word formation.

According to Altakhaineh (2017: 81), the possible internal elements of English compounds are joining a) two words like blackboard, b) two combining forms like sociology, c) combining form and word like telephone d) word and combining form like magnet-metry, e) phrase and word like red balloon seller, and f) word and phrases like sister-in-law (see table 2.1 for details). The present study does not take into account the forms of compounds as mentioned in e and f.

Table 2.2

Example	Internal Elements of the Compound
Windmill, blackboard, black bird, egghead	Two words
Sociology, psychology, anthropology	Two combining forms
Telephone, ecotourism, ecofinance	Combining form plus word
bureau-crat, magnet-metry	Word plus combining form
[Red balloon] seller, [pipe and slipper] husband, [slept all day] look	Phrase plus word
Sister-[in-law], good-[for-nothing]	Word plus phrase

Combining Elements of Compound

Compounds can be classified in several ways based on different criteria. Bisetto and Scalise (2005) classified compounds into three based on the semantic and grammatical relationship between the components of the compound. They are attributive compounds, coordinative compounds, and subordinative compounds. In **attributive compounds,** the non-head element takes the role of the modifier of the head. For example, in *snail mail*, *snail* acts (metaphorically) as a modifier. Hence, *snail mail* means mail that moves like a snail. Unlike attributive compounds, all the elements have equal weight in the **coordinative compounds** e.g., producer-director. In *producer-director* the *producer* is not modifying the *director* rather both have equal weight. A *producer-director* is a person who is both a producer and a director at the same time. Here both the elements are heads. In **the subordinate compound,** one element is the argument of the other e.g*., truck driver, cost containment, hand mixer.* We may notice that one element in the subordinative compound is either a verb or is derived from a verb.

The attributive, coordinative and subordinative compounds can be further divided into **endocentri**c and **exocentric**. In an endocentric compound, the meaning of the compound is derivable from its components. The head usually gives meaning to the whole compound. For instance, the fact that a *houseboat* is a boat that resembles a house points out that the referent of the endocentric compound is always the same as the referent of the head of the compound. In this case, *boat* is the head as mentioned earlier that English

compounds are right-headed. On the contrary, the meaning of an exocentric compound is not dependent on the meaning of the head of the compound; for instance, egghead is not a head, pickpocket is not a pocket, and airhead is not a head filled with air. One may notice that exocentric compounds are more like idiomatic expressions. Bauer (1998) mentions that exocentric compounds are usually listed in the dictionary whereas exocentric compounds are not listed there.

As stated earlier, compounding is one of the most common ways of creating new words. However, compounds can be recently created or maybe a well-known one created long ago. Environmental discourse may have some compounds that have recently started appearing and may be innovative in terms of lexical combination. Nerlich and Koteyko (2009) call such innovative lexical combinations as novel compounds. They consider novel compounds as those compounds which recently emerged and are noticeable in the discourses. The current study focuses on novel compounds only. However, it takes novel compounds as ones which are innovative and new. Innovative in the sense that the meaning of the compound is not dependent upon the head. So, it means the newly emerged exocentric compounds are considered as novel compounds.

There are no single criteria for compoundhood or for marking the difference between a compound and a phrase. Linguists have given different criteria to differentiate compounds from phrases. A phrase is a "syntactic constituent whose head is a lexical category" (Katamba, 1993: 332). Like a compound, a phrase also consists of two or more words, for instance, *atom bomb* and *very happy* where both of them have two words but one is a compound and the other one is a phrase respectively. Hence, the number of words in a construct does not indicate if a unit is a compound or a phrase. Altakhaineh (2017) mentions the criteria to identify a compound as orthographic, phonological, syntactic, and semantic in nature.

Orthography, though of some help in languages like Czech and Slovak, is not a suitable criterion for identifying English compounds as spellings and spacing of a compound are not fixed in English. A compound word may be written as a single word like *blackboard*; it may also be written as two or three separate words like a *full moon*; and finally, it may be formed by placing a hyphen between the bases like in *producer-director,*

or *sister-in-law*. Some authors write the same compound differently; the presence of both *word formation* and *word-formation* is one among such cases. This makes identifying a compound rather challenging (Lieber, 2009).

Stress is comparatively a better criterion of compoundhood in the English language and is endorsed by Chomsky & Halle (1968) in their study. English phrases are typically stressed on their last base i.e. the right-hand base, whereas English compounds are usually stressed on the first base i.e. the left-hand base. For example, ***black****board*, a board used usually by teachers for writing in class and which is fixed in the classroom on a wall, is a compound whereas *black* ***board***, any board painted black, is a phrase (Booij, 2012). The highlighted component shows the stress. The criterion, though beneficial in some cases, is not useful in many other cases. For instance, both ***apple pie*** and *apple* ***cake*** are compounds, still, we usually place stress on both bases in *apple pie* and the first base in the case of *apple cake*. In this case, stress fails as a criterion for compoundhood (Bauer, 2003). Moreover, stress is not absolute in all the varieties of English as identified by Plag (2006) in his work. One can observe a clear difference in terms of stress between British English and Pinglish/ PakEnglish.

Lieber and Štekauer (2009, p. 12) presented **modification** as another criterion for compoundhood. They noticed that English compounds do not allow modification on the left side; on the other hand, phrases do allow modification on the left side. For instance, it is possible to have a structure like a *very black bird* but the structure *very blackbird* is not possible. However, the criterion applies to only gradable adjectives. Some clusters of words do not take *very* but still, they are not compounds. Moreover, the criterion applies to only Adj+ N compounds; hence, this criterion cannot be generalized (Altakhaineh, 2017).

Similarly, internal modification is also possible in both compounds and phrases, at least in English. According to Altakhaineh, internal modification (though works in Spanish) fails as a criterion for compoundhood in English, since both English compounds and phrases can be modified internally. For instance:

She sells [golden handbags].

[golden handbags [sic]] seller]

Yet another criterion to distinguish a compound from a phrase, according to Altakhaineh (2017), is **compositionality**. For Kavka (2009), compositionality is the most important criterion for identifying a compound. She explains that compounds like idiomatic expressions are non-compositional. On the other hand, phrases are compositional. Neef (2009) explains that a "complex linguistic structure is compositional if its meaning is determined by both the meanings of its parts and the way it is structured" (p. 394). For instance, *black bird* is compositional because the components of the structure point towards the whole meaning. So, *black bird* is any bird that is of black colour. On the contrary, *egghead* is not the head of an egg or a head that is filled with eggs; it means a highly studious person. So, *egghead* is non-compositional and certainly a compound. However, compositionality might be a useful criterion for compoundhood in languages like Hebrew but not in English (Altakhaineh, 2017). Neef (2009) explains this further and states that English has both compositional and non-compositional compounds. For instance, although a *houseboat* is a boat and *apple pie* is a pie which makes them compositional, they are compounds. Similarly, a *bookshop* is a shop where books are sold (Aronoff & Fudeman, 2005). So, the compositionality depends upon the type of the compound i.e. endocentric compounds are compositional whereas the exocentric compounds like *egghead* are non-compositional (Altakhaineh, Ibid). The present study takes only exocentric compounds for analysis, so, compositionality is a suitable criterion for checking the compoundhood of a cluster of words at least in the present study.

Compounds are linguistic signs and a way of creating a sense of our surroundings. These are clusters of words having certain meanings. According to Sinha, compounds are "both transformative cognitive tools and constitutive of human cultural ecologies" (2006 p. 114). Compounds make ways to sense our surroundings and new understanding not only makes ways of sensing around but can also influence how we act upon it. These new compounds are also indicators for observing how human environmental changes bring changes in human cultures and languages and the response shows how we take this environmental threat. Hence, compounds are of much interest to linguists, especially to ecolinguists. A few studies analyse compounds with an ecolinguistics lens; however, the studies that analyse compounds as a means of framing are very few. The next section highlights these studies.

2.6.3 Common Compound in the Environmental Discourses

Zimmer et al. (2016) give a brief overview of the new words/compounds that emerged from 1941 to 2016. Their work is a continuation of a huge project *Among the New Words* started by Bolinger in 1941 with his study in which he gave a brief overview of the new words and compounds that emerged during the past few years. The task was later taken by many others. Zimmer et al. (2016) surveyed the past 75 years of the project "Among the New Words" (ANW). Their study shows that the project has gone through three generations starting from Bolinger (1941-44) who edited 9 installments and reaching the 2016 edition of Zimmer, Carson and Solomon who edited 11 installments till 2016. They gave an extensive list of words gathered from many resources like electronic news databases, archives of social media, search engines and many more. Zimmer et al. (2016) selected the most important neologisms from each year (1941-2016), explained different compounds created from the word and explained the meaning and reasons for the emergence of these neologisms. Their document presents a brief overview of the prefix "eco" selected for the year 1972. The prefix "eco-" was introduced in the 1972 installment by Russell and Porter (Zimmer et al., 2016). They explain that the term was first introduced in 1963 in the "Barnhart Dictionary of New English" but the 1972's entry in the ANW lists 35 more nouns from "eco-" which were never recorded earlier. The word showed a shift in meaning from 1963 to 1972. Initially, the term was observed to be a simple clipping of "ecological" giving a sense of "pertaining to/of ecology" (for instance, ecomanagement). However, most of the newly listed words reflect a shift from this meaning of "ecological" sense to the "ecological" in a sense of "pertaining to environmental protection". Some of the categories of the forms mentioned by Zimmer et al. (2016) are:

Table 2.3

No	Category	Words/compounds
1	Organization	Eco-Now
2	Individuals	Eco-Commando, eco-enthusiast
3	limiting or reversing environmental damage, educational activities	eco-journalism, eco-skit
4	products designed to limit environmental impact	Eco-Bag, eco-house

Categories of Eco Compounds

Most of the compounds mentioned are "eco- + noun compounds but in *American Speech* published by Duke University Press Seventy-Five Years among the New Words 489, there are a few nonce blends that show up perennially when clever writers feel the need: ecopolypse, ecotage, ecoteau" (Zimmer, Carson and Solomon, 2016:488-489). However, Eschholz (1969) notices that eco-freak is treated as a full headword for some unknown reason(s). The work of Zimmer, Carson and Solomon (2016) presents merely a list of eco-words listed in previous installments of ANW. The study just lists words in which eco- works as a prefix; moreover, it does not give an ecocritical analysis of these compounds.

There are some other studies where "eco" has been examined. One of the former studies on the element "eco-" is that of Benz (2000). He notices that though "eco-" first appeared in the 1970s, it has now become a permanent part of the English lexicon and has spawned many new compounds like eco-freak, and eco-awareness. The original meaning of the term was to refer to the environment, or something or someone that cares for the environment. However, despite its only 30 years' presence in the English language, the term has got an additional meaning i.e. to market the so-called green-products. Marketers

are using the popularity of the advocacy of the term for their own benefit. Benz gives examples like eco-tourism, eco-friendly and eco-chic to support his point. Benz predicted that the term will create more neologisms in future. Moreover, in a study on internet neologisms, Crystal (2002) gives a list of prefixes that have been productive in making new words and compounds. He includes "eco" in the sub-list of new prefixes.

The above-mentioned studies indicate that the analysis of novel compounds in discourses has been noticed by other linguists as well. However, these studies do not give an ecocritical analysis of these compounds; for instance, the studies of Crystal (2002), and Zimmer, Carson and Solomon (2016), just list the newly emerged compounds in discourses. Benz (2000) analyses compounds with an ecocritical lens. However, he analyses only a few eco-compounds and focuses more on the different types of connotation that these compounds have undertaken and that too in the economic and advertising discourses. The present study examines these compounds in environmental discourses to find the underlying framing and ultimately the stories that these frames tell.

These are a few small-scale studies that discuss the emergence of novel compounds in climate change discourse and how these compounds frame the issue of climate change.

2.6.4 Novel Lexical Compounds and Frames

Recently, a few studies have been conducted that analyse carbon compounds as a linguistic means to understand and make meaning out of climate change communication. Nerlich and Koteyko (2009a) highlight the importance of analysis of compounding in climate change communication in their study on carbon compounds. They state that the writings on climate change have given rise to a lot of novel carbon compounds, for instance, "carbon indulgence". This compound can be very useful in "understanding meaning of climate change" (p. 345). The compound is discussed within its surrounding discourses and events. They conclude that carbon compounds especially the compound "carbon indulgences" are shaping the way we think or talk about climate change. They also point out that moral and religious framing is used to convince the masses to reduce their carbon emissions. The focus of the article is on how changes in human cultures and surroundings bring about changes in language. Further, only "carbon indulgences" have been analyzed in this study. Further, the chronological evolution of a few of the carbon compounds has been

documented. Similarly, the focus is on the emergence of carbon indulgences in the UK climate change discourses, so, lexis-Nexis and WebCorp have been used to study the emergence of carbon indulgences in the UK newspapers and blogs over the years. The authors stress upon further investigation into how carbon compounds "structure our thinking and talking with relation to climate change" (p. 352).

The study of Nerlich and Koteyko (2009a) lays the ground for more studies analysing novel carbon compounds in climate change discourses. Another small-scale case study on the same topic is conducted by the same authors i.e., Nerlich and Koteyko in the same year 2009 (b). Here a few carbon compounds in a small corpus have been analysed. However, here the researchers want to explore the difference between the language used for climate change communication on the CRAG's website, and that used in the newspapers reporting the CRAG's coverage. CRAG according to Nerlich and Koteyko is the new environmental movement in the UK which stands for "Carbon Rationing Action Group (CRAG). The researchers conclude that the use of lexical carbon compounds invokes different types of metaphorical frames such as finance, dieting, religious imperatives and tax paying in different texts. The authors acknowledge the limitations of their study and advice for further research to corroborate their study's findings.

Nerlich (2012) analyses the policy discourses in the UK to find out how the lexical compound "low carbon" and metaphoric lexical compound "low carbon future" become prominent in the Policy discourse in the UK and how these compounds help in framing expectations of a "low carbon future". According to her, "the threat of anthropogenic climate change" has made policymakers come up with solutions which are framed through lexical carbon compounds (p. 31). Nerlich analyses newspaper articles and other industry coverages (from 1985 to 2011) of the issue using content analysis and discourse analysis techniques. It was found that a low carbon future has remained an important part of the steel industry, the car industry, and the climate change industry discourses at various degrees over a period of time. The compound, low carbon or low carbon future frames the expectation of a future having low carbon. However, it sidelines "deeper social and cultural reflections on climate change mitigation" (p. 31).

Koteyko et al. (2010) also analyse carbon compounds in discourses on climate change as presented in science, mass media and politics. They claim that these compounds

are linguistic means for the various stakeholders to frame climate change issues to have an impact on policymaking. They mention three clusters of compounds i.e. finance, lifestyle and attitudes. These clusters were used for various communicative purposes between the 1990s and the early 21st century. Their study uses the RSS (Really Simple Syndication) technique to generate a large amount of text from online sources and the compounds are extracted from this text. Their chronological analysis of carbon compounds helped the present study identify different frames that the carbon compounds can evoke. However, Koteyko et al. (2010) are more focused on the chronological placement of carbon compounds and the way they frame the issue of climate change. The present study is more focused on the major compounds in the environmental discourses and the ecological implications of frames that these compounds evoke.

These studies lay grounds for the present study in a way that the present study also uses a bottom-up approach by analysing the new compounds. However, the study of Nerlich and Koteyko (2009a), and Nerlich (2012) focus on only carbon compounds like "carbon indulgences" and their relation to environmental activism and other processes and events in the world and more specifically in the UK and US. The researchers themselves suggest extensive studies on this phenomenon.

Conclusion

The current study comes in the realm of ecolinguistics. Ecolinguistics emerged after the seminal talk of Einar Haugen in 1970. The field, since then, has grown immensely in different directions. The current chapter gives an overview of the field. However, only studies from the Hallidayan paradigm relevant to the current project have been reviewed. The niche of the current study is a melange of metaphors and frames, and not a lot of work has been extensively done from the vantage point of the current study. So, there are studies that discuss metaphors and compounds, but they are limited in their scope as they focus on only one metaphor or one compound. The metaphors and compounds extensive study in the Pakistani context is missing and this gap is filled by the current study. Further, corpus techniques in such studies are also very limited. The studies reviewed are not the only studies in the field; there are studies in the fields of metaphors, frames, and compounds which are not included for review in the current study due to their non-suitability to the

current study. The studies reviewed contextualize the current study and help in identifying the gap in the existing scholarship which is plugged into the following chapters.

CHAPTER 3

METHODOLOGY

Introduction

The methodology chapter outlines the research approach and analytical methods employed in the investigation of metaphors and lexical compounds within the context of Pakistani Newspapers written in the English language. The study primarily draws its theoretical foundation from Stibbe's model of ecolinguistics, which serves as a robust framework for exploring the linguistic and ecological connections within the world of Pakistani newspapers. By adopting an ecolinguistic perspective, this research aims to shed light on the intricate relationships between language, culture, and the environment, as reflected in the linguistic metaphors and lexical compounds present in the written media discourse.

Corpus analysis is employed as a fundamental tool for examining the linguistic phenomena within newspaper articles, unravelling how these linguistic elements convey different stories. By delving into the interplay of metaphors and frames, the study intends to uncover how authors employ language to depict certain thinking that intricate ecological relationships, human interactions with nature, and the broader cultural and environmental implications. To achieve this, the study constructs a specialized corpus of newspaper texts, primarily drawn from three leading Pakistani newspapers in the English language.

This chapter serves as a guide to the comprehensive research methodology employed throughout this dissertation. It provides an in-depth discussion of the data collection process, corpus construction, and the analytical techniques to get the objectives of the study. Additionally, it offers insights into the rationale behind selecting Stibbe's ecolinguistic model as the theoretical framework and explains how it informs the study's approach to data analysis.

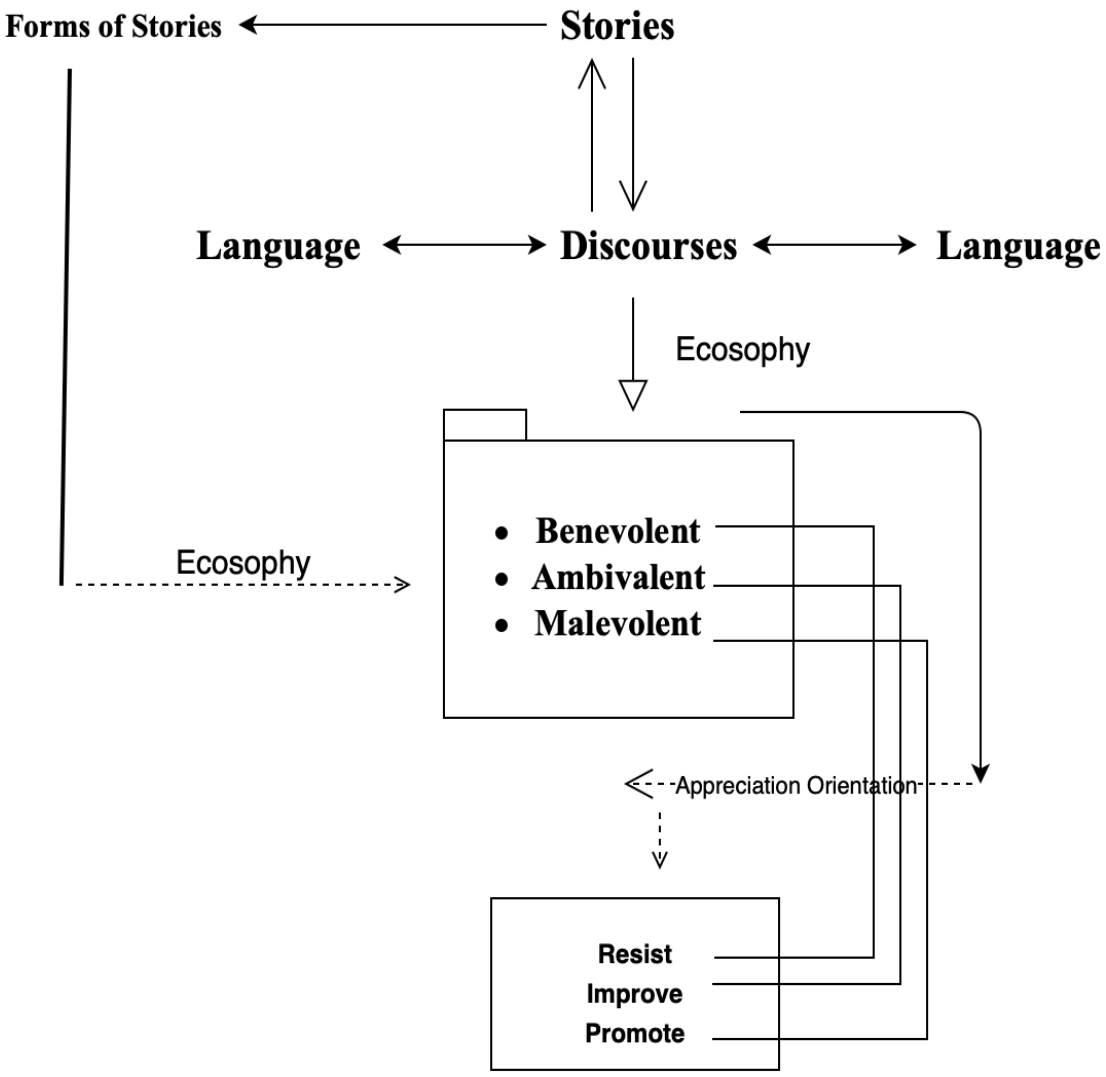
3.1 Theoretical Framework: Language, Ecology and the Stories We Live by:

As mentioned above, Stibbe's (2015) stories theory has been used as the theoretical framework of the current study. Based on the general concerns that Halliday[1] presented in *AILA* in 1990 and later on in 2009 (check section 2.2.2 for details), Stibbe came up with an extensive framework for the studies of critical ecolinguistics. In his framework, first, he explains the definition of ecolinguistics as suitable to his framework. The definition is important to mention as it lays the foundation for his framework. He then mentions his concept of stories and how the stories are related to ecolinguistics and the different forms that the stories may take. One another important aspect of Stibbe's framework is ecosophy. All these aspects are important parts of the current study as it explores and analyses different thinking underlying texts. Similarly, Stibbe's ecosophy aligns with the morals and ethics of the researcher and hence to the objectives of the study.

Fig 3.1 explains the relationship of different concepts in Stibbe's model. It explains the relationship between stories, discourses and ecosophy. Our discourses reflect our collective thoughts i.e., stories. The thoughts affect at the same time are shaped by the discourses. All these are reflected through language. So, by analysing linguistic features of texts we can know about different forms of stories prevailing in the discourses. These stories can be judged through the ethical vision (ecosophy) of the analyst. The stories can be classified as benevolent, ambivalent, or malevolent based on the ecosophy. Based on the classification, an ecoanalyst may suggest resisting, improving or promoting these stories because these stories have an impact on the ecosystems and life.

[1] Stibbe's framework focuses upon Halliday's (1999, 2009) approach to discourse analysis. Halliday's (2009) approach focuses on what linguists can do for the protection of the environment. Halliday's approach mainly focuses on the balance of ecosystems and how language influences these systems.

Figure 3.1



Stibbe's Story Model

Stibbe's Stories Model

3.1.1 Ecolinguistics and Stories

As mentioned above, Stibbe first defines ecolinguistics to put forward his theory. This definition is important to mention because it sets the tone of the present study. Stibbe, like others, acknowledges that the different understandings of ecolinguistics are due to differing views of the term, ecology. He defines ecology the same as that of ecological science i.e., "interaction of the organisms with each other and with the natural environment" (p. 8).

Hence, human beings, other life on the earth, and the natural environment are interconnected for their well-being. However, human beings are part of the ecology and if the focus is on organisms, then automatically it is on humans as well. However, this is not the case sometimes in ecological science "where the focus is on animals and plants in pristine environments remote from the influence of humans" (p. 6). Stibbe further specifies the meaning of ecology and states that ecology for his work is specifically the interactions of humans with each other, other organisms, and the natural environment. Stibbe's concept of ecology somehow aligns with Allama Muhammad Iqbal's views on the subject. Iqbal is one of the great philosophers of the region in which this study places itself. Iqbal does not endorse the "piecemeal view of things" and states, "we cannot understand the full import of the great cosmic forces which work havoc, and at the same time sustain and amplify life" (c.f. Özdemir, 2017, p. 103). So, Iqbal sees the integrated view of the "things". Iqbal further emphasizes awe, respect, and love for nature in his work. However, Iqbal's views on ecology and more specifically environmentalism are shaped by both Islamic beliefs and the modern Western views of ecology (Özdemir, 2017). Hence, Stibbe's concept can be applied to discourses in the Pakistani scenario. Similarly, the integrated view of ecolinguistics suits best the current study for discussing the analysis.

"Language" is the second part of "ecolinguistics". Stibbe links language to ecology and states that language shapes the way we think and conceptualize the world, which in a way determines how we interact with each other, other life on the Earth, and the natural environment. Hence, language indirectly affects our actions and our relations. For instance, if we use or come across the metaphor, NATURE IS A MACHINE, we might treat nature the way we treat machines. Machines are used to serve us. And when they stop serving us, we either go to fix them or throw them away and buy a new machine. Hence, to some extent, our relationship with the natural environment and other life on the Earth is shaped and reflected by language. So, as mentioned in Chapter 1, ecolinguistics is:

> The life-sustaining relationships of humans with other humans, other organisms and the physical environment, with a normative orientation towards protecting the systems that humans and other forms of life depend on for their wellbeing and survival.
>
> (Alexander & Stibbe, 2014, p.105)

Taking the above definition of ecolinguistics, the current study analyses the language that is used in articles about the environment in Pakistani English newspapers to identify the kind of relationship that is constructed between humans, other life, and the natural environment. That is to say, the scope of ecolinguistics is not limited to a particular discourse type. The relationship between humans, other life, and the natural environment can be exposed in any type of discourse. However, the current study takes environmental discourse as the type of discourse and aims to expose what kind of relationship is constructed between humans, other living beings and the physical environment in this discourse.

So, ecolinguistics explores the general patterns of language to know the underlying stories-we-live-by i.e., the mental models that shape our thoughts and influence our behaviour towards the natural environment. For instance, the story that nature is a commodity and can be used or abused by humans has an impact on how humans treat the broader system that life depends upon.

Linguistic features like words, compounds, grammar, and metaphors as part of a discourse may reveal an underlined story. ***Story***, according to Stibbe, is a "mental model within the mind of an individual person…[and] across the larger culture" (Ibid, p. 10). So, Stibbe not only talks about the individual mind and thoughts but also discusses "social cognition" like van Dijk (2009). Hence, stories are cognitive structures that influence people to act in a certain way. For instance, the story of "progress" may consider the past as negative for it does not have many technological developments, the present as an improvement due to the advancements in technology, and the future as promising. It encourages people to have more technological advancements. This story will also affect people's thinking, for instance, whether to consider industrialization in a green area or not. Their thinking will be reflected in their use of language; for instance, they may say that technological advancement cannot be stopped. This thinking will further shape the decisions/actions of others; in this case, they will agree to turn a green place into an industrial area. Hence, the story has an impact on "people's lives and how they treat the ecosystems that support life" (Stibbe, p. 10). So, stories affect people's thoughts, talks, and actions. At the same time these stories are reflected in the way we use language.

Stibbe further states that stories being mental models cannot be analyzed directly but are reflected in the language of people. Hence, we may know the stories by analyzing the language that people use. For instance, by examining the way people talk about "growth" we may get cues about what kind of story related to growth exists in people's minds. The story may be further analyzed for whether it is beneficial or not by noting the kind of actions it encourages. The present study takes only a few features of language i.e., certain compounds, and linguistic metaphors/trigger words; and attempts to find the underlying messages and attitudes by analyzing these features of the language. However, these are not the only linguistic features that Stibbe and many others talk about. Moreover, there are other modes like "visual images", music, etc. as well which may reveal the underlying stories. However, like Stibbe, the present study also considers language as the most important tool to be examined for "it is a key mechanism by which stories are transmitted across generations and across cultures (p. 10). As stated earlier, the present study critically analyses only the compounds, and metaphors in an attempt to reveal the underlying form of stories-we-live-by i.e., frames and metaphors. However, it does not only focus on the linguistic features that promote stories that are not beneficial for the well-being of humans and the environment, but it also attempts to investigate the linguistic features that constitute stories that are beneficial for the well-being of the organisms and the physical natural environment. Moreover, it considers the features that promote ambivalent stories. The purpose of revealing these stories is to put them to question in order to promote the positive linguistic features and challenge the negative linguistic features (positive and negative in terms of the kind of stories related to the environment that these features constitute). If a story works in the current condition of the world, then the linguistic features promoting this particular story are positive and vice versa.

So, Stibbe's ecolinguistics is much more than a cursory definition of ecolinguistics i.e., a specific text can encourage humans to damage or respect the environment. For Stibbe, ecolinguistics is not just a critique of texts that promotes damage to the environment. The analysis requires a wide range of methods based on the approach, and the studies focus on the general patterns of language that promote a certain story. Stibbe considers stories as the "heart of the ecological challenges that we are facing" today (p. 2). The current study also takes the same stance to discuss the findings.

To decide if a story works or not depends upon “the ethical vision of the analyst” (Stibbe, 2015, p. 11). Every eco-analyst always has an ethical vision that is his view of the kind of world he wants to see that is named as ecosophy (check section 2.3 for details). Stibbe (2015) discusses the overt or covert use of ecosophy in the work of all ecolinguistic studies. He claims that all the critical studies have ecosophies, mostly not stated openly, but sometimes clearly stated. The next section elaborates upon Stibbe’s understanding of ecosophy and its adaptation by the present study. Stibbe’s ecosophy is a combination of many ecosophies already presented by other scholars like Naess.

3.1.2 Ecosophy

As previously noted, the present study incorporates Stibbe's ecosophy as an integral component of his Stories theory. Stibbe’s ecosophy is the combination of many ecosophies. One of these ecosophies is Naess’s deep ecology. Deep ecology stresses upon the intrinsic value of all being in ecology. Stibbe (2014, 2015, 2018) endorses Naess’s definition of ecosophy and further states that the different ecosophies run along with three spectra: from anthropocentric (human-centered) to ecocentric (ecology-centered); from neoliberal to localist, anarchist or socialist; and from optimistic to pessimistic. However, there are not as such set boundaries between ecosophies, and they most likely overlap with each other. Moreover, there is no standard ecosophy - different researchers may come up with different ecosophies serving the purpose of their studies. Even the same analyst may have different ecosophies in his/her different world.

Stibbe (2015) believes that ecosophy determines the analyst’s ecological judgement. This implies that ecolinguists may choose or combine the existing ecosophies or may choose to develop “a new one” (Stibbe, 2015, p. 12). This implies that there is no right or wrong; and good or bad ecosophy. Similarly, there is no universally acknowledged ecosophy because analysts may have different social, educational, and cultural backgrounds (Huang & Chen, 2016). However, there are certain universal constraints, for instance, the ecosophy that is ecocentric (ecology-centered) or bio-centric (life-centred) might be acceptable widely as it considers the well-being of other than human lives, and the natural environment as well. Similarly, an anthropocentric ecosophy might not be accepted by ecolinguists because it may spread the stories that may encourage the

widespread destruction of the natural environment that life depends upon. For instance, it may prevail the thinking that water and other natural non-renewable resources are only important because they are to meet the humans' needs as it considers humans as the centre of the ecosystem.

The ecosophy that Stibbe puts forward considers humans as part of nature and stresses the well-being of the natural environment and other-than-human life on Earth. Like Naess (1995), Stibbe also sums up his ecosophy in a single word and then adds details to his ecosophy. Stibbe's one-word ecosophy is "**Living!**" (2015, p. 14). It considers valuing living, the well-being of everything and everyone, consideration of present and future, care for the environment, environmental limits, social justice, and resilience to further environmental changes. These are the values based on which the current study judges the stories. A brief explanation of these values is given below:

"The exclamation mark in Living is normative" which indicates that all living species should be valued, respected, and celebrated. However, **value living** does not mean valuing your own life only but respecting the lives of other humans, and living beings including trees, grass, etc. Although like Deep Ecology, Stibbe's ecosophy also consider all beings important but there is a pragmatic emphasis on human well-being (more like that of Iqbal). However, this does not mean not valuing other beings or valuing the life of human beings at the expense of the well-being of other living beings and the natural environment.

Another important tenant of this ecosophy is to take care of the **well-being** of everything that supports the life-supporting system. So, living is not just mere "being alive" but avoiding other factors that reduce the ability to value living, for instance, chemical contamination and illness due to it, exploitation of natural entities, etc. Hence, well-being of other life-supporting systems is a must for the well-being of all the living beings on the earth. As "the goal is not just living in the sense of survival but living well, with high wellbeing". Well-being is important to all species but "high wellbeing for humans is a sine qua non" as humans are mostly responsible for ecological issues and no action to stop and resolve these ecological issues may harm human interests as well as that of the non-human life (Ibid, p. 14). So, humans must take care of the environment for the well-being of themselves, other beings, and the natural environment itself. By this, Stibbe endorses the interconnectedness notion of ecolinguistics.

The scope of Living! is not limited to the present only. Living should be valued in such a way that living with high well-being is promoted in the present, and in the future as well. Moreover, such actions should be promoted that value living not only for the **present** generation, but the **future** generations should also be able to live well. Hence, environmental protection should also be not for the present but for the future as well. Moreover, the care should not only be for our future but for the future of upcoming life and life-supporting systems. Hence, the technological solution to environmental issues, according to this ecosophy, is not ethically correct as it focuses only on the present but ignores the future.

Similarly, the ethical aspect of ecosophy should not be ignored. **Care** for nature and the lives of all species is central to continued "living". The life-supporting system and living beings should not be damaged for not only our own living and well-being but also for the natural environment as well. Equal importance and value to other than human beings and the wider environment is a central part of this ecosophy. The care should not be because of considering those we care for as inferior, worthless, or just resources but to consider them as entities of equal value. The ethical ecosophy stresses dealing with these "through empathy, regret and … care. Empathy implies awareness of impacts on others, regret implies minimising harm, and gratitude implies a duty to give back something to the systems that support us" (Ibid, p. 14). So, for instance, if we care for the physical environment and plant trees; it should not be because we think that trees are beneficial for humans and give us fruits or wood which we eat and use for making furniture respectively. On the contrary, it should be because the trees are an important part of the life-sustaining system and are entities having their own intrinsic value. However, trees do give us fruits, so we may respond with the gratitude of giving back something to the environment.

This care and value for other living and non-living beings may refrain humans from exploiting them. The next important point is to understand the **environmental limits**. Human consumption should not be above the limits of natural resources to replenish themselves and if so, that may damage the ecological systems that support life. As Stibbe states, "If human consumption exceeds the ability of natural resources to replenish themselves …this damages the ability of ecological systems to support life… into the future" (Ibid, p. 14). Moreover, more waste due to overconsumption may be above the

absorption capacity of the ecosystems which may prevent beings from “living or living with high wellbeing” (p. 14). This also implies that the solution to environmental issues is not overconsumption in different ways but the reduction of consumption as Stibbe states that for Living! the global consumption must be reduced immediately and on a large scale to keep it within the environmental limits. So, for well-being of the air, the use of cars should be reduced rather than coming up with more cars labelling it with the tag, “environmentally friendly cars”. It is noteworthy that the usage of natural resources is not bad but over usage is not good for Living! So, the ecosophy of the current study is against shallow environmentalism which focuses on coping with the current environmental issues by coming up with technological advancements.

Moreover, the resources should be used equally to promote **social justice**. Currently, there is a huge imbalance in the distribution of resources. Rich has an excess of resources, whereas, the poor have limited or no resources to live, or live with high well-being. The need is to redistribute the resources to prevent the rich from overusing them and harming the well-being of other beings including other humans.

The current ecological destruction, more specifically environmental destruction, poses a huge threat to the well-being of humans and other living beings. Significant damage has already occurred, and more is inevitable due to “the trajectory of industrial societies” (p. 15). Earth has already become less hospitable for living. The need of the hour is to “adapt to environmental change, increase **resilience** to further changes, and find new forms of society as current forms unravel” (p. 15). As the environmental situation is irreversible now, we should adapt to the new changes and come up with such behaviours that may prevent further degradation of earth and life on earth. For instance, considering that certain measures may reverse the environmental degradation will make humans believe that they can temper the environment to any extent and then can reverse that degradation.

Two important point of the ecosophy are intrinsic values and ecocentricism. Intrinsic values promote pro-environmental attitudes whereas extrinsic values promote environmentally destructive behaviours (Crompton, 2010). Stibbe’s ecosophy promotes intrinsic values i.e species and the environment have its own value independent of human uses. Further, root cause of environmental degradation is the misconception of the human self. The current definition of self separates humans from others and their surrounding

world. Humans are not separate from the ecological system but a part of it. The realization of the ecological self will make humans think in harmony with nature rather than in opposition to it.

In short, the ecosophy of the current study values the life of all living being, insists upon the high well-being of the natural environment and living beings, promotes the reduction of consumption, values the intrinsic worth of the natural environment for the ecological balance, and calls for equal redistribution of resources. Like Stibbe suggested, the present study digs for linguistic items and judges these linguistic items (words, compounds, and metaphors) according to the ecosophy explained above to reveal the stories we-live-by.

However, Stibbe states that ecosophies should be based on evidence rather than mere assumptions without evidence. The development of evidence may further develop the ecosophies. Hence, ecosophies are not a fixed philosophy. Stibbe's ecosophy is evidence-based. For instance, studies like those of Alcamo and Bennett (2003) and Stocker (2014) give scientific evidence to show the environmental limits, the damage done to the environment, and that this damage is irreversible but certain practices like reduction in consumption may minimise further damages. Similarly, Crompton's study (2010) put forward the evidence that intrinsic values are associated with pro-environmental attitudes or behaviours. Similarly, extrinsic values and environmentally destructive behaviours are co-related. The redistribution of resources part of the ecosophy is backed up by evidence provided by Wilkinson and Pickett (2010, p. 29) in their work. They found out that the equal distribution of resources improves the quality of the social environment.

3.1.3 Forms of Stories: Frame and Metaphor

Stibbe provides a few forms of stories in his framework. As mentioned earlier, stories we-live-by, for Stibbe, are cognitive structures in the "minds of multiple individuals across a culture" (Ibid, 6). However, what is noteworthy is that the stories can be revealed by revealing the linguistic features in the discourses. Stibbe talks about 08 forms that the stories may take i.e., metaphor, evaluation, framing, ideologies, identity, conviction, erasure, and salience. However, the division of stories by Stibbe is based on convenience. As Stibbe states stories are divided into these 08 forms because there are useful linguistic

and cognitive theories available for them. A short overview of these stories can be seen in Table 3.1 below:

Table 3.1

Form of story	**Definition**	**Manifestation in language**
Ideology	A story of how the world is and should be which is shared by members of a group	Discourses, i.e. clusters of linguistic features characteristically used by the group
Framing	A story that uses a frame (a packet of knowledge about an area of life) to structure another area of life	Trigger words which bring a frame to mind
Metaphor (a type of framing)	A story that uses a frame to structure a distinct and clearly different area of life	Trigger words which bring a specific and distinct frame to mind
Evaluation	A story about whether an area of life is good or bad	Appraisal patterns, i.e. Language patterns which represent an area of life positively or negatively
Identity	A story about what it means to be a particular kind of person	Linguistic patterns which define the characteristics of certain kinds of people
Conviction	A story about whether a particular description of the world is true, uncertain or false	Facticity patterns, i.e. Patterns of linguistic features which represent descriptions of the world as true, uncertain or false
Erasure	A story that an area of life is unworthy of consideration	Language patterns which hides an area of life
Salience	A story that an area of life is worthy of consideration	Language pattrens that make an area of life prominant

Forms of Stories[2]

[2] Adapted from Stibbe, 2015, p. 17

Of all these stories, framing and metaphor align with the objectives of the present study. Hence, they are discussed in detail in the current section.

Ideology, the first story, has been taken as a separate story. However, this covers all the other stories that he mentioned. Ideology, for Stibbe, is how we understand the world usually together as a group. However, ideologies usually spread into the "larger culture and become a normal way that people think about an area of life" (p. 23).

Ideologies are realized by a particular discourse and a group of discourses. These discourses have certain linguistic features and are used by certain groups or cultures. The analysis of patterns of linguistic features can reveal a certain **ideology** related to a certain area of life. Usually, these patterns of language run across different texts and promote the same ideology repeatedly. An ecolinguist search for the answer if a certain ideology encourages humans to protect or to destroy the environment. The goal is to find the compatibility between the ecosophy of the analyst and the ideology as there is no single perfect ideology or no algorithm to determine whether an ideology is protecting or destructing. For instance, according to the ecosophy of the present study, consumerism is not good for the well-being of the environment. Any ideology that promotes consumerism will be destructive according to the present study. The aim of an ecologist is to find these stories and resist such destructive stories/ideologies.

Ideologies are manifested in discourse types or groups of discourses. Discourses for Stibbe are "characteristic forms of language used by groups or institutions" (p. 186). The institutions may be education, religion, science, law, medicine, etc. So, the environmental groups may also have ideologies that may be traced by analyzing the language they use for the protection of the environment. The three types of discourses that Stibbe mentions are: beneficial discourse, destructive discourse, and ambivalent discourse. Beneficial discourses are those discourses that carry linguistic features which structure ideologies that promote environmental protection; destructive discourses carry linguistic features that form ideologies that are harmful to the environment, and ambivalent discourses have stories/ideologies that have features some part of which promote destruction and other parts may constitute stories which promote the protection of the environment. For instance, the discourse of zoos is ambivalent for it underlines the

importance of being near to nature and at the same time promotes the idea of capturing animals in cages taking them away from their natural habitat. Ideology is the general form of story that Stibbe describes. The other forms including frames and metaphors are more specific stories.

The first specific form of the story relevant to the present study is “framing”. There is no fixed definition of frames. Framing has different interpretations across different fields and even within the same field. Moreover, frame, framing, and reframing are different but related terms. Stibbe defines frame as a story about an area of life that is activated in the mind by certain trigger words. Hence, frames are mental structures, and they help people to understand or create reality. To understand a word, a person needs to have access to the encyclopedic knowledge that is attached to that word. Otherwise, the person will not be able to understand that concept. The word story in the definition of the frame is the knowledge, values, emotions, and beliefs related to that particular area of life. So, frames are schemata. For instance, the word “sell” triggers the commercial transfer situation. This transactional frame involves knowledge about the situation in which seller, buyer, goods, price, and money are involved. It also involves the relationship between the participants and the actions that are involved in buying and selling. This packet of knowledge is in the mind of the individuals. Frames may also invoke emotions. For instance, in the transactional frame, the typical emotions may be - being pleased with getting goods. Similarly, one cannot understand the word “offside” if one does not have knowledge of soccer. The word offside will activate the soccer frame which includes the related terms and knowledge of the game.

This packet of knowledge may be different among individuals as a person’s experiences and emotions are different from each other. However, a community may share similar experiences. When the knowledge is shared by many people then it becomes part of social cognition (Stibbe, 2015). Hence, people in a community may have common frames.

The act in which “a frame is employed to structure a particular area of life and occurs simply when a trigger word is used in describing the area” is called **framing** (Ibid, p. 48). So, framing is the cognitive act of using frames from one area of life to conceptualize another area of life. For instance, in “green development”, development is framed using

the natural world frame through the usage of the trigger word "green." Since in our human cultures, green and greenery connote positive meanings and invoke a certain bias in their favour, they have been used as a frame in this group of words. This natural world frame considers development as something positive and healthy for the well-being of the environment.

Framing is an important feature in discourses. It may impose a certain perspective on an event. For instance,

a) Saira sold the book to Sana for Rs. 150.
b) Sana bought the book from Saira for Rs. 150.

Framing this event evokes a different perspective. Sentence (a) shows that Saira initiated the event. On the contrary, sentence (b) shows that Sana initiated the event. "Buy" and "sell" both evoke the same "commercial transaction" frame but the decision about the agent evokes different thinking. In sentence a, Saira is the agent and controls the action while in sentence b, Sana is the agent who controls the action.

Similarly, a particular area of life may be framed differently by different people or even by the same person and the usage of a different frame may highlight different thinking. Unlike a picture frame which even if changed, does not affect the picture itself; a mental frame changes the concept if the frame is changed. This makes frames more like building frames which if changed then end up with a completely different frame. For instance, climate change may be framed as a problem, a security threat, or a predicament. The different frames will make people think about climate change differently as it evokes different areas of life and different metaphorical entailment. In the case of climate change, if it is framed as a problem then we may work for finding a solution and may think that working upon a formula may solve the problem. On the other hand, climate change as a predicament may entail that no matter how one tries, the issue cannot be resolved. Hence, both of these frames conceptualize the same area of life quite differently.

Frames can also be analysed critically in the light of the ecosophy. For instance, in the light of the ecosophy of the present study, any concept that is framed in a way that expresses anthropocentrism should be criticized and challenged. Hence, framing can be destructive or beneficial. Framing nature as a resource may be termed as an example of a destructive framing as it contradicts the ecosophy of the current study. The resource frame

entails that nature has extrinsic value. The value of resources is till they are consumed, and they have no value if they are not in need anymore.

So, frames are mental structures that help us to understand the world and lead us to act in a certain way. It is important that a frame be eco-friendly to make humans protect the environment. By analysing the frames in the Pakistani newspaper articles on the environment, the study shows how we deal with ecological issues.

The next form of story relevant to the present study is **Metaphor**. The story is heavily built upon Lakoff and Johnson's (1999) concept of conceptual metaphor. The basic terminologies that Lakoff presented are *source domain* and *target domain*. Stibbe also uses almost the same terminology and says that metaphor is the mapping of the source domain to the target domain, triggered by specific words. Simply, metaphor is to understand an abstract and complex area of life that we are not familiar with by mapping it to the structure of another physical area of life that we are familiar with and that is easy to understand. The familiar and easily understandable concept is called as the source domain and the complex abstract concept to be described/ understood is called as the target domain.

Stibbe combines metaphor with frames and describes metaphor as a specific frame or more specifically a type of framing. He points out that metaphor takes a frame from an imaginable and concrete area of life to conceptualize a complex or distinct area of life. Stibbe, like Sullivan, (2003) specifies the source domain by stating that the source domain is made up of frames. For instance, in the metaphor IDEA IS A HUMAN BODY as realized linguistically by the words *digesting ideas*, the source domain *body* is made up of the frame *digestion*. However, the body can have many other frames like exercising, and observable body parts. However, in this particular case, the frame of "ingestion" has been used to describe ideas. So, metaphor may be described as a mapping from the source frame to the target domain.

Moreover, the source frame should be from an area of life that should be distinctively different from the target domain. For instance, the Dawn News (2015) terms climate change as a security threat:

"Climate change poses a greater security threat than terrorism because it can affect temperature, the environment, the economy, and the future policies of the country."

Framing climate change as an act of violence or a security threat points out that it can cause death and physical harm to others which is quite literal and too broad. Hence, this frame is not metaphorical for the source frame is not a distinct area of life and is very broad. On the other hand, CLIMATE CHANGE IS A ROLLER COASTER has a source frame that is from a very distinct area of life. We cannot say that climate change is literally a roller coaster. The frame "roller coaster" is specific enough to encompass the target domain of climate change metaphorically rather literally. Climate change is not a roller coaster in a literal way.

This special type of framing is more powerful and vivid because it uses a "specific, concrete and clearly distinct frame to think about an area of life" (p. 64). For instance, a literal framing like CLIMATE CHANGE IS A PROBLEM is less vivid than the non-literal one like CLIMATE CHANGE IS A BOMB or CLIMATE CHANGE IS A ROLLER COASTER. This metaphor is more vivid and captures the imagination.

Like Johnson (1983), Stibbe also points toward the fact that analysis of metaphor leads to *metaphorical reasoning*. Metaphorical reasoning or analogical reasoning is the inductive style of argumentation that supports the idea that a particular area of life shares features with another area of life and that one should understand and react to that second area of life (target domain) in the same way as the previous one (source frame). "Metaphorical reasoning involves coming to conclusions about the target domain based on concepts that are drawn from the source frame" (Stibbe, 2015, p. 66). For instance, in the metaphor LIFE IS A JOURNEY the source frame "journey" is used to structure the target domain "life". The source frame has certain elements - a path, the goal, the end, a person moving towards the goal, the speed of the motion, and a potential end of the journey. So, the relationship between "life" and "journey" is not random but a structured one.

Structure of the "journey" frame: There is a path, and a person is moving on that path towards an unknown end. The movement may end when the person reaches their goal. The traveller may come across some obstacles during the journey, but the movement must not be stopped. In texts where this metaphor is used usually the path is mapped to "life", the traveller is a living human being, the movement is being alive and getting aged, the obstacles during the journey are the challenges of life, and the goal or end is the end of the

life i.e., death. However, in religious texts usually, death is just a stage, and the goal is reaching Jannah.

Hence, metaphorical reasoning takes structures of the source frames and maps them with the elements from the target domain. This mapping in the above-mentioned metaphor gives the conclusion that life is not a permanent phenomenon, and it will end ultimately one day. Moreover, since life is temporary the problems of life are also temporary. However, there can be many more possible "conclusions drawn from the source frame through this kind of substitution" (Ibid, p. 67). Hence, it is important to identify the source frame and target domain first and then look for what elements of the source frame are mapped onto the target frame. It is noteworthy that usually, the context gives hints that what elements of the source frame are mapped to the target frame. To following specific example from the environmental discourse explains the mapping and metaphorical reasoning:

"With melting glaciers and a surging population- Pakistan's climate change bomb is already ticking…[the rising temperatures will wipe out all the glaciers] the glaciers are wipe out then we will be totally dependent on monsoon which already varies….A calamity is coming."

Table 3.2

Source Frame: Time Bomb	**Target Domain: Climate change**
Defusing the bomb	Reverse population and the melted glaciers
Explosion	A calamity, floods
Victims	Pakistan, Pakistanis
Structure: ticking bomb so limited time to defuse bomb before irreversible harm is done to the victims.	Entailment: limited time to reduce growing population and rising temperatures before a calamity is reached harming Pakistan and Pakistanis

CLIMATE CHANGE IS A BOMB

So, the mapping of elements of the source frame to the target domain in the above-mentioned metaphor may draw several possible conclusions. One may be that once the bomb has gone off then it will not cause any further damage in future. This entails that

once global warming has occurred then it “cannot cause any harm again” (p. 67). Further, the source frame also concludes that climate change is reversible and that too within a short period of time.

The metaphor can be then analysed based on the ecosophy of the linguist. For instance, the ecosophy of the current study states that there is no reverse to the damage already done. It focuses on adaptation to climate change. However, the metaphor CLIMATE CHANGE IS A TIME BOMB and the conclusions drawn from it entail that climate change is reversible which further encourages people to continue with the unhealthy practices thinking that the technological solutions may reverse the climate change effects. This metaphor can then be criticized using the ecosophy of the current study as it takes away the attention of people from adaptation (we cannot adapt to the bomb).

Stibbe further gives three types of metaphor i.e. destructive, ambivalent and beneficial. We decide about these categories from the perspective of the ecosophy. First, destructive metaphors or malevolent metaphors are the ones that promote stories that are not good for the well-being of the environment. For instance, the metaphor ENVIRONMENT IS A RESOURCE promotes the idea that it can be used or abused by humans which makes it a destructive metaphor. Second, beneficial metaphors or benevolent metaphors are the ones that promote stories which are good for the well-being of humans, other living beings and the natural environment. So, the metaphor NATURE IS MOTHER shows respect towards the mother like a child has towards its mother. Hence, it is a beneficial metaphor. Finally, ambivalent metaphors are the ones that have some positive aspects at the same time some destructive aspects. The metaphor EARTH IS A SPACESHIP may be considered ambivalent as, on one hand, it compares the earth with a machine that is controlled by humans. However, on the other hand, it implies that resources on earth are limited as they are on the spaceship.

The same conceptual metaphor may be manifested differently in different discourses around different cultures. The elements that are mapped will give different interpretations or metaphorical reasoning. The work of an ecologist then is to find out about the way the two areas of life are mapped and then identify in the light of the ecosophy whether a metaphor is destructive, ambivalent, or beneficial for the environment.

It is noteworthy that the same target domain may be structured by a variety of source frames. For instance, the target domain "life" may be structured by a variety of source frames like: song, boat, garden, battle, mission, adventure, building, roller coaster, stained-glass window, race, and mountain climb. Most of these source frames may come under the main categories: places, motion, and things. The work of an ecologist is to find metaphors around a relevant area of life, for instance "environmentalism"; analyze it, and judge whether they encourage respect for the environment or encourage abusing the environment.

Like Lakoff and Johnson (2003), Stibbe also mentions the persuasive nature of metaphors and that we live by metaphors i.e., we see the world through the lenses of metaphors. Metaphors not only make us see the world around us but also influence our way of thinking. Similarly, Romaine states that if we choose metaphors unwisely "we will die by them" (1996, p. 192). According to Stibbe (2015) they are "the powerful linguistic devices since they can convey vivid images directly to the mind of the readers" (p. 81). Ecolinguists expose and question the metaphors we live by" and search for novel metaphors which encourage behaviour "that protect the ecosystem that supports life" (p. 81). Ecolinguists' work is to promote such novel metaphors so they can become new metaphors that we live by.

The above-explained theory is much more suitable to attain the objectives of the current study. The upcoming chapters are devised according to this framework. The next section explains the material and methods used to use the framework to answer research questions presented in section 1.4.

3.2 Material and Methods

The present study involves corpus and corpus-assisted ecocritical discourse analysis methods to achieve its objectives and answer the research questions. Stibbe's (2014, 2015) methodological framework has been adopted for critical discussion.

The first section describes the methodological steps in the selection, collection, compilation, management and cleaning of the material and data for compilation of corpus. Next, corpus linguistics methods for data analysis are discussed in detail. The section starts with the description of preliminary considerations of newspaper selection and sample

selection. It further explains a detailed procedure of corpus compilation. Afterwards, it defends corpus compilation and representativeness. Next, corpus techniques and ecocritical discourse analysis (ECDA) has been related and explained. Finally, the data analysis procedures are discussed in detail.

3.2.1 Newspapers Selection

Three out of 05 prominent Pakistani newspapers based on their readability, as established in the study conducted by Sadia and Ghani in 2018 have been selected for the current study. The selection of these newspapers was primarily driven by the availability of their online data among the leading five Pakistani newspapers in English, according to Sadia and Ghani (2018). The Dawn (Dawn), The News International (News), and The Express Tribune (Tribune) are selected because these are the ones whose epapers were available online on their websites in the archives section (convenient sampling). Moreover, the data is easy to retrieve from their websites. The Daily Times and The Nation also have some epapers on their websites in the archives section, but the data is limited in terms of the number of years. Further, the selected three newspapers come under the leading newspapers in terms of revenue generation as well. According to Najm Ud Din (2013), during the fiscal year 2011-2012, the leading newspapers in terms of revenue generated from print media advertisements were as follows: Jang, which accounted for 31 percent of the total print ad revenue; Dawn, which contributed 17 percent of the total revenue; Express News, representing 8 percent of the total revenue; Nawa-i-Waqt, contributing 7 percent of the total ad revenue; and The News, making up 7 percent of the total revenue. Jang and Nawa-i-Waqt are Urdu newspapers.

Dawn*:* owned by the Dawn Group of Newspapers, is the oldest English-language newspaper in Pakistan. It was founded by Muhammad Ali Jinnah in 1941 to give a platform to the Muslim voice in the then Indo-Pak. It is an internationally known newspaper. The newspaper has an official website (https://www.dawn.com) which publishes the epapers on daily basis. The archive section of the website has its daily newspapers from 2002 onwards. The website is easy to access and retrieve data from.

The News: The News International, owned by Jang Group of Newspapers, was launched in 1991. Like Dawn, The News International also has an official website that publishes the

newspaper on daily basis. The archive section of the website has its daily epapers from 2010 onwards. The website is easy to access and retrieve data from.

The Express Tribune: The Express Tribune was first launched in 2010. It is affiliated with the International New York Times. The newspaper has been launched not long ago but it is printed in Karachi, Peshawar, Lahore, and Islamabad. It has an easy-to-access website which not only posts its epaper but also allows users to leave comments on the columns. The archive section of the website has its daily epapers from 2011 onwards. The website is easy to access and retrieve data from.

Time Span

For the purpose of the present study, the corpus comprised of environmental texts from 1st January 2011 to 31st December 2020. The texts were collected systematically to encompass the maximum possible occurrences of metaphors and compound words. The latest data is selected to observe current linguistic innovations and metaphors in Pakistani newspapers.

3.2.2 Corpus Linguistics

Corpus techniques are used to extract and analyse data due to its suitability to the current study. According to McEnery and Wilson, corpus is "any collection of more than one authentic text" (2001, p. 29). However, today usually a very large machine-readable sample of the authentic text is considered a corpus to make it maximally representative of the language and to get more authentic results (ibid). So, corpus is a large collection of text produced by real users of the language. Corpus is of interest not only to linguists but also to researchers from fields like lexicography, social science, humanities, etc. Linguists may use it to analyse words, phrases, metaphors, and other features of the language. Since the text is of finite size so it becomes difficult to analyze manually. Hence, softwares are used to analyze the text more accurately and in less time.

Today, there are different types of corpora that are available online for the purpose of research; for example, BNC (British National Corpus), NOW (News on the Web), GloWbE (Global Web-Based English), Corona Virus Corpus, etc. Corpora may differ in terms of size, language, time period, genre, and other such compositional features. These may also differ in terms of the type of material (written, oral or mixed). According to Meyer (2002), the already available corpora may be of help to lexicographers, grammarians, and

sociolinguists. However, it is not new to have a specialized corpus for new studies. The decision to use an already existing corpus or compile a new corpus depends upon the objectives of the study.

Corpora were initially used for quantitative studies. However, recently corpus has been considered a very important tool in the qualitative analysis of data. As mentioned earlier, these days softwares are used to carry out corpus-related qualitative and quantitative studies. These software programs offer many features, for example, a concordance list. Concordances are to search for a particular word like “nature” in all the compiled texts in order to check the words occurring right before and after it. Today, there are many corpus softwares to perform such functions; for instance, AntCon, WordSmith, and LancsBox. The present study uses LancsBox version 06. The current study compiles corpora of written articles from specific Pakistani English newspapers from January 01, 2011, to December 31, 2020. Corpus linguistics is the most suitable technique for the current study because a large amount of naturally occurring data could not be analyzed manually. Moreover, corpus techniques yield a systematic and authentic analysis of the data. Further, corpus techniques are suitable for critical analysis of large naturally occurring authentic data.

3.2.3 Corpus and ECDA

The analysis of the extracted data may fall under ecocritical discourse studies (ECDS). Ecocritical discourse analysis (ECDA) analyses actual language patterns to find the interrelationships between humans, non-humans, and the wider environment are presented in the discourses (Doring, 2018). Doring terms corpus techniques the best for ECDS. ECDS like critical discourse analysis (CDA) aims to expose underlying ideological motivations of language use. Stibbe (2015) himself mentions in his work that a special type of CDA is the most suitable method in analysing linguistic features to get the underlying stories. His four step ecocritical method of analysis is a CDA or more specifically ECDA method (for details check 3.3). However, the study terms it as ECDA because that serves the purpose more specifically. The upcoming section briefly discusses the difference between CDA and ECDA.

3.2.4 CDA Vs ECDA

The current study uses Stibbe's method of ECDA to analyse the discourse. ECDA is different from CDA because critical discourse analysis (CDA) and other discourse studies focus on the relationships of humans with other humans, but the ecolinguists, like Halliday using discourse studies frameworks, consider the relationships of humans not only with other humans but also with the larger ecological system that life depends upon. Hence, the present study terms this specific type of discourse study as ecocritical discourse analysis (ECDA) rather than CDA. The term is also used by Doring (2018) in his study referring to the analysis of discourses for investigating different language patterns underlying environmental and disaster reporting. Both CDA and ECDA analyze linguistic items in discourses to find power imbalances. However, ECDA criticizes those linguistic features which promote ecologically destructive behaviour and searches for those linguistic features that promote relationships of respect and care for the environment or broadly ecology (Stibbe, 2014).

ECDA takes the literal meaning of ecology- "life-sustaining interactions of organisms with other organisms and the natural environment" (Stibbe, 2014, p.118). ECDA analyzes discourses that have complex power relations between oppressors and the oppressed as many studies show humans as oppressors but at the same time oppressed. The relations become more complex as it considers the impacts on non-humans but at the same time the future generations not born yet.

So, ECDA analyses discourses that affect the way humans treat each other, other organisms, and the physical environment. Such discourses are not limited to environmental discourses but other discourses such as economic and scientific discourses. The linguistic features like vocabulary, grammar, and metaphors of these discourses may promote environmental destruction or protection.

Stibbe (2015) mentions ECDA as a suitable approach for revealing stories in discourses. However, Stibbe supports positive discourse analysis (PDA) as well. The present study will use the term ecological positive discourse analysis (EPDA) to serve the purpose. A common perception is that ECDA focuses on searching for linguistic features that underlie stories that depict and promote ecological destruction. On the other hand, EPDA searches for linguistic features in discourses that underlie stories that depict and

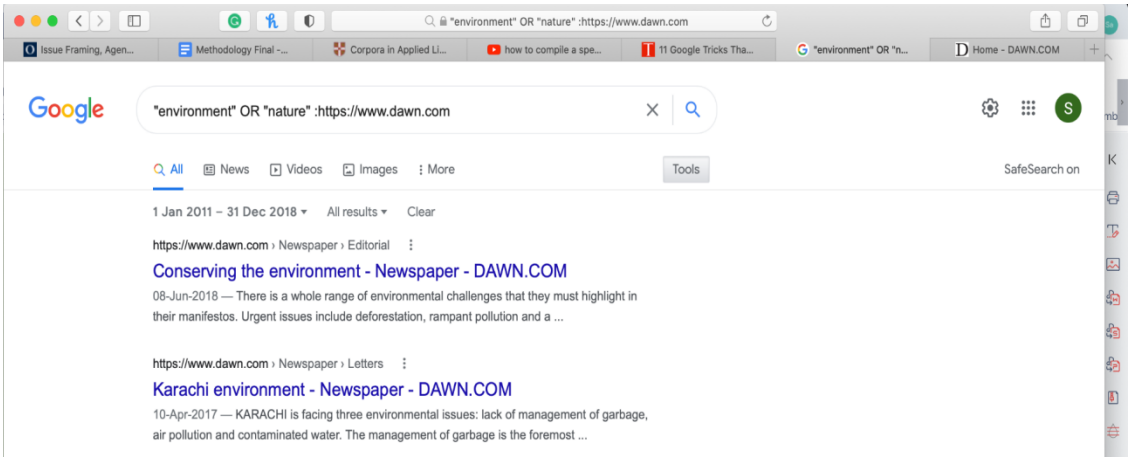
promote environmental protection. Hence, ECDA is more focused on environmentally destructive discourses, and EPDA searches for environmentally friendly discourses. However, the current study proposes that discourses may be a mixture of environment-friendly or environment-destructive linguistic features; hence, it would be better to find these positive, negative, and ambivalent stories within the linguistic features prevailing in the same discourse, in this case environmental discourse. Further, the current study uses ECDA for finding both the negative as well as positive linguistic features. The "critical" in ECDA refers towards both the positive and negative discourses. Hence, ECDA is a collective term for both ECDA and EPDA.

3.2.5 Corpus Compilation and Cleaning

Corpus compilation is an important step of any corpus-related study. The present study required a specialized corpus because the study aimed to find patterns of language use in Pakistani environmental discourse. All the environmental topics-related articles have been extracted from three major Pakistani English newspapers for the current study, as there is no such specialised pre-available corpus to date. Hence, the researcher had to develop its own specialized corpus. The corpus has been named Pakistani Environmental Corpus (PEC from now onwards). The corpus is compiled semi-manually by using special features of google search. Google search has been used as a web crawler for compilation of PEC. The following steps were taken to retrieve articles from the particular newspaper's website using Google search:

1. First, special features of Google search like "relevant time", "keywords in quotation with OR" and "colon with specific web address" etc. are used to retrieve only the relevant articles from newspapers (see figure 3.2).

Figure 3.2



Special features of Google search

2. All the website addresses were opened one by one and the articles were copied from there.
3. All the articles contain any one or more than one of these keywords: "climate change", "global warming", "carbon footprint", "ecology", "environment*", "eco*", "pollution", "carbon", “nature”, “ecology” or "greenhouse". Any article discussing environmental issues usually contains any of these keywords.

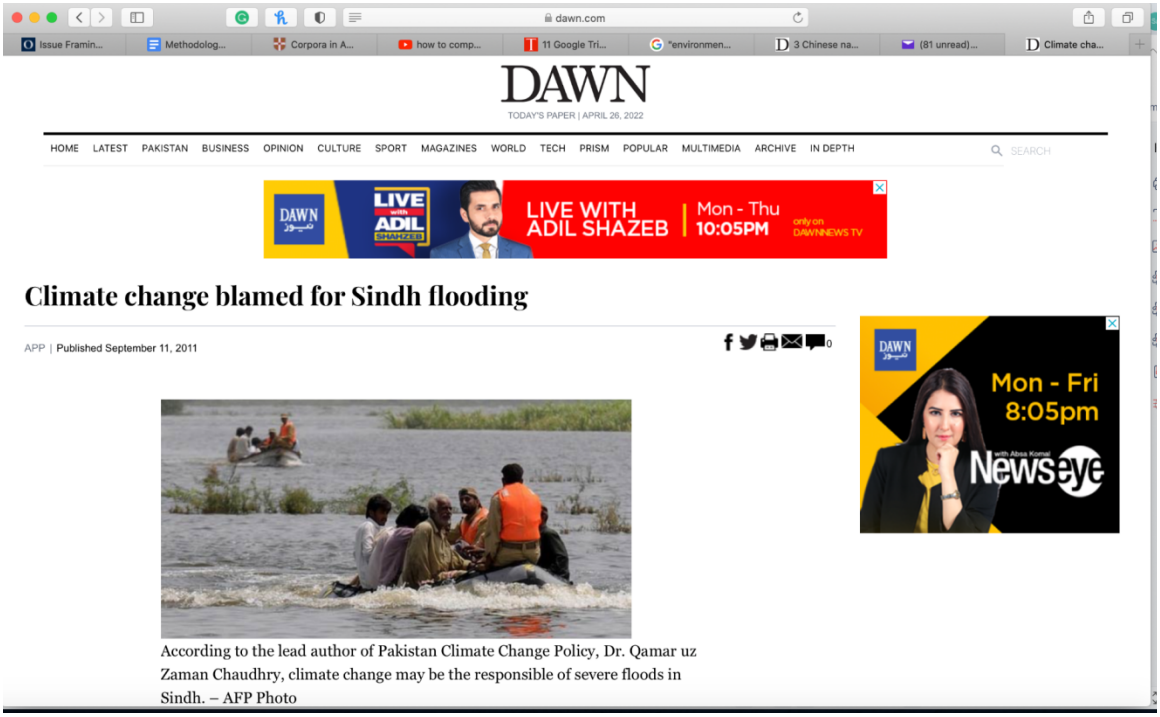
The selection of keywords was methodically guided by the research objectives. The creation of a comprehensive master list of environment-related terminology involved a systematic approach, commencing with a review of pertinent literature. Additionally, input was solicited from two academics and an environmental specialist to compile a potential list of keywords. Subsequently, terms were extracted from environmental dictionaries and taxonomies, such as The Britannica Dictionary (britannica.com), vocabulary.com, Cambridge dictionary (dictionary.cambridge.org), and Open Library.

The amalgamated master keyword list was then visually represented as a word cloud, from which frequently recurring terms were identified, forming an initial list of keywords. This preliminary list underwent scrutiny through experimental searches to assess data volume and relevance. The keywords list was further refined based on the outcomes of these preliminary searches.

The keywords and phrases list, as described above, was meticulously organized following the outlined methodological steps.

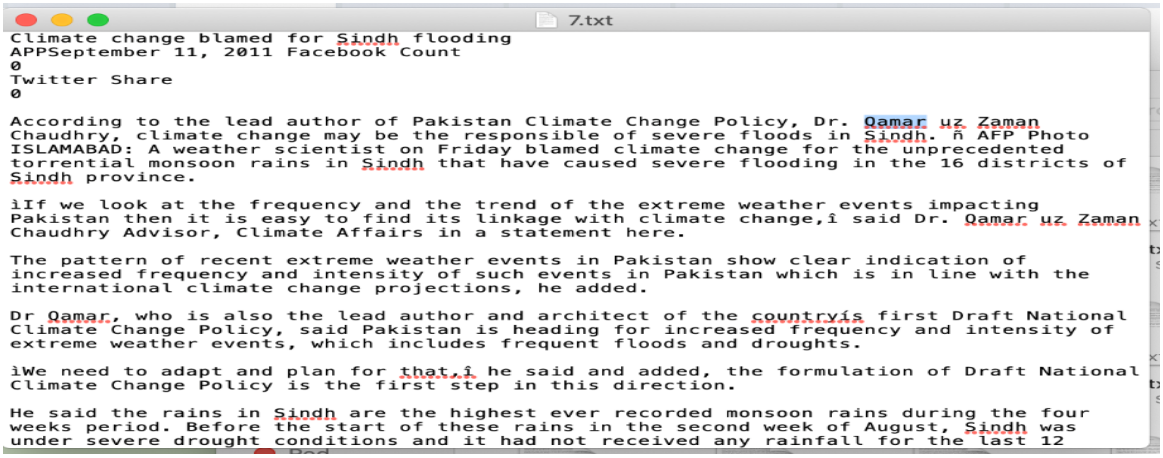
4. Next, all the articles were copied and then pasted into Microsoft notepad to convert them into the TXT format. TXT format is a machine-readable format and can be read and processed by any corpus analysis tool. The pictures and other figures were removed through a special paste feature to make it readable to the corpus analysis tool. Figures 3.3 and 3.4 show the article in the original format with pictures and other features as it is in HTML format in Safari, and the TXT format in Microsoft Notepad respectively.
5. Each article for each newspaper is saved in a separate notepad file with a tag name given according to the date and year of publication in ascending order.

Figure 3.3



Article in the original format with pictures

Figure 3.4



TXT format in Microsoft Notepad

The semi-manual method of corpus compilation gave an opportunity to check the relevancy of the articles before saving it to the notepad. Further, the articles which were not related to the environmental issues were not saved. Moreover, the duplication of the articles was also avoided. Finally, the semi-manual method of corpus building gave general know-how of the corpus to the researcher.

Table 3.3 shows metainformation of the corpus. It shows that the corpus has a total of 3408 files/articles. The size of the corpus is 2232161 tokens, including punctuation and stopwords. It has 58188 types and 51252 lemmas. These figures are taken from the corpus analysis tool LancsBox version 6.0.

Table 3.3

Total number of files	3408
Total number of tokens including punctuations and stop words	2232161
Total number of types	58188
Total number of lemmas	51252

Metainformation of the Corpus

A total 3408 articles have been gathered from the newspapers. The articles are opinion and news articles. News articles include both hard (straight, factual information about current events and issues) and soft (articles that focus on human interest, entertainment and

lifestyle) news articles. Opinion articles are columns written by experts or guest contributors that expresses personal opinions and analysis.

3.2.6 Copyrights

The articles of all the three epaper websites are allowed to be printed and copied for personal or academic use. Moreover, as stated earlier, all the articles are publicly available on the respective websites of the newspapers. There are some copyright restrictions but those are not applicable to the present study. For instance, The Dawn News allows printing up to 100 copies of an article for academic research. However, the present study does not involve the printing of any article.

3.2.7 Specialised Corpus Software

There are many softwares for linguistic analysis of the corpus. LancsBox version 6.0 has been used for the extraction of metaphors and compound words, and for their qualitative analysis in order to achieve the objectives of the present study. LancsBox is an advanced new-generation software package for analysing linguistic data. 6.0 is the latest version of the software. The software package has been developed at Lancaster University. The said software has been used because through this software it is easy to find concordances, search for keywords in context, and get a word list of the whole corpora, which are the main methods of data analysis of the current study. It is user-friendly and can visualize data, which makes the data understandable. Further, the software is free for non-commercial use. Thus, LancsBox is suitable software for extracting and analysing data from PEC to achieve the objectives of the present study.

3.3 Data Documentation and Analysis Procedures

As stated earlier, in this study, two main tools i.e., Google Search and LancsBox are used to obtain, document, and analyze data. Google search is mainly used to obtain data from websites. LancsBox is used to obtain a complete wordlist of the corpus, concordances, and collocations. It is further used to visualize data. Moreover, the NLTK (Natural Language Toolkit) library of Python is also used as a secondary tool for cleaning the data and getting a stopwords[3]-free list of words. Finally, Stibbe's (2015) methods for the analysis of the

[3] Stopwords are a list of word(s) that a linguist might not want to include in the wordlist of a corpus due to the requirement of the study. It is a frequently used concept in Natural Language Processing (NLP). There is

data have been used. The present section first discusses the major corpus methods applied to implement the actual analyses. It further discusses methods/procedures used for frames and metaphor analysis separately.

3.3.1 Corpus Methods for Analysis

First, the corpus technique of frequency analysis is used in this study. Frequency is a basic concept in CL and is usually used in CDA. The frequency of the word within a discourse reveals the user's intention or in other words, it reveals the dominant stories (Baker, 2006). Stubbs (1996) also points out that the words are not used randomly but the lexical choices actually reveal the stories. For this, a wordlist of the whole corpus is generated through LancsBox's "word" feature. This feature gives a complete wordlist of the corpus along with its frequencies.

However, the wordlist it generates includes stop words as well. Stop words are grammatical words like *the, to, up, is.* These words take up a large percentage of the whole corpus and are usually among the most frequently used words (Baker, 2006). Since stop words are just for grammatical purposes, these words are not considered for analysis and are largely ignored in the present study. The present study takes the top 100 words according to the frequency list excluding the stopwords and investigates it further. NLTK package in Python is used to remove the stopwords. Python is further used to generate a comprehensive list of the top 50 frequently used words from the cleaned-up corpus. Python cleans and provides such data with few clicks.

The wordlist may confirm other studies as well. For instance, previous research (Stibbe, 2015; Sachs, 2010; Manji & Coill, 2002) terms *development* as the most commonly framed concept. Development may be part of the frequently used words in the present study's corpus as well.

Second, to find specific linguistic features, collocation techniques of CL have been used in the present study. Collocation is the natural occurrence of closely related words. Collocation lists are clusters or words that repeatedly appear near each other's company (Scott, 2004). Further, this occurrence is natural. A word can be understood in a better way by looking at the company in which it occurs. In LancsBox the "GraphColl" feature gives

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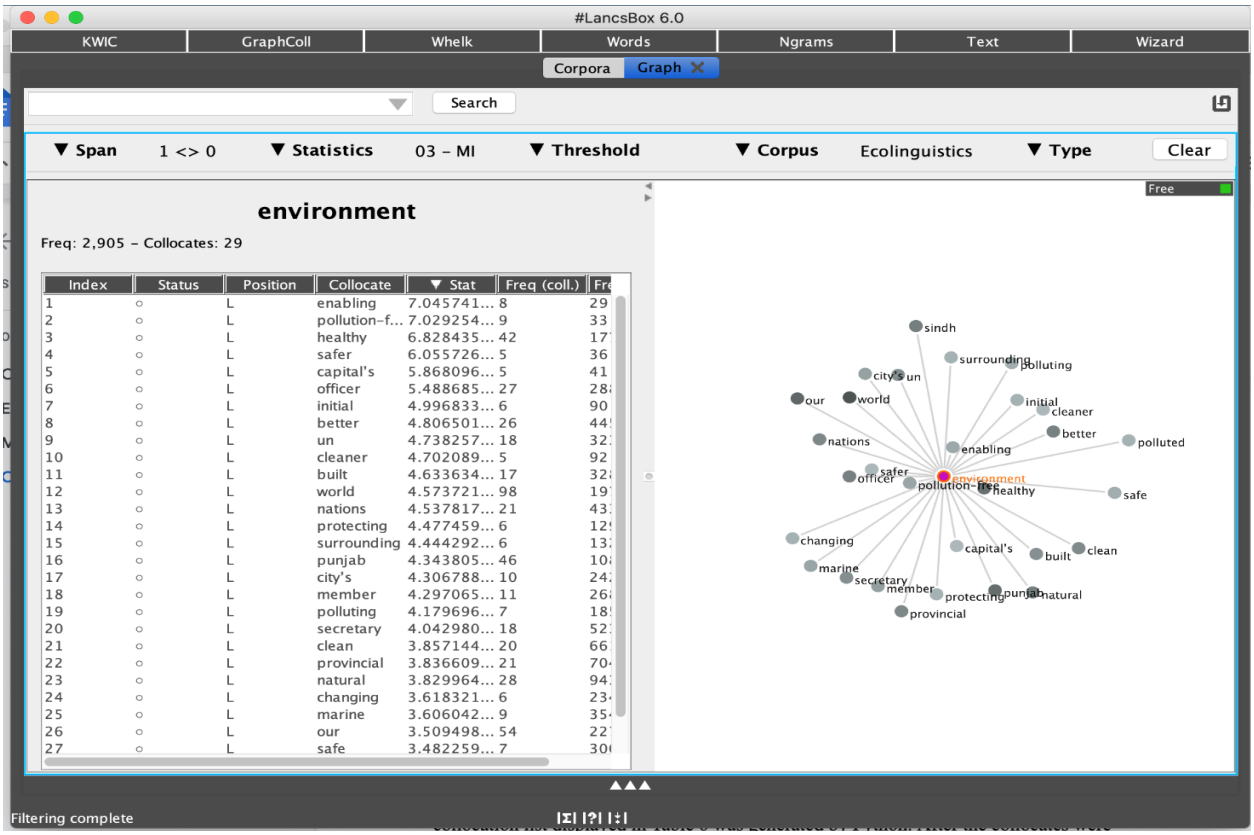
a default English stopwords list provided by the NLTK package in Python. This default list includes words like is, are, am, the, for, to, etc. A complete list is provided at https://www.ranks.nl/stopwords.

a quick list of collocates. The features give a visual representation of the collocated words as well. (See Figure 3.5).

Figure 3.5



Visual representation of the collocated words in LancsBox

As the figure shows the right side presents the visual representation of the word "environment". However, in the present study, the collocation lists are produced to identify novel compounds formed around the most frequent environmental issues in the corpus.

Third, the the CL technique of KWIC (Key Word in Context) is applied. The target words are further checked in the context. KWIC feature of LancsBox shows the concordance lines. The noteworthy point here is that all of these processes including frequency analysis, collocations, and KWIC are performed back and forth when it comes to the implementation. Partington and Marchi (2015) describes this recursive "shunting" as a common practice in corpus-assisted discourse analysis. In corpus-assisted discourse analysis the linguistic features are searched using corpus linguistic tools, and then they are read closely with the help of concordance lines. The process goes back and forth.

3.3.2 Frames

The present study focuses on frames around frequently occurring environment-related issues/concepts. It further restricts the scope by finding and analysing only those environmental issues/concepts occurring in the environmental discourses which are framed in a certain way by developing novel compounds around them. For instance, "coal" is a much-debated topic in environmental discourses. The present study looks for all the novel compounds around this word and sees how the issue has been framed and investigates whether the framing is depicting stories that exhibit environmentally sound behaviour or destructive ones. The steps followed in this section answer Q1, Q4, and Q5.

To be brief, trigger words are used for analysing frames. The trigger words activate a frame in the mind of people and to know how an area of life has been framed, the trigger words should be located (Stibbe, 2015). Identifying trigger words may make it easier to identify the framing of an area of life. Using the corpus techniques, the following procedures are followed to extract novel compounds and analyse these compounds according to the ecosophy of the present study:

Procedure 1: Extraction of Wordlist

The first step is to come up with the frequently occurring environment-related issues within the corpus. The corpus method of frequency analysis is used to identify the issues. Frequency is a basic concept in CL and is usually used in critical discourse analysis. The frequency of the word within a discourse reveals the user's intention or in other words, it reveals the dominant stories (Baker, 2006). As Stubbs (1996) also points out that words are not used randomly but the lexical choices actually reveal the stories. For this, a wordlist of the whole corpus is generated through LancsBox's "word" feature. This feature gives a complete wordlist of the corpus along with its frequencies.

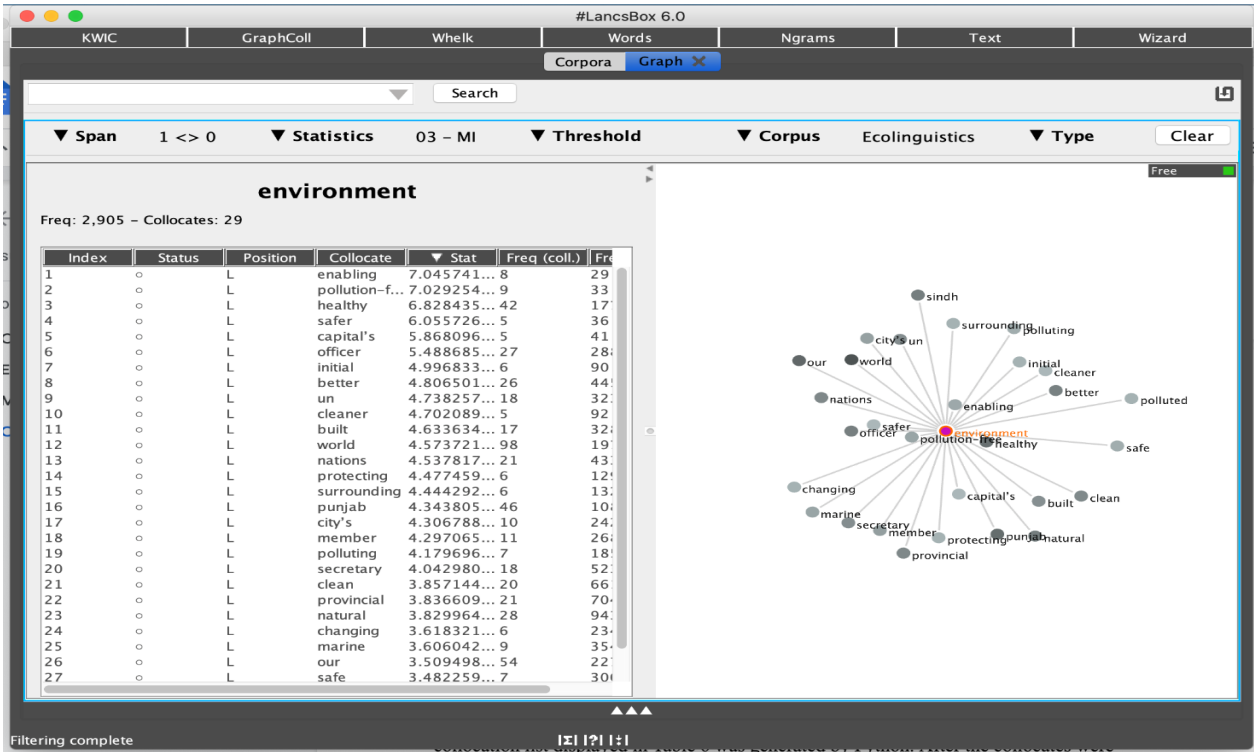
This step helps to explore answers to research question 1. In this step, a detailed content analysis of the gathered list (through corpus development) is conducted to identify major environmental issues, concerns or themes with respect to the Pakistani context.

The wordlist may confirm other studies as well. For instance, previous research (Stibbe, 2015; Sachs, 2009; MAnji & Coill, 2002) terms *development* as the most commonly framed concept. Development may be part of the frequently used words in the present study's corpus as well.

Procedure 2: Identification of Novel Compounds

Second, the comprehensive wordlist is further checked for collocations to identify the words that form novel compounds. Collocation is the natural occurrence of closely related words. Collocation lists are clusters or words that repeatedly appear near each other's company (Scott, 2004). Further, this occurrence is natural. A word can be understood in a better way by looking at the company in which it occurs. In LancsBox the "GraphColl" feature gives a quick list of collocates. The features give a visual representation of the collocated words as well (See Figure 3.6).

Figure 3.6



A quick list of collocates through GraphColl

As the figure shows the right side presents the visual representation of the word "environment". However, in the present study, the collocation lists are produced to identify novel compounds formed around the "carbon", "green" and "eco" in the corpus as these three are found to have occurred the most. Since the study restricts to only two-word novel compounds, the collocation has been restricted to only one word to the right or to the left,

depending upon the headword or the modifier respectively. This can be easily done in LancsBox by changing the span to 1 to the left or to the right. Figure 3.5 shows the span limited to one word to the left. Moreover, to avoid stopwords becoming part of the analysis, the statistics is changed to 03 - MI (See Figure 3.5). The novel compounds are further checked in the context. KWIC (Key Word in Context) feature of LancsBox shows the concordance lines.

Procedure 3: Identification of semantic sets/frames

The head of the compound is the area of life/concept to be framed and the modifier is the frame used to structure the particular area of life. Since English compounds are right-headed, the right part of the compound is the area of life and the left part of the compound is the trigger word that invokes a frame that structures the area of life. However, the frame may be endorsed by the other surrounding trigger words as well. The broader context confirms the framing in detail.

In this step, the heads of the compounds are grouped into frames. For instance, compounds like “eco finance”, “eco economy”, “eco tax” are given the semantic category of finance.

Procedure 4: Ecocritical analysis

Once the novel compounds are identified and grouped, the final step is to ecocritically analyze the compound. The framing is further checked by the technique of KWIC to investigate the broader context.

The noteworthy point here is that all of these processes including frequency analysis, collocations, and KWIC are performed back and forth when it comes to the implementation. Partington and Marchi (2015) describes this recursive “shunting” as a common practice in corpus-assisted discourse analysis.

3.3.3 Metaphors

The present section describes methods of identification, and analysis of metaphors in the discourse. For this purpose, it first discusses how helpful corpus-assisted techniques are for analysing metaphors in a large amount of naturally occurring data, what are the challenges to these sorts of studies and how these challenges have been tackled by in this study. It gives procedures for the identification and analysis of metaphors based on the frameworks for identification (Group, 2007) and the analysis of metaphors (Stibbe, 2015).

Corpus and Metaphors

Corpus linguistics have been used extensively to analyze metaphors since the wake of the twenty-first century (Wikberg, 2008). After the conceptual theory of metaphors as presented by Lakoff and Johnson (2003), many criticized the theory for it did not take care of the real data but made use of intuition and propositions to support their theory. This emphasized the importance of employing authentic discourse within discussions involving metaphors (Group, 2007). Since corpora is a collection of large, authentic data, many linguists stress the analysis of metaphors in corpus studies (for instance; Semino, 2008; Deignan 2005; and Charteris-Black, 2004).

The use of authentic and real language in metaphor studies makes them more scientific and credible. Moreover, CL makes metaphor studies descriptive rather than prescriptive (Skinnemoen, 2010).

Further, corpus-based metaphor techniques expand the intuition of analysts about metaphors. According to Deignan (2005), in corpus-based metaphor analysis, the analysts come across such words that they would have never imagined otherwise. Deignan explains this by quoting unexpected findings of the metaphors around the word “rock”. Charteris-Black (2004), and Semino (2006) also explain the potential of corpus-based techniques to the analysis of metaphors. “The advantage of size and the inclusion of a wide range of texts is that the corpus has greater potential for making claims about language” (Charteris-Black, 2004, p. 31). Semino (2006) also claims that corpus-based analyses of metaphors give “more reliable hypotheses about possible underlying conceptual metaphors” (p.37).

Further, corpus techniques make metaphor research easier to conduct, as the machine processes huge data automatically much faster than humans.

However, metaphor studies using corpus methods are challenging as there are no fixed, fully automatic, and established methods of identification of metaphorical expressions in a corpus (Semino, 2008). Software may organize language data but “it cannot identify and describe grammatical patterns, meaning, and pragmatic use” (Skinnemoen, 2010, p. 58); only humans have this ability. Hence, metaphor identification and analysis depend heavily on informed intuition and manual analysis (Deignan, 1999). It means that there is no such completely accurate software that will automatically identify and critically analyze metaphors in a corpus. There have been some recent attempts to

annotate corpus for metaphor identification (for instance Sardinha, 2010). However, these studies are in their developing phase. They are limited, do not have 100 percent accuracy, and still require human intervention. Moreover, the annotated data needs to be further validated from experts who usually do not agree with each other on the metaphoricity of words. These sorts of projects require a lot of time and money and still might not yield the desired results (check section 3.4 for more limitations of the methodology). On the other hand, corpus software functions like KWIC (keyword in context), and collocations can help immensely in the identification and analysis of metaphors in a corpus. The procedure for metaphor identification goes from linguistic form to meaning (Skinnemoen, 2010). So, the first step is to identify the linguistic metaphor, then to find the underlying CM, and at the end to critically analyze it. Linguists have come up with several procedures, especially the identification of metaphors in a corpus. For instance, Deignan (2005) proposes three ways:

a. First, to presuppose the presence of linguistic realization of a CM in corpora and make a list of words/lexical items that may be used to express that linguistic realization. For instance, to presuppose that a certain corpus may have a linguistic realization of a CM LIFE IS A JOURNEY. Now, the next task is to make a list of words/lexical items that are used to express “life” and “journey” in order to retrieve concordance lines and finally to find out manually if the concordances show a linguistic realization of CM or not.
b. Second, to form two corpus: a small and a large (Cameron and Deignam, 2003). The task is to analyse the small corpus first to identify manually most of the linguistic realization of the CM and then to use the concordances feature to find these metaphors in the large corpus for a generalized view.
c. Third, to consult lexicographers and ask them to identify and flag metaphorical uses on their database. However, this is a very rare phenomenon and might not work in many cases (Skinnemoen, 2010).

Deignan (2005) gave a very restricted view of the possible procedures involved in the identification of metaphors. There are many other researchers who came up with a more extensive and expanded list of procedures for metaphor identification in a corpus (for instance; Semino, 2008; Deignan 2005; and Charteris-Black, 2004).

Like Lakoff and Johnson (2003), Stibbe (2015) also does not describe any fully automated procedures for the identification of metaphors in a corpus. However, Stibbe does describe the method for ecocritical analysis of metaphors. The present study takes a hybrid approach to the identification of metaphors in a large amount of real language data. It takes understanding from the review of metaphor identification procedures mentioned by others and develops its own procedure mainly based upon the procedure provided by the Pragglejaz Group[4] (2007). The upcoming section clearly provides a detailed description of steps for linguistic clues of the presence of metaphors in the discourse, its mapping with the CM, and methods for ecocritical metaphor analysis and discussion. It depends upon semi-automated procedures in metaphor identification and for analysis, it depends upon Stibbe's (2015) method as he mentions in his work.

Methods:

The current study uses a mixture of corpus-driven and corpus-based analyses of metaphors. It means that the researcher has already made some assumptions about what will be found, but this does not stop the study from allowing new categories to emerge. Moreover, the method is mainly an adaptation of the metaphor identification process (MIP) of the Pragglejaz Group (2007) and Stibbe (2015). MIP is helpful in the identification of metaphors because it requires a clear decision whether a trigger word is metaphorical in a context or not. It can be "flexibly applied to many research contexts" (2). It gives a systematic stepwise procedure for the identification of metaphors that the previous corpus-based metaphor studies lacked. However, the current study requires a little more than what MIP offers keeping in view the time limit and other restrictions. Hence, the study adapts MIP according to its needs and limitations. The method has been divided into four Rounds. The following procedures are followed for metaphor identification as identified by the Pragglejaz Group[5] (2007) and ecocritical analysis as suggested by Stibbe (2015):

Procedure 1: Getting a Wordlist of the Possible Candidate Metaphors

---

[4] Peter Crisp, Raymond Gibbs, Alice Deignan, Graham Low, Gerard Steen, Lynne Cameron, Elena Semino, Joe Grady, Alan Cienki and Zoltan Kövecses were the members of the Pragglejaz Group who came up with the metaphor identification methods (Group 2007).

[5] The Pragglejaz Group (2007) as mentioned in footnote 3.2 were comprised of 10 metaphor scholars originally. These scholars were from a variety of disciplines. They came up with a tool for identification of metaphors called as 'Metaphor Identification Procedure' (MIP).

The first step of the metaphor analysis as mentioned in the Pragglejaz Group's (2007) MIP is to read the complete text or discourse to get the general idea of the discourse. Nevertheless, I conducted a comprehensive scan of the entire corpus, aiming to gain a broad understanding of its content. This was done during the compilation of the corpus. Although in MIP the stress is on reading the whole discourse but due to the time constraint, only the articles were skimmed initially. However, the articles containing the trigger word during the analysis were read fully for getting a general sense of the text; this aligns with MIP step 1.

This first step is to create a wordlist in the same way as done in procedure 1 of frame analysis. The wordlist provides trigger words for linguistic metaphors. This step is a modified version of the proposition put forward by Deignan (2005) and the Pragglejaz Group (2007). Deignan (2005) mentions coming up with the prior wordlist by presupposing it. However, I chose to draw the trigger wordlist from the same corpus using the NLTK library of Python (explained earlier). Further, some possible words were noted down during the skimming of the articles. MIP step 2 also suggests creating a trigger wordlist.

As Stibbe (2015), and Lakoff and Johnson (2003) state that metaphor is the mapping of the source domain to the target domain to explain abstract ideas using the structure of the concrete, imaginable area of life. The concrete areas of life can be direct bodily experiences like vision, taste, force, direction, etc. The abstract areas of life may be all areas that cannot be realized by bodily experiences like vision, force, direction, taste, etc. The wordlist may not only give a list of abstract areas of life but also a wordlist of concrete areas of life. The second step of this procedure divides the trigger words into two wordlists based on the representation of abstract and concrete areas of life. These wordlists are not fixed and have been expanded and reduced during the KWIC analysis done in procedure#2. Moreover, a few metaphor candidates are added to the wordlist; these words were found by other studies that analysed ecometaphors (critical summaries of these studies have been documented in chapter 2)

The outcome of procedure 1 is a list of possible linguistic metaphor trigger words.

Procedure 2: Identification of Linguistic Metaphors

The collocations of the lexical units showing abstract areas of life (lexical unit) are checked through GraphColl. The lexical units are further checked in the KWIC for context to check

if the words around them are trigger words that show the literal meaning of the keywords or are used non-literally. MIP step 3 also asks for establishing the meaning of each keyword in the context and its concordances.

The keywords will be appeared more than once in the material and in some cases, they may be used in a metaphorical sense and in some cases, it may be used in literal sense (the Pragglejaz Group, 2007). Every metaphorical use is noted and the literal one is dropped. For each word, I checked whether the trigger word is used in a way that gives more basic contemporary meaning in the other contexts than the one in the given contexts; and "whether the contextual meaning contrasts with the basic meaning but can be understood in comparison with it"; I further checked if the answer to these questions is yes then "the lexical unit is metaphorical" as suggested in MIP step 3 (b) and (c) (Group, 2007, p. 3).

The literal and non-literal meaning of words is not only understood by the researcher's previous knowledge of the topic [called as informed intuition by Deignan, (1999, p. 180)] but are also cross-checked in the Online *Macmillan English Dictionary for Advanced Learners* (MEDAL) and in Online Wiktionary. Both of these dictionaries are regularly updated and are unique in the sense that it identifies the metaphorical meaning of the words as well. In this way, two lists of metaphor keywords is generated for further investigation. All the irrelevant words are dropped from the wordlist created in procedure 1. The Pragglejaz Group also make use of dictionaries in difficult cases as mentioned by them in their work. The present study also used dictionaries in the difficult cases only. However, it is noteworthy that the Pragglejaz Group used MEDAL and *Shorter Oxford English Dictionary on Historical Principles* (SOEDHP). I replaced SOEDHP with Wiktionary because I found it easier to approach, and more useful.

So, in this round, Graphcoll and KWIC of LancsBox are used to check the words for possible linguistics metaphor candidates. The outcome of Procedure 2 is a more refined wordlist of linguistic metaphors and is called a **primary linguistic metaphor wordlist.**

Procedure 3: From Linguistic Metaphor to Conceptual Metaphor (Research Question#2)

In this procedure, the linguistic metaphors around the target words are further checked for possible conceptual metaphors. Since Conceptual metaphors resolve the semantic tension

(Charteris-Black, 2004; Semino, 2008), for each linguistic metaphor a conceptual metaphor is decided that explains or resolves the semantic tension of the linguistic metaphor. Hence, in this stage, the decision to identify the target domain and the source frames are taken. Once that is decided then a resultant CM in the form of a formula A is B (as explained by Lakoff and Johnson, 2003) is noted down.

Procedure 4: Stibbe's (2015) Ecocritical Analysis of Conceptual Metaphors (Research Question#3)

Stibbe's four-step procedure is followed by the current study for analysis of the CM. The steps involve: a) identification of the source frame and the target domain; b) identification of the mapping process c) analysis of the potential reasoning patterns behind it; d) categorization of the metaphor into benevolent, ambivalent, and malevolent categories based on the ecosophy of the ecolinguist.

To analyze the CM, the elements of the source frame mapped with the elements of the target domain are identified using the KWIC feature of LancsBox. KWIC helps in getting the textual cues that point towards the mapping of the elements. Once the elements are identified then the metaphorical or analogical reasonings are discussed to consider whether the metaphor is destructive, ambivalent, or beneficial as classified by Stibbe (2015). However, the discussion is done in the light of the principles of the ecosophy of the current study, as the metaphor types are dependent upon the ecosophy of the analyst. Linguistic features are not inherently beneficial, destructive, or ambivalent. Different analysts may term the same metaphors as of different nature if they hold different ecosophies.

3.4 Methodological Limitations

The following are some of the limitations of the methods used in the current study:

1. Corpus-based metaphor analysis for large data is though much better than manual analysis, but it has its own limitations. As stated earlier, the analysis is not fully automatic. So, for a large corpus, it becomes difficult to grasp each and every metaphor. The present study tries to capture all of the metaphors in the corpus by applying both corpus-based and corpus-driven techniques. Apart from the pre-setting of the potential trigger words, large-scale manual pre-checks were also done.

But the qualitative pre-checks were not extensive due to the limitation of time. So, there are chances that some of the metaphors might have been left unchecked.

2. There is no regulated universal MIP. The current study modifies the Pragglejaz Group's (2007) MIP. However, there are other extensively explained MIP's as well. It does not choose a complex MIP because the more precisely MIP is devised, the more difficult the verification process becomes (Shimizu, 2010).
3. The degree of metaphoricity of the target words may vary. Although help from dictionaries is taken in problematic cases, there are still cases in which the researcher had to decide about the metaphoricity of a word in the context due to its non-availability in the dictionaries.

Conclusion

The current chapter gives a detailed view of the methodology of the study. The three most important sections of the chapter are theoretical framework, material and methods, and data documentation and analysis.

The study uses the specific framework of ecolinguistics under critical ecolinguistics as presented by Stibbe in his works (2015; 2014). Stibbe in his framework first describes his definition of ecolinguistics, and mentions that our actions are dependent upon the stories-we-live-by, the stories that are prevalent in the discourses that we replicate and promote. Changing the story may change the situation. However, it is difficult to know the stories for they are in the mind of the people, but they are reflected in the general patterns of language. The role of the analyst is to reveal such stories by analyzing the linguistic features of discourses and promote the stories which encourage/depict behaviour that is good for the well-being of the ecology and challenge the stories which promote behaviour that is hazardous for the well-being of the ecology. Two among the eight forms of stories are frames and metaphors. These forms have been explained due to relevancy.

The chapter further describes the ecocritical discourse studies (ECDS) approaches to ecolinguistics. Corpus methods are also used to analyze data for the present study. Articles concerning environmental issues from three important Pakistani English newspapers are gathered to form a specialized corpus for the present study. The discourse structures of framing and metaphors in line with ECDA of Stibbe can roughly follow a

four-step process: i. formation of a specialized corpus which is done by using special features of the Google search engine; ii. linguistically analyzing the corpus using the LancsBox V. 6.0 software using word frequencies, concordances, and KWIC analysis; iii. exposing the underlying stories that these features convey; iv. critically analysing the underlying stories according to the ecosophy of the study.

The theoretical and methodological frameworks explained in the current chapter are in line with the research questions and objectives of the study. Further, the explanation of these frameworks provides a roadmap to the upcoming analysis and discussion chapters (chapters 4 and 5).

CHAPTER 4

METAPHORS WE LIVE/DIE BY

Introduction

> No generation has viewed the problem of the survival of the human species as seriously as we have. Inevitably, we have entered this world of concern through the door of metaphor.
>
> (Hardin, 1974, p. 561)

> In addition to the clever technologies, wily policies and ethical revaluations that we shall need to respond to the environmental crisis, we shall need better, less anthropocentric metaphors.
>
> (Garrard, 2012, p. 205)

Decades later, it remains evident that what Hardin pointed out holds true for our generation; we are now acutely aware of environmental degradation as it directly impacts our own race. Studies like that of Stibbe (2015) and Gerrard (2012) reinforces Hardin's analysis that metaphors are indeed an important discursive tool to show our concern for human survival. As an important discursive tool, metaphor not only helps us understand new realities, but it also constructs reality. Hence, it is very important to analyse metaphorical constructions in discourses to reveal new stories. The current chapter does so.

The current chapter offers a presentation of the analysis results through tables and illustrative examples, accompanied by a comprehensive ecocritical discussion. It is worth noting that the chapter exclusively addresses the analysis and discussion of metaphors, while compounds and their corresponding frameworks are explored in Chapter 5. Consequently, the present chapter addresses inquiries outlined in Q1 through Q3.

This chapter adheres to the sequence of research questions outlined in Section 1.5. Section 4.1 generates a wordlist from the corpus and analyzes the top 100 content words by frequency in PEC to identify general environmental concerns in Pakistani English

newspapers. Section 4.2 provides an overview of conceptual/cognitive metaphors, which comprehensively addresses Q2, further elaborated in subsequent subsections. In Section 4.3, along with its subsections, a detailed analysis and discussion of cognitive metaphors are presented based on the ecosophy of this study, addressing Q3.

Each subsection of Section 4.3 is headed by a conceptual metaphor, featuring trigger words presented in tables with their PEC frequencies. These tables constitute the primary linguistic metaphorical findings, followed by selective contextual examples. It is important to note that not all trigger words and contexts are included due to constraints in time and space. However, efforts have been made to incorporate examples that offer a prominent and diverse discussion of the cognitive metaphors.

The concluding part of this chapter provides a concise discussion of the findings

4.1 Major Environmental Concerns in PEC

The current section first gives general lists of the most frequent words (including and excluding stopwords) in the corpus and analyses it to get a gist of the corpus.

The general wordlist gives a gist of the whole corpus. The current section presents a quick glimpse of what the texts are about. Table 4.1 has a wordlist that contains the top 100 words along with their frequencies and dispersion as obtained through the LancsBox “Words” feature:

Table 4.1

No.	Type	Absolute frequency (Relative frequency)	Dispersion (CV)	No.	Type	Absolute frequency (Relative frequency)	Dispersion (CV)
1	the	149021 (667.609)	0.276	51	environment	4008 (17.956)	1.888
2	of	74158 (332.225)	0.34	52	one	3889 (17.423)	1.313
3	and	66380 (297.380)	0.379	53	our	3873 (17.351)	1.752
4	to	61043 (273.470)	0.339	54	air	3856 (17.275)	2.792
5	in	52212 (233.908)	0.38	55	would	3699 (16.571)	1.818
6	a	37811 (169.392)	0.473	56	about	3579 (16.034)	1.472
7	is	25013 (112.057)	0.712	57	other	3557 (15.935)	1.267
8	that	22169 (99.316)	0.623	58	these	3485 (15.613)	1.501
9	for	20837 (93.349)	0.607	59	world	3402 (15.241)	1.934
10	on	18125 (81.199)	0.646	60	country	3159 (14.152)	1.772
11	by	14445 (64.713)	0.69	61	up	3128 (14.013)	1.585
12	as	13277 (59.480)	0.802	62	over	3091 (13.848)	1.539
13	said	13172 (59.010)	1.032	63	project	3074 (13.771)	2.676
14	are	12838 (57.514)	0.884	64	than	2957 (13.247)	1.596
15	it	12262 (54.933)	0.849	65	photo	2938 (13.162)	1.909
16	with	12096 (54.190)	0.761	66	only	2932 (13.135)	1.463
17	be	11257 (50.431)	0.921	67	development	2927 (13.113)	1.97
18	from	10738 (48.106)	0.846	68	city	2905 (13.014)	2.43
19	was	10656 (47.738)	1.028	69	into	2882 (12.911)	1.707
20	has	10359 (46.408)	0.902	70	who	2877 (12.889)	1.694
21	at	9613 (43.066)	0.949	71	karachi	2872 (12.866)	2.41
22	he	9602 (43.017)	1.261	72	per	2761 (12.369)	2.236
23	climate	9323 (41.767)	1.694	73	such	2747 (12.306)	1.538
24	Pakistan	9270 (41.529)	1.278	74	out	2742 (12.284)	1.522
25	this	8836 (39.585)	0.958	75	waste	2734 (12.248)	3.278

26	have	8785 (39.356)	0.939	76	years	2719 (12.181)	1.639
27	water	8360 (37.452)	2.174	77	year	2689 (12.047)	1.795
28	change	7424 (33.259)	1.665	78	while	2686 (12.033)	1.46
29	will	7200 (32.256)	1.445	79	most	2667 (11.948)	1.706
30	which	7196 (32.238)	0.923	80	global	2616 (11.720)	2.174
31	an	7138 (31.978)	0.978	81	published	2573 (11.527)	1.435
32	not	7103 (31.821)	1.028	82	being	2556 (11.451)	1.65
33	also	6898 (30.903)	0.972	83	areas	2539 (11.375)	2.042
34	but	6092 (27.292)	1.074	84	no	2534 (11.352)	1.677
35	we	5988 (26.826)	1.615	85	new	2529 (11.330)	2.128
36	their	5624 (25.195)	1.309	86	his	2437 (10.918)	2.563
37	been	5590 (25.043)	1.264	87	if	2437 (10.918)	1.696
38	its	5284 (23.672)	1.245	88	million	2434 (10.904)	2.486
39	they	5209 (23.336)	1.341	89	some	2428 (10.877)	1.668
40	were	5100 (22.848)	1.401	90	trees	2387 (10.694)	3.243
41	environmental	4851 (21.732)	1.68	91	health	2386 (10.689)	2.545
42	government	4774 (21.387)	1.516	92	according	2379 (10.658)	1.677
43	had	4585 (20.541)	1.591	93	when	2379 (10.658)	1.667
44	more	4548 (20.375)	1.38	94	should	2359 (10.568)	2.046
45	can	4266 (19.112)	1.532	95	energy	2349 (10.523)	3.357
46	people	4224 (18.923)	1.528	96	countries	2317 (10.380)	2.378
47	pollution	4174 (18.699)	2.057	97	due	2259 (10.120)	1.826
48	all	4146 (18.574)	1.362	98	after	2252 (10.089)	1.84
49	there	4146 (18.574)	1.381	99	now	2156 (9.659)	1.865
50	or	4139 (18.543)	1.507	100	them	2136 (9.569)	1.824

A list of major works, their frequencies and dispersion in PEC (including stopwords)[6]

[6] Report prepared by LancsBox V 6.0

As can be noticed that the list contains many stopwords, as expected. Only 28 are content words. The rest of the list has all stopwords. Hence, it is very important to get a stopwords-free list to get a more relevant list. Table 4.2 has the top 100 content words only. Stopwords are excluded from the list using NLTK of Python.

Table 4.2

No.	Type	No.	Type	No.	Words
1	Climate	34	Time	67	Impact
2	Pakistan	35	Minister	68	Population
3	Water	36	Power	69	Made
4	Change	37	Khan	70	Coal
5	Environmental	38	Need	71	Economic
6	Government	39	Land	72	Help
7	Pollution	40	Islamabad	73	Carbon
8	Environment	41	Lahore	74	Issues
9	World	42	Plastic	75	Research
10	Country	43	Like	76	Resources
11	Project	44	Sindh	77	River
12	Development	45	Punjab	78	Increase
13	City	46	Public	79	Work
14	Karachi	47	High	80	Agriculture
15	Waste	48	Including	81	Human
16	Years	49	Quality	82	System
17	Year	50	Local	83	Smog
18	Global	51	Last	84	Life
19	Published	52	Department	85	Projects
20	Area	53	International	86	Industrial
21	New	54	Emissions	87	Sustainable
22	Million	55	Day	88	Clean
23	Trees	56	Protection	89	Action
24	Health	57	Forest	90	Species

25	Energy	58	Management	91	Road
26	Countries	59	Policy	92	Nature
27	National	60	Make	93	Future
28	Green	61	Food	94	Issue
29	Use	62	Natural	95	Bags
30	During	63	Plant	96	Technology
31	Area	64	Urban	97	Court
32	Share	65	Sea	98	Experts
33	Report	66	Billion	99	Weather
				100	Provincial

A list of top 100 frequently used word types in PEC (excluding stopwords)

The list depicts that most of the content words are related to ecology/environment. A further analysis of their appearance in the text confirms that many of these words refer to environmental concerns in the context of Pakistan. Two of the frequently used words are “environmental” and “environment” as can be realized in Table 4.2. They constitute the important theme that is “environmentalism” or the urge to protect the physical environment. Since the corpus is about the environment so it was much expected to have this theme. The environmental issues are being talked about and the solutions have been put forward. For instance, in Tribune (2020: 42), Pakistanis are being instructed to not throw away plastic “without taking proper precautions” or else the environment will be damaged.

It can also be noted that words like “Pakistan”, “government”, “Karachi” etc in Table 4.2 point towards the fact that the corpus is mainly about environmental issues in Pakistan and the government has been either urged to take actions to solve/minimize the environmental issues, or it has been depicted to be taking environmentally friendly steps. For instance, Dawn (2016, p. 54) documents that Pakistanis are advised to dispose of plastic responsibly to prevent environmental harm.

Some of the major environmental issues in Pakistan, as depicted by Table 4.2, are climate change, waste management, pollution, land erosion, carbon emission, smog, industries etc. The two frequently used words in the corpus are “climate” and “change”.

“Climate” is the first number in the table, whereas “change” is number four. A more detailed analysis in the KWIC feature of Lancsbox shows that the lexical cluster “climate change” occurs 6,666 times in the corpus. It appears in a total of 1,619 out of 3,408 texts in the corpus. So, the most discussed relevant topic in PEC is climate change which is discussed in almost half of the articles used in the present study. Climate change has been termed as a major environmental issue in Pakistan by many previous studies (for instance, Joshi et al., 2013; Shahid & Piracha, 2016). This concern is further reflected in newspapers. According to Dawn (2012, p. 3), “climate change is the biggest threat to Pakistan’s economy”.

“Environmental” is on fifth number in the list. In most of the cases the word points towards environmental action. Many of the metaphors are regarding the environmental action as discussed in detail in the same chapter.

To sum up, the major environmental concerns and other themes are reflected by the list of frequently used words in the corpus. We may see that most of the concerns are discussed in the Pakistani context. So, the concern is more local than global.

Climate change, water, environmental movement, development, nature, planet, coal, clean, Covid-19, and weather are some important lexical items in the corpus. Most of the metaphors are noticed to be formed around these domains (as discussed in the next section of the current chapter). However, the connection between the trigger words and CM is found to be much more complex as many words constitute a single CM.

4.2 Classification of Linguistic Metaphors into Conceptual Metaphors

This section classifies identified linguistic metaphors into different CMs. The classification provides the basis for the next section and at the same time gives a brief answer to Q2 of the study i.e. Which conceptual metaphors are used in the environmental discourses in these newspapers? Table 4.3 lists an overview of the classificatio

Table 4.3

	TARGET DOMAIN										
SOURCE FRAME	CLIMATE CHANGE	CO2	ENERGY CRISIS	ENVIRONMENTAL ACTION	NATURE	THE EARTH	ECOLOGICAL DAMAGE	RENEWABLE ENERGY	CORONA VIRUS	COMPANY	Total
WAR	398	-	-	-		-	-	-	88	-	486
TIME BOMB	39	-	-	-		-	-	-	-	-	39
PERSON	184	10	20	-	69	-	-	-	-	210	493
MOVEMENT	194	-	-	102		-	-	-	-	-	296
JOURNEY	-	-	-	167		-	-	-	-	-	167
SPORTS	-	-	-	253		-	-	-	-	-	253
PERSONAL RELATIONSHIP	-	-	-	655		-	-	-	-	-	655
COMPETITION	-	-	-	-	17	-	-	-	-	-	17
MACHINE	-	-	-	-	145	-	-	-	-	-	145
WEB	-	-	-	-	30	-	-	-	-	-	30
HOUSE	-	-	-	-		362	-	-	-	-	362
CLEANLINESS	-	-	-	415		-		-	-	-	415
ACCIDENT	-	-	-	-		-	7	-	-	-	7
FARMING	-	-	-	-		-	-	14	-	-	14
Total	815	10	20	1592	261	362	12	13	88	210	3383

Classification of linguistic metaphors into conceptual metaphors

Table 4.3 shows that the total source frames are 14 and that the target domains found are 10. The name of a conceptual metaphor can be extracted from the table by simply combining a row and a column. For instance, the combination of the first column with the first row makes the conceptual metaphor CLIMATE CHANGE IS A WAR. Furthermore, the numbers in the cells show the frequencies of the linguistic realisation of the CMs. However, the table does not show the diversity of the linguistic metaphors within each CM. For instance, CLIMATE CHANGE IS A WAR is realised by 17 different trigger words that in total were used 398 times. However, "affected" and "fight" are used 112 and 101 times respectively, and thus they make up more than 50% of the trigger words that are the realisations of this CM.

The classification of these metaphors is tricky as there are words that may trigger more than one domain. For instance, "progress" may belong to the MOVEMENT as well as the JOURNEY domain. To resolve such issues, the words were placed in the domain that they specifically belonged to. Hence, some of the words belong to some domain more specifically than others. For instance, "road map" belongs to the JOURNEY domain more than the MOVEMENT. Similarly, "progress" is more related to the MOVEMENT domain. Additionally, the context also helps decide about placement of the linguistic metaphors into a particular category.

4.3 Conceptual Metaphors: Analysis and Discussion

The current section analyses and ecocritically discusses CMs listed in Table 4.3. There are a total of 18 subsections and each section discusses one CM.

4.3.1 CLIMATE CHANGE IS A WAR

The war domain has been found prevalent in many CMs. It has been mapped with different target domains including climate change. CLIMATE CHANGE IS A WAR has been identified in many other studies as well (For instance, von Lucke et al., 2016; Cohen, 2011; Asplund, 2011; Romaine, 1996).

In the corpus, words from the domain of war like "fight", "combat", "hit", "strategy", "battle", and "conflict" etc. are used to describe climate change. Table 4.4 gives a complete list of these words along with their frequencies in the corpus.

Table 4.4

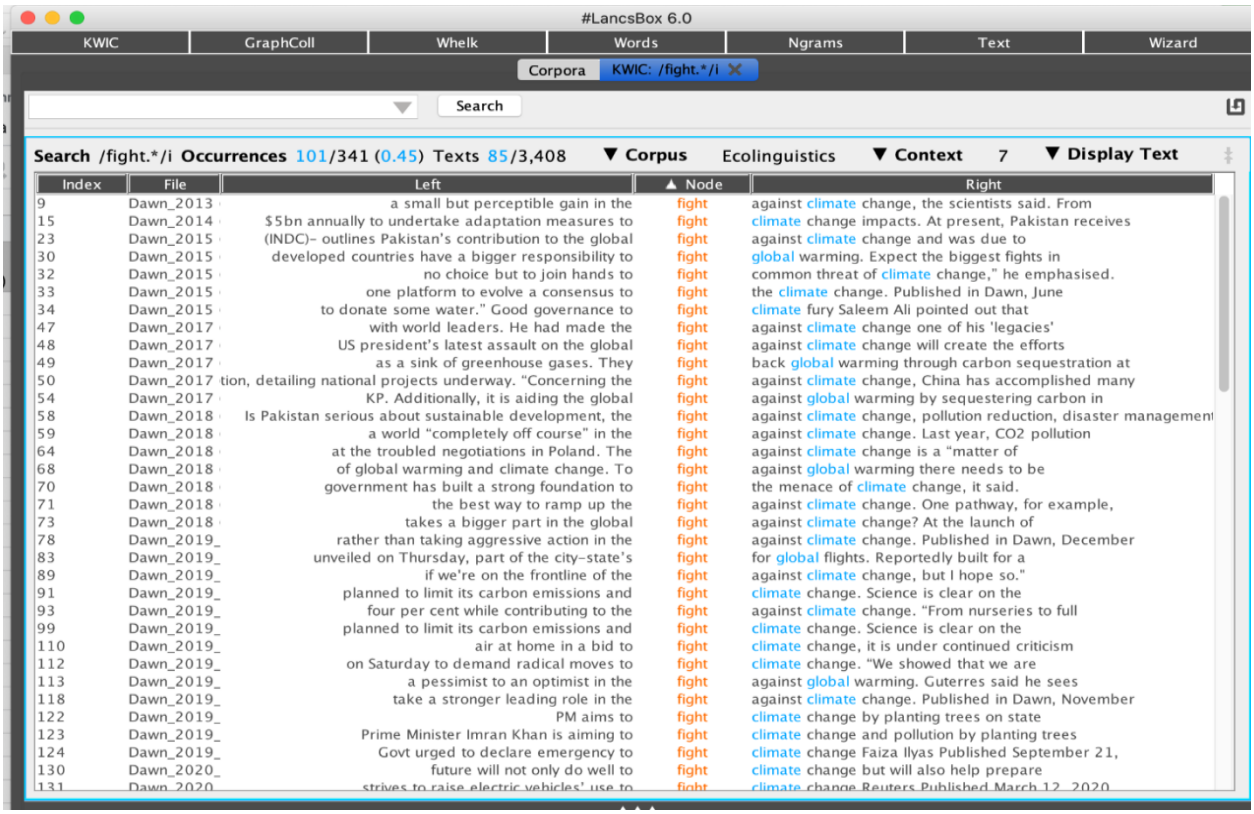
No.	Type	Frequency (Collocation)
1	affected	112
2	fight	101
3	combating	17
4	hit	16
5	strategy	14
6	force	13
7	tasks	13
8	devastating	13
9	existential	13
10	dangers	13
11	conflict	10
12	Battle	10
13	Threatens	19
14	Loses	9
15	Adapting	9
16	Coping	9
17	fallout	7
	Total	398

Number of trigger words and their frequencies from the domain of WAR used to map with CLIMATE CHANGE

These trigger words around the climate change point towards the CM, CLIMATE CHANGE IS A WAR. As the A is B formula of the CM suggests that CLIMATE CHANGE is the target domain and War is the source frame. The trigger words in Table 4.4 all bring the distinct area of WAR in the mind. As shown, there are many instances where the metaphor has been used through linguistic means.

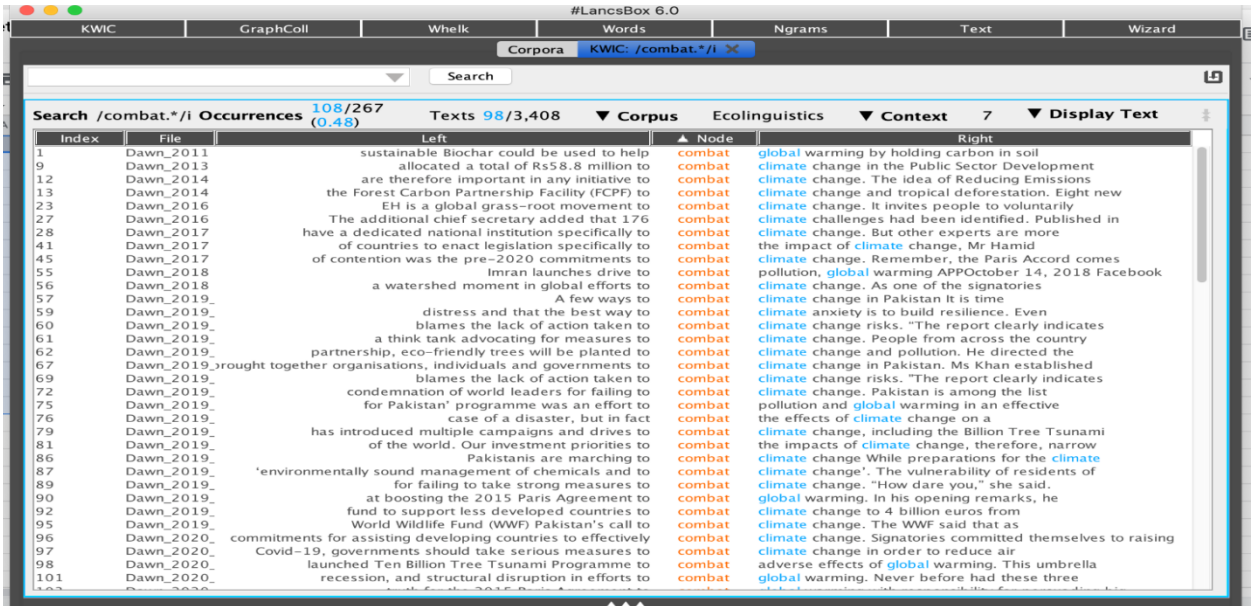
"Fight" and "combating" are two of the top three trigger words. According to MD, the lexical item, "combat" refers to fighting during the war. Hence, "fight", "combat/combating" activate the frame of war. Figure 4.1 and Figure 4.2 show a few instances of the concordances of "fight" and "combating/combat" respectively.

Figure 4.1



"Fight" Concordances

Figure 4.2



"Combat" Concordances

Figure 4.1 shows that there are a total of 341 occurrences of the word “fight” along with its inflections. However, only 101 of these occurrences are related to the phrases “climate change” and “global warming”. Similarly, Figure 4.2 depicts that among the total 206 occurrences of “combat” and its inflections, 108 occurred with climate change and/or global warming. These concordances, on one hand, depict the occurrence of a CM and on the other hand, they point towards the possible occurrence of varying metaphorical mapping between war and climate change.

Table 4.5 illustrates how the structure of the source frame is mapped with the target domain to result in a metaphorical entailment. However, as can be seen, the mapping of elements varies to a certain extent.

Table 4.5

Source Frame: war	**Target Domain: climate change**
war	Climate change
enemy	Climate change
soldiers	Pakistanis/humans
battlefield	Pakistan/world
weapons	Modern technological tools /forests
Strategies in a war	Strategies to combat climate change

Mapping of WAR with CLIMATE CHANGE

As we know that war has opponents meaning war has two parties - one is us and the opponent is our enemy. In the case of CLIMATE CHANGE IS A WAR metaphor, the enemy is climate change. Our soldiers as depicted in the PEC are Pakistanis and in some cases humans. The battlefield in most instances is Pakistan but, in some cases, it is the world. Weapons to combat the enemy mostly mentioned are technological advancements

like electric vehicles (EV), low-energy bulbs, etc. However, the weapons in a few cases are forests as well. The strategies are to come up with such technological solutions or in some cases to grow trees and forests. The following few examples from the corpus illustrate the current metaphor in the corpus:

1. Pakistan strives to raise electric vehicles' use to **fight climate change** (Dawn, 2020:16)
2. Investing more in renewable energy, electric vehicles, and low-carbon technologies in the future will not only do well to **fight** climate change but also… (Dawn, 2020: 14)
3. …cleaner fuels and environmentally friendly technologies are the way forward for Pakistan…The approval of EV policy was a collective decision aimed at **fighting climate change**". (The News. 2020: 31).
4. Despite the seriousness of the threat, **Pakistan's fight against climate change** did not really take off until 2013. The origins of the new-found fervour can be traced back to the Billion Trees Afforestation Project (BTAP), popularly known as Billion Tree Tsunami.
5. EH [Earth Hour] is a global grass-roots movement to **combat climate change**. It invites people to voluntarily switch off all unnecessary lights for one hour as a symbolic act to show their commitment to saving the planet." (Dawn, 2016, 22)
6. A few ways to **combat climate change** in Pakistan [is] unplugging your charger when your phone/laptop is fully charged. Plugged devices still consume phantom power and **add to your bill** and the greenhouse gas emissions (Dawn, 2019, 1)
7. Climate change is a pressing issue for Pakistan, even though its share in the global carbon trajectory is only 0.43 percent which is negligible as compared to that of the developed world. As a developing nation, the only option available for Pakistan is to **combat climate change** through adaptation. Such strategies can help protect its vulnerable population from the phenomenon (News, 2018, 52).

A closer reading shows that the emphasis is more on the effect of climate change on Pakistanis and what strategies should Pakistanis adopt to combat climate change. The

focus is more local as depicted by the frequencies of the wordlist of the corpus as well. Moreover, the strategies to combat climate change vary from context to context.

The examples show a tense relationship between nature and human beings. Example 1 shows that the two sides of the war are we, the Pakistanis and our enemy is climate change, and the battlefield is Pakistan. The strategy to win the war and to reduce the consequences of the war is to "raise electric vehicles". The solution here is technological advancement.

Examples 2 and 3 also give technological advancements as the solution to win this war. The strategies here are to have renewable energy, electric vehicles, and low-carbon technologies. In example 3, the former director-general of the Ministry of Climate Change also endorsed the strategy of having "cleaner fuels and environmentally friendly technologies" to win this war.

Considering the ecosophy of the present work, this is an ambivalent metaphor. On one hand, the metaphor brings forth the seriousness of the matter and demands action to solve the matter. However, the solution provided is a technological advancement which is ironic as having "more" and "development" or in other words technological advancement is responsible for the degradation of the environment in the first place (Halliday, 2001; Stibbe, 2015). Moreover, the focus is on the immediate readership though the issue is a global one. Further, the win might create a sense of arrogance among human beings that they can conquer nature. Hence, this is an ambivalent metaphor.

Technological advancement is not the only strategy given to combat climate change. There are other strategies as well. Examples 4 and 5 illustrate this. In example 4, the strategy is to use the weapon of trees. Here the Billion Trees Afforestation Project (BTAP) is the way to use this weapon. The more trees you grow, the more chances to win the war against climate change are. The project aimed to grow a billion trees in the country to protect nature. The mapping here makes the metaphor CLIMATE CHANGE IS A WAR a bit different from the previous one as the strategy given here is much better than the technological advancement ones. However, the metaphor is still ambivalent for the war metaphor entails the idea that someone will win the war and the winner will have more sense of pride and may cause more damage. What if the winner is climate change that is the opponent to human beings? This thinking may lead to inaction. Further, climate change

is not a local issue but a global one and these solutions cannot make the situation better for Pakistan until the realisation is at the world level.

Yet, another strategy to win the war is to observe Earth Hour (see example 5). The good thing about highlighting this strategy is that it promotes the idea of reducing the use of technological instruments. The symbolic act is to create awareness among the masses regarding their commitment to saving the planet. However, the practice is only for an hour and is just a symbolic act. The environmental issues need a permanent change to adapt to the changing scenario. The CM with this mapping will make an ambivalent discourse.

There are some other instances where a whole list of strategies is given to combat climate change. However, the reason or the motivation behind doing the right thing is the main cause of the issue. Example 6 depicts this. Reducing power usage is good for the well-being of the environment but reducing it to get economic benefits is promoting the very cause of the issue or according to war terminology, it is to help your enemy. This mapping of the metaphor promotes the story that "economic development is good". The story is not good for the well-being of humans, other living beings, and the ecological system that life depends upon.

Another strategy to combat climate change in Pakistan is through adaptation (check Ex. 7). A critical view of this text shows that the war with climate change is not just an issue of Pakistan but a global issue. Since it is a global issue, the actions taken should be at the world level. Similarly, the damages done cannot be reversed so, the best strategy to combat climate change is to do it through adaptation. This will help protect the vulnerable population from the effects of climate change. One of the entailments of war metaphor is that in war usually, the disadvantaged groups are the ones that suffer the most. However, combating war through adaptation may help protect them. The mapping here and the further entailment may place this metaphor in the benevolent metaphor category.

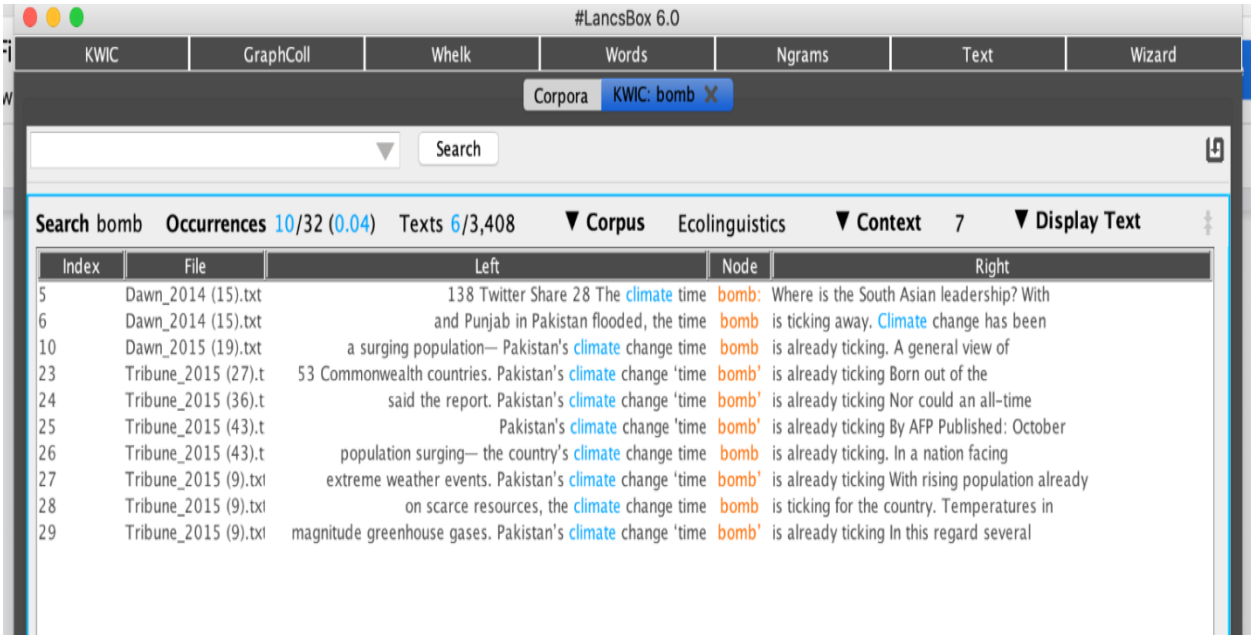
Although CLIMATE CHANGE IS A WAR is a vibrant, violent, and forceful metaphor, it has been criticized for the technological solutions that it gives to win the war in previous studies that the current study also endorses (see, for example, Asplund, 2011; Romaine, 1996). However, there can be other weapons as well to win the war like planting trees, observing EH, and adaptation as found in the current study. The metaphor can be

termed as malevolent in most of the cases based on the reasoning presented above. However, in some cases it may be termed as ambivalent as discussed above.

4.3.2 CLIMATE CHANGE IS A TIME BOMB

The metaphor CLIMATE CHANGE IS A TIME BOMB is another vibrant and vivid metaphor around climate change (Stibbe, 2015). Stibbe (2015) discussed this metaphor to explain the metaphorical reasoning attached to this CM. The phrase "time bomb" has been used in the corpus to point toward this CM.

Figure 4.3



"Time bomb" Concordances

The concordance lines show that the word "bomb" has been used 10 times in the corpus to describe climate change. It can be noted that it is not a mere bomb but a "time bomb". Table 4.6 shows the trigger words that point towards this CM.

Table 4.6

No.	Types	Frequency
1	ticking	16
2	time bomb	10
3	victim	5
4	explode	5
5	explosion	3
	Total	39

Number of trigger words and their frequencies from the domain of BOMB used to map with climate change

Table 4.6 illustrates how the structure of the source frame is mapped with the target domain to result in a metaphorical entailment. However, as can be seen, the mapping of elements varies to a certain extent. Below are a few examples from the corpus in which the metaphor, CLIMATE CHANGE IS A TIME BOMB has been manifested linguistically using some of the trigger words listed in Table 4.6:

8. With Jammu and Kashmir inundated and Punjab in Pakistan flooded, the **time bomb** is ticking away. (Dawn, 2014: 15).
9. With melting glaciers and surging population - Pakistan's climate change **time bomb** is already ticking. (Dawn, 2014: 19).
10. Pakistan's **climate change time bomb** is already ticking (Tribune, 2015: 9).
11. With rising population already feeding on scarce resources, the climate change **time bomb** is ticking for the country.
12. The clock is **ticking** as mother nature doesn't do bailouts (News, 2018: 75).

In all of the above-given examples, the source frame "time bomb" is used to describe the target domain "climate change". The source frame "time bomb" has certain elements: a bomb, the ticking of the bomb, the reason/person responsible for activating the bomb, a person to defuse the bomb, methods/techniques to defuse the bomb, consequences of the explosion, and victims. Some or all of these elements are mapped onto the target domain to structure it. In all of the examples mentioned above, the time bomb is mapped

to “climate change”. The bomb has already been activated but there is no mapping with the one who activated it. Since the bomb is ticking so it is urgently required to be defused. The ticking of the bomb is mapped to inundated coasts in Jammu and Kashmir, and the floods in Punjab in Ex. 8; melting glaciers and rising population in Ex. 9; and surging population and scarce resources in Ex. 11. The expected solutions are to do something to reverse or stop these signs. The possible victims are Pakistanis (humankind).

The TIME BOMB frame suggests that once the bomb has exploded, it cannot harm further which implies that once climate change has occurred, it will not cause harm again (Stibbe, 2015). The ticking suggests that the bomb should be defused on an urgent basis. In other words, actions on an emergency basis are required to be taken to defuse the bomb.

Although the urgency that the metaphor suggests is useful for climate action but on the whole, the bomb metaphor is not useful. First, the urgency to act could potentially lead to inaction. Immediate actions require immediate results as well. But it might be noticed that the results of climate change action might not be immediate. For instance, we cannot bring reductions in carbon emissions or flooding immediately. Similarly, the ozone layer cannot be reversed immediately. In fact, many of the climate issues cannot be reversed but they can be stopped from further rapid degradation. This may consequently lead to inaction as the ticking bomb will still be ticking. The time part of the time bomb could possibly stimulate people to inaction. Hence, the time bomb metaphor “is all-or-nothing” and “could lead to nothing” (Stibbe, 2015, p. 67). Based on these reasons this metaphor can be termed as malevolent one.

Climate change is just one of the ecological issues. There are many other environmental issues including water scarcity, air pollution, water pollution, noise pollution and so on. The trigger words related to the source frame TIME BOMB clarifies what other environmental issues are been discussed as a time bomb in the corpus. The same source frame has been structured around some other ecological issues like “covid-19” as well (explained in 4.3.17).

4.3.3 CLIMATE CHANGE IS A PERSON

Personification of several target domains like CO_2, fossil fuels, energy crisis, and earth is evident from the trigger words around these domains; climate change is one among such

domains. Personification, according to Charteris-Black (2006) is when words having basic meanings that can be attributed to living beings like humans are used in talking about non-living things like CO_2 or climate change. There are several instances in the corpus that point toward the personification of climate change, CO_2 and the energy crisis.

Table 4.7

No.	Types	Frequency (Collocation)
1	Face	121
2	Threaten	59
3	Kill	3
4	wait	1
	Total	184

Frequency of trigger words from the domain of PERSON used to describe CLIMATE CHANGE

Table 4.8

No.	Types	Frequency (Collocation)
1	Capture	7
2	Trap	3
	Total	10

Frequency of trigger words from the domain of PERSON used to describe CO_2

Table 4.9

No.	Types	Frequency (Collocation)
1	Threaten	16
2	Face	4
	Total	20

Frequency of trigger words from the domain of PERSON used to describe ENERGY CRISIS

Below are some of the examples from the material in which these lexical items are used:

13. [Indus river and major glaciers in Gilgit-Baltistan] are already **threatened** by global **climate change**... (Tribune, 2019: 134).
14. **Climate chang**e does not only **threaten** our food security, it poses a threat to Pakistan's economic survival (News, 2016: 9).
15. We do not know how to **face climate chang**e (Dawn, 2013:5)
16. … if war doesn't **kill** them, **climate change** will… (Dawn, 2019: 15).
17. … social and economic changes that were increasing the heat **trapping** the **CO2** and other greenhouse gases in the atmosphere… (Dawn, 2015: 31)
18. The **energy crisis** also **threatens** the national security. (Dawn, 2016: 70).

Ex. 13- 16 personifies climate change by attributing some human qualities like threatening, facing, and killing to it. These are the actions that are performed by humans and some other living beings. The lexical items "threaten", "face", and "kill" used for climate change evokes the CM CLIMATE CHANGE IS A PERSON. In this metaphor, CLIMATE CHANGE is the target domain and PERSON is the source frame. Only a living being can threaten, face, or kill another living being. So, these animate attributes are mapped to the target domain CLIMATE CHANGE which is inanimate. For instance, Ex. 14 & 15 uses the verb threaten for the subject of climate change. Threaten means to let someone know that "you might or you will cause them harm, especially in order to make them do something (MEDAL). So, threatening requires not only the intention to threaten but also the way to threaten. Only living beings can have the intention to threaten and only they know the way to threaten. Another verb used (in Ex. 15) for climate change is "face". The basic meaning of "to face" according to MEDAL is "to be opposite someone or something so that your face or front is towards them". That someone that you are opposed to is typically a human being or an animal. Further, the basic meaning of "kill" according to MEDAL, is "to make a person or other living thing die". Hence, traits of PERSON, which is animate, are being mapped to CLIMATE CHANGE, which is inanimate. However, climate change is not the only environmental issue that is being personified.

CO_2 has also been personified in the material. The verb "trapping" in Ex.17, triggers the metaphor, CO2 IS A PERSON. According to MEDAL, to trap means "to trick that is designed to catch someone". Trapping typically involves an animate tricking some other

animate entity, for instance, human traps another human. However, CO_2 is not animate; it is rather inanimate. Hence, the word trapping is used metaphorically rather than literally, and it triggers the conceptual metaphor CO2 IS A PERSON. As the statement suggests, CO_2 is the target domain and PERSON is the source frame. Similarly, the energy crisis has been personified in Ex.18. The use of the word "threaten" triggers the metaphor ENERGY CRISIS IS A PERSON.

The personification of events is important in two ways. First, the personification of inanimate entities makes us understand such entities better as we can understand inanimate entities better "in terms of our own motivations, characteristics and activities" (Lakoff & Johnson, 2003: 33). So, the personification of climate change, CO_2, and energy crisis make us understand these issues easily. Second, the personification of inanimate entities is related to the higher metaphor, EVENTS ARE ACTIONS which means that we conceptualize external events as animate actions. As Lakoff & Turner (in Kövecses 2002, p. 50) point out that we understand external events that are "produced by an active, willful agent".

Climate change is something that happens, so it is an event. However, events are inanimate. But portraying climate change as something that can threaten, can be faced, and can kill makes this event an active, willful agent. Numerous studies on climate change (for instance, Nelkin 1987 and Wilson, 1995; cited in Boykoff & Boykoff, 2007) identify it as an event that has a great impact on our society, and way of living. For instance, climate change can cause floods, wildfires, and droughts; it can reduce freshwater availability and crop yields. These and many other changes in turn will disturb the ecosystem (IPCC, 2007). Considering these effects, talking about climate change as threatening us makes sense. Like an animal or a person, climate change also intends to cause us harm. So, climate change is threatening us means climate change is causing us harm. The words harm and threatening connect this metaphor to the war metaphors already discussed above. The same explanation also implies to ENERGY CRISIS IS A PERSON.

Further, the personification of CO_2 in ex. 17 implies that CO2, which is basically a gas, has been mentioned as "someone" who has been trapped. According to IPCC (2007), the increased amount of CO2 in the atmosphere is the main cause of climate change. So, the personification of CO_2 can be connected to EVENT IS ACTION which is a higher-

level metaphor; that is, the increase of CO_2 in the atmosphere is an event which is due to the actions performed by carbon dioxide. Further, the word “trapped” implies that since the actions performed by carbon dioxide are harmful so the person should be trapped to avoid causing more harm. The word “trapped” also implies that carbon dioxide is so difficult to catch hence, proper planning should be devised to trap this tricky person in order to avoid further harm. Now, the one who is trapping CO_2 should be more intelligent or trickster than it. This implies that environmentalists should come up with smarter ways to keep carbon emissions under control. A person trapped by another person evokes the war metaphor here too. As in war, we lay out traps for our enemies. So, we fight against climate change by trapping our deadliest enemy which is CO_2. Hence, CO2 IS A PERSON like CLIMATE CHANGE IS A PERSON and ENERGY CRISIS IS A PERSON also connects to the war metaphor.

Although the material does not implicitly relate the person metaphors with the war metaphors, the relationship between these metaphors can be claimed as discussed above. On one hand, the person metaphors are good in the sense that they make important environmental issues like climate change and carbon emissions easier to understand, especially to common people. On the other hand, these metaphors are connected to war metaphors and in war, the techniques and weapons used to win the war are very important as explained in the war metaphors. Further, the environmental issues as a person imply that these are living beings and living beings have some rights. So, climate change and CO_2 too have rights. The basic right of living beings is to live. Should we let climate change and CO_2 live and prosper? However, if humans commit some serious crimes, then they can be punished or even death penalties can be given for serious crimes, especially to our opponents in war. So, have we sentenced environmental issues to death? But can these issues die out completely? Hence, CO_2 IS A PERSON and CLIMATE CHANGE IS A PERSON give the impression that like living beings, environmental issues also have life - birth, growth, and death; they can have natural and unnatural death like being killed in war and wiped out completely from this earth. However, many of the environmental damages are irreversible; we can work to minimize the effects and take steps to avoid further damage. These issues cannot be wiped out/ killed completely. Hence, the person metaphors are ambivalent in nature.

4.3.4 CLIMATE CHANGE IS A MOVEMENT

The movement frame is one of the mostly mapped frames of climate change. Words like "fast", "stop", "runaway", "rapid" and many more are used to express climate change (See Table 4.10).

Table 4.10

No.	Types	Frequency (Collocation)
1	fast	28
2	stop	27
3	runaway	21
4	speed	21
5	rapid	20
6	Approach	11
7	pace	11
8	come	11
9	slow	11
10	accelerate	10
11	irreversible	9
12	reverse	8
13	drive	6
	Total	194

Trigger words from the domain of MOVEMENT used to describe CLIMATE CHANGE

As evident from the list of the words, these all belong to the domain of movement. In the metaphor CLIMATE CHANGE IS A MOVEMENT, CLIMATE CHANGE is the target domain and MOVEMENT is the source frame. CLIMATE CHANGE is an abstract idea, and it needs some concrete frame to be mapped with and understood; in this case, the frame is MOVEMENT. Below are a few examples from the corpus in which CLIMATE CHANGE IS A MOVEMENT has been manifested linguistically using some of the trigger words listed in Table 4.10:

19. We as citizens and the government are not taking any action regarding the **rapid** climate change. (Tribune, 2015: 125)

20. Climate change is **fast** becoming a serious concern for the country where a significant percent of population is living below the poverty line… (Tribune, 2014: 83)
21. "**Stop** climate change now" and "there is not planet B" (News, 2019: 36).
22. It is clear that issues surrounding climate change and **rapid** global warming will soon become **irreversible** (News, 2019: 10).
23. …why forests are the best "technology" to **stop** climate change. (News, 2018: 71).
24. Even five years from now, if all variables were to remain the same, that is, the **speed** of climate change, population growth rate, the political situation and so on; food insecurity in Pakistan will increase from the present 58 percent to 63-65 percent (Dawn 2013: 50
25. We will not be able to avoid **runaway** climate change that will be catastrophic. (Dawn, 2013: 16)

Dictionaries define all the words listed in Table 10 to describe some physical entities. These words have many other meanings as well but MIP terms the meanings having to do with movement as meanings having some basic physical meanings. As stated earlier, climate change is not a physical entity. According to MEDAL, climate change is " the changes that are thought to be affecting the world's weather so that it is becoming warmer". So, the more basic concept of MOVEMENT can efficiently and successfully be used to structure abstract concepts like ENVIRONMENTAL CHANGE.

Climate change has the word "change" in it and literal movement is not necessary for change. In fact, the change in climate change is not movement based. For instance, a rise in the global mean surface temperatures is a kind of change which does not involve movement. So, climate change does not literally move from point A to point B which is what happens when we take change in its literal meaning. The literal meaning of change also implies that the movement is brought about by some living being like an animal or an inanimate being like a car that is able to literally move from one place to another place. However, climate change is not like a living being or a vehicle. On the contrary, movement requires change - a literal one. Movement from point A to B brings about a spatial change. One no longer stands in the same place after the movement. Change is an important aspect

of the movement. The relation between movement and change makes it easier for us to understand any abstract change in terms of physical movement.

In the corpus, words like fast, stop, runaway and speed etc trigger the frame of movement. Some of these words like “started”, “moving” and “pace” are more neutral as they represent the common understanding of the concept of climate which is considered to be changing continuously. On the contrary, words like “runaway”, “stop”, “rapid”, and “speed” are much less conventional as they describe the manner in which the change has been occurring.

Example 20 mentions “the speed of climate change”. Now speed is an important aspect of the source frame, movement. The more the speed is the more the change will be. Similarly, slow movement will cause less change. Here another important factor is time. Our experience of change is relative to time. The more time has passed, the more movement will be done and that will cause greater change. Deignan (1995) mentions in his work that movement words can be used to metaphorically talk about the development of entities from the abstract domain. Similarly, Lakoff (1993) points out the metaphorical mapping between movement and the development of different things. He says, “manner of action is manner of motion” is derived from the event structure metaphors (p. 221). So, in Lakoff’s terms, it is quite possible that motion terms are used to describe abstract actions.

So, climate may change “rapidly”, or “fast” as mentioned in examples 19 and 20. Since climate change is not good so better to “stop” it or it will become “irreversible” as in examples 21 and 23 respectively. The best way to stop is to bring the best technology which is “forests” as suggested in example 23 or else it will “runaway” and that will be catastrophic as in ex. 25.

The more basic meaning of runaway, according to MEDAL is to have escaped from home or from somewhere else. However, climate change is not a living being so it cannot literally run away. A runaway person or system is one which is out of equilibrium or out of control. This aspect of the source frame has been mapped to climate change. Like a person that runs away from jail and becomes out of control, climate change has also gone out of control and needs to be tamed. Further, those who runaway from jail are usually unruly and convicted and some of their punishment has still to be completed. They may disturb the equilibrium of society and may commit more crimes. The police are supposed

to capture these fugitives to restore the equilibrium of society. Since the act of runaway from jail is illegal so it is acceptable to recapture and bring the culprit back to jail. Mapping these features to climate change would result in climate change as a fugitive and its runaway is illegal, and if it is not recaptured then it may cause further harm to living beings, nature and other systems that life depends upon.

This mapping entails that the act of stopping climate change is justified and its control or prevention is a must to avoid further harm. Further, the police have the authority to recapture the fugitive entails that the government and the people have some kind of authority over the fugitive i.e., climate change in this case. To gain control over climate change, the best technology, forests, should be used. Now mapping the authoritative nature of the police over the fugitive might give the idea as if the power relation is not equal between the capturer and the captive. However, we may not take this authority as anthropocentrism in this case as humans are the ones who caused and accelerated the climate change and working to control now is to clear the mess, we have created to restore the equilibrium of the ecology. The runaway expression also entails that climate change can be reversed like a fugitive can be captured. If not reversed, can at least be used to capture back and take over control of it again.

CLIMATE CHANGE IS A MOVEMENT is part of CHANGES ARE MOVEMENTS and according to Lakoff (1993), metaphors from this category are conventional metaphors. Hence, CLIMATE CHANGE IS A MOVEMENT, and other such movement metaphors are also conventional CMs. The contextual meanings of all the conventional metaphors can be easily located in dictionaries and the same is with this movement metaphor. Their meanings are well-established in the dictionaries. Conventional metaphors are less vivid and less noticeable than novel metaphors (Stibbe, 2015).

We may place this conventional metaphor in the category of benevolent metaphors as the mapping of runaways to climate change promote a story that is good for the well-being of the ecology. The mapping of features implies that climate change is out of control and may cause further harm, which is illegal, so it is justified to stop it by force. Further, humans are responsible for it so humans have to control it.

4.3.5 CLIMATE ACTION IS A JOURNEY

Another important vivid metaphor in PEC is CLIMATE CHANGE IS A JOURNEY. The findings in Table 4.11 shows the words that set up this metaphor in the corpus.

Table 4.11

No.	Types	Frequency (Collocation)
1	lead	52
2	step	25
3	behind	15
4	on board	13
5	path	12
6	burden	11
7	follow	9
8	begin	8
9	wait	8
10	ahead	6
11	on track	5
12	obstacle	3
	Total	167

Selected types corresponding to SOLVING CLIMATE CHANGE IS A JOURNEY metaphor

As can be seen in table 4.11, there are total 12 types of words that are the linguistic realization of this CM. The words like “lead”, “steps”, “behind”, “on board”, and “path” are the leading trigger words among the total 12 types that all point towards the journey frame.

The journey frame is usually found in metaphorical usages. Hence, many studies discuss it in detail (for example Lakoff & Johnson, 1980; Charteris-Black, 2006). Journey metaphors are easy to grasp because many of us “have a strong sense of familiarity and relatability to the concept of journey themselves” (Ravn, 2020, p. 37). Charteris-Black (2006, p. 201) explains, “the expressive force of the journey metaphors is precise because of the readiness with which very familiar bodily experience can be integrated into a set of contrasts that serve the basis for a system of evaluation”. So, the journey domain”s rich

system of elements makes it a highly flexible source frame for long-term purposeful activities like climate action. Moreover, the journey frame, its various contingencies, and its typical elements can be easily evaluated as almost all of us have experienced travelling.

Mapping the journey frame with the climate change actions means transferring some or all of these traits to the elements of the target domain (i.e. climate action). The journey frame shows that a journey has a traveller, the journey needs a point to start; and it has a way which we have to travel to reach a destination. However, we may have some obstacles on the way. We might be carrying luggage/burden, but the need is to be on track. Below are some examples of the journey metaphor from the corpus:

26. the formulation of the Draft National Climate Change Policy is the **first step** in this **direction**. (Dawn, 2011: 7)
27. The policy is a multi-sector approach in which the long term project will come under the National Climate Change Action Plane- a **road map** for adaptation and mitigation of serious problems…The policy also stressed upon the importance of learning, training, technical, and capacity building approach. These **targets** are to be achieved by awareness, national and international cooperation, technology transfer and funding.' (Dawn, 2011: 6)
28. The nature and scale of the crisis… [demands]... to restructure the economic foundations of the country and chart **a new path forward**… by making policy choices that push the adoption of new technologies, catalyse innovation, and empower the country's citizens by boosting their skills. (Dawn, 2018: 12)
29. At a time when nations have agreed to **set a new path** to low carbon emissions and climate resilient futures for their countries… (Tribune, 2015: 6)
30. …the **way forward** to meet the challenges of **climate change** was to ensure constant dialogue among various stakeholders to come up with more comprehensive and feasible carbon reduction plans in the short, medium, and long-term. (Tribune, 2015: 116)
31. donated to help poor countries adapt to climate change impacts or adopt a lower-emission **development path**.

32. the world is on a **path to inaction**, or climate suicide in slow motion. (Dawn, 2018: 152)
33. This project marks the beginning of Nestlé Pakistan's **journey** to reduce the environmental impact of plastic packaging by improving the management and recycling of various kinds of plastic packaging to comply with United Nations' Sustainable Development Goals. (News, 2020: 83)
34. to **move down** a climate resilient **path** (Dawn, 2016: 76)

Table 4.12

Source Frame: Journey	Target Doman: Climate Action
Journey	Climate Action
Traveller	Pakistanis
	humans
Road map	Govt. Policies having technological solutions
Goal/ destination	reach the climate change mitigation
	low-carbon level
obstacles	Inaction or slow action

Mapping of Journey with Climate Action

As discussed earlier, the English language has a propensity to conceptualize actions through the domain of motion and usually, the motion is a forward one (Goatly, 2007). Movement forward links to improvement. So, moving forward means positive development (Ibid). The instances of CLIMATE ACTION IS A JOURNEY in the corpus also show this movement. All of the examples mentioned above show this movement. Moreover, a journey requires a goal and that is to reach to the destination. In CLIMATE ACTION IS A JOURNEY the socially desired goal/destination is the mitigation of climate change as shown in example 27.

To reach this destination, one must move forward and for that, you have to complete certain tasks. The tasks vary in different contexts. The road map in many instances is technological advancements. Example 27 shows that the “road map” to reach to the destination “adaptation and mitigation of serious problems” is a public policy. The policy has “targets” that can be achieved through “technology transfer” and funding. The road map states that in detail. Similarly, example 28 also stresses upon “the adoption of new technologies”.

The emphasis on techno-fix approaches to solving climate change problems is problematic as it entails that we can fix the earth with man-made gadgets. This connects to another metaphor PLANET IS A REPAIRABLE ENTITY discussed by Nerlich and Jaspal (2012) in their study on geoengineering discourse. This techno-fix frame is problematic through an ecolinguistics lens as it does not take into account the well-being of other living beings and the physical environment. Here, the noteworthy point is that humans who come up with such technological solutions are not only the actors but among the affectees as well, because the environmental issues in turn affect humans’ well-being as well (Stibbe, 2015). The need is to bring “change to the larger social and cultural systems which underlie all the issues. (Stibbe, 2015, p. 64). Frames like these ultimately benefit larger firms as pointed out by Carl Jon Way Ng (2018).

The metaphor also points toward new paths as the older ones were proven wrong. However, even the roadmap of the new path is also through technological advancement. The path through technological advancements is a new one for Pakistan as Pakistan has not been in the race of having the so-called green technologies. However, even the new path is more focused on the economic gains rather than on the metaphors promoting an ecologically balanced world at least in the case of journey metaphors in the corpus analysed in the present study. So, this metaphor constitutes a malevolent discourse.

4.3.6 CLIMATE ACTION IS MOVEMENT

CLIMATE ACTION IS MOVEMENT and CLIMATE ACTION IS A JOURNEY have clear similarities as a journey requires action. However, the CLIMATE ACTION IS MOVEMENT metaphor has much more basic characteristics warranting it to be kept in a

separate conceptual group. Table 4.13 shows that the words like “move”, “speed”, “slow” have been used in the corpus to conceptualize this metaphor. All of these words are from the domain of movement.

Table 4.13

No.	Types	Frequency (Collocation)
1	move	22
2	speed	12
3	slow	12
4	rapid	11
5	toward	11
6	progress	11
7	movement	8
8	Shift	8
10	leave	4
11	spur	3
	total	102

Words from the domain of movement used to map with climate action

Below are some examples of how these words as used in the context of climate action:

35. there is some cause for hope, with a **move toward** higher fuel standards and the setting of pollution control units in Islamabad factories. "It is a **slow** process, but it is there." (Dawn, 2017: 84)
36. …despite differences, the willingness to **move forward** and work towards major reductions in emissions is present among all. (Dawn, 2018, 144).
37. …we can expand the clean energy partnerships that create jobs and **move us toward** low-carbon growth. We can do more to help developing countries shift to low-carbon energy as well.

38. While the **pace** of improvement [in marine pollution] is too **slow** and an obvious change is yet to be seen… (Dawn, 2018, 47)
39. Consider the **progress** on goal 7- sustainable development - **on track** (Dawn, 2014: 86).
40. …to ban plastic plates, cups, and cutlery- hoping to **spur** on innovation in biodegradable products.
41. There was an immediate need for legislation aimed at encouraging industries to **move towards** environment-friendly systems, processes and increase their exports (Dawn, 2018; 47)

The above extracts from the corpus describe the achievement of an environmental goal by activating the movement domain. The orientation of the goal is spatiotemporal. The source domain is "movement" and the target domain is "environmentalism/ climate action". The two are distinct domains as climate actions do not actually physically move. The features of the source frame are mapped on to the features of the target domain to create a metaphor that is reflected in the corpus through the trigger words like "move", "slow", etc.

In example 35, the expression "move toward" is used to suggest how the environmental goal of higher fuel standards should be achieved. The speaker uses the phrase "move toward" in its literal meaning. Environmentalism is not like physical movements, for example moving in a certain direction to reach a place. On the contrary, the author means to suggest certain actions to be taken to get the environmental goal of higher fuel standards.

In examples 36 & 37 the word "towards" express the direction of movement and emphasizes the reduction of carbon emissions as a purpose of movement. Example 41 also explains the purpose of movement i.e., to have environment-friendly systems. The purpose factor and the movement connection can be connected with the conventional metaphor PURPOSES ARE DESTINATIONS or in Lakoff"s terms the event structure metaphor (Lakoff 1993, p. 220).

> …to ban plastic plates, cups, and cutlery- hoping to **spur** on innovation in biodegradable products.

Examples 38, 39, and 40 discuss the pace of the movement. The speed of the movement is slow, and it needs to be accelerated (example 38). To achieve the goal of reducing marine pollution, the movement should be sped up. Here, the movement refers to some plan or strategies rather than physical movement. In example 40 a hope to have a "spur" in biodegradable products is expressed. So, the environmental goal in this example is "innovation in biodegradable products" and a quick movement is required towards this goal. The movement in this example refers to some strategy(ies) rather than physical displacement.

In short, CLIMATE ACTION/ ENVIRONMENTALISM is a complex and abstract issue like all other political issues. On the other hand, MOVEMENT is a concrete domain, and it is easier to grasp. Such metaphors may function as a cognitive heuristic for the reader which in turn will make it easier to understand complex issues like environmentalism (Semino, 2008).

However, it is important to know what the goal of this movement is. Table 4.14 has a collocation of the trigger word "move" which answers this question.

Table 4.14

No.	Collocates	Frequency (Collocation)
1	toward	40
2	forward	17
3	green	6
4	electric	6
5	economy	5
6	renewables	5
	total	79

Collocations of the trigger word "Move"

A review of these collocates reveal that the word "move" strongly collocates with the words "towards" and, forward. These collocations show that the movement is towards some renewables and towards green and electric solutions. Moreover, the focus is also on the economy. So, although the MOVEMENT domain is easier to comprehend and relate

to, the goal mapping of the metaphor needs to be reconsidered. The metaphorical mapping reveals that techno-fix solutions are the goals of this movement rather than decreasing production. More has been promoted which makes it an ambivalent metaphor. We need to reframe the goal here.

4.3.7 ENVIRONMENTAL ACTION IS SPORTS

Another important metaphor around environmentalism is ENVIRONMENTAL ACTION IS SPORTS. The metaphor is vivid and vibrant; hence, can be placed in the category of novel metaphors. Table 4.15 shows trigger words in the corpus that constitute the source frame of sports around environmentalism.

Table 4.15

No.	Types	Frequency (Collocation)
1	goal	153
2	lead	24
3	race	12
4	team	12
5	tackle	12
6	hurdle	11
7	run	8
8	win-win	7
9	round	4
10	Player	4
11	wrestle	4
12	non-starter	1
13	fray	1
	Total	253

Words and their frequencies from the domain of sports used to map with environmental action

The words “goal”, “lead”, “race” and others in Table 4.15 are all from the source frame of SPORTS. Below are some instances from the corpus in which some of the above-mentioned words are used in a way that underlies the conceptual metaphor ENVIRONMENTAL ACTION IS SPORTS:

42. While **Pakistan** is not expected to be a **major player** in global warming, its energy-based emissions are a major source of pollution. (Dawn, 2016: 63).
43. **Green banking** has emerged as an **important player** in fight against climate change. (News, 2020: 24)
44. Financing less polluting cook stoves is one of the few **win-win** options for the planet (Dawn, 2015: 63).
45. The move to electric vehicles is a **win-win strategy**. (Dawn, 2020: 16)

In this metaphor, sports is the source frame and environmental action is the target domain. Sports are played for the purpose of entertainment and pleasure, and they involve competition. Sports also involve the physical involvement of the participants. To understand the mapping between these two distinct areas of life, it is important to find out the elements of the heuristic domain “game”. Sports require teams, usually two and in some cases only opposing players. The teams play to win. One of the teams is the winner and the other is the loser. However, sometimes there is a win-win situation. According to MEDAL, “a win-win situation is one in which everyone benefits“. These elements are mapped onto the environmental action. So, the opposing team is the environmental issues and players in general are human beings. But we can see in Ex. 42 that Pakistan is a major player in this sport. There are some other instances where China, Russia and some other countries have been termed as major players (for instance, Dawn, 2019: 31; Tribune, 2017: 123). However, Ex. 43 terms green banks as the crucial player in this sport. In many instances the strategies to win the environmental action sports are termed to result in a win-win situation as for example in Ex. 44. That being said, it is to come up with such strategies in which both the humans and the reasons responsible for the ecological crisis win. The strategy in Ex. 45 is to come up with new technology to fix the environmental crisis (in this case the electric vehicle). The techno-fix solutions are once again reinforced in this metaphor.

Above are some examples in the general category of sports. However, there are different sports for example running, cricket, hockey, football and so on. Different sports as a source frame have some similar elements like all of them involve competition. However, different sports have different elements as well to be mapped onto the target domain. For instance, the nature of hockey is different from that of running. The corpus has some examples from specific kinds of sports as well. A few examples of these specific sports in the corpus are mentioned below:

46. Pakistan is far behind in **renewable race** as only 2% of energy comes from renewable and 64% from thermal (fossil fuels), 27% hydro, 7%nuclear. (Tribune, 2019: 80).
47. **Running** for Green Cover (The News, 2020: 124)
48. It's a whole new **ball game** and climate trend lines can no longer be followed. (Dawn, 2015: 57).
49. Khan said that a **clean environment** is the basic right of every citizen and everyone will have also to **play** a role to achieve this **goal**. (Tribune, 2018: 45).

Ex. 46 and 47 use trigger words around the frame of racing sports. The underlying specific CM is ENVIRONMENTAL ACTION IS RUNNING. "Race" and "running" involves pure competition. The race in these examples shows the efforts on the part of the governments to get more ecologically friendly. The country in question is Pakistan. The aim of running in this race is to come up with "renewable" resources solutions or "green cover".

Ex. 48 uses the phrase "ball game". The ball is involved in many games like billiards, hockey, football and so on. However, it has been stated that environmental action is a "whole new ball game". The previous solutions to environmental issues are no more applicable and we need to come up with some new solutions. The fact is that the environmental issues are no longer the same as were a few years ago so the whole game is different now. This implies that strategies of the sports should also be improved rather than the old being followed. The after-effects of the environmental issues focused upon in this article are "floods" and "glaciers melting". The need is to come up with new strategies.

The strategies mentioned are to “adapt” to the flooding, restrict development in the flood zone, and implement new laws. The strategies are to cope with the environmental issue at hand. Although the adaptation to the situation and restriction on development has been considered as strategies but development has been restricted only in the flood zone area to stop casualties in the area.

Goals are parts of the sports like hockey, football, and basketball. Since hockey is the national sport of Pakistan and is more popular among the masses, we may assume that hockey has been referred to here. Semino considers the football metaphor as the most used metaphor in order to justify the Gulf War to the masses. However, the kind of sports used depends upon the cultural context. “Clean environment” has been termed as the purpose in Ex. 43. The players are human beings, and every player has a role in scoring this goal. The goal can be scored by “planting more trees”. The goal is a word that has been conventionally used metaphorically to talk about something that someone or a country hopes to achieve (MEDAL). Deignan (1995) also pointed out this conventional metaphorical use of the word goal.

SPORTS is a cognitive heuristic that may help in understanding climate action easily. Sports is a domain that many people are interested in and have knowledge about. So, it is easier for people to understand climate action through the sports frame. Further, since it is a cognitive heuristic so it will have a more persuasive effect on the reader. Semino and Masci comment on the SPORTS frame as:

> Within sports metaphors, the complexities of ideological and ethical issues are backgrounded and politics is presented as a relatively simple domain with clear participants (the party “teams”), unproblematic goals (winning) and unambiguous outcomes (victory or defeat). (1996, p. 250)

So, according to Semino and Masci (1996), the SPORTS frame makes the target domain easier to understand. Further, it may bring “excitement” to the otherwise boring and “alien” target issue (p. 251).

However, whether the metaphor is ambivalent, benevolent, or malevolent, the specific context in which the metaphor has been used should also be taken into consideration (Stibbe, 2015). The win-win situation in environmental action sports reinforces the techno-fix strategies for environmental protection. It implies that we should not limit our development; we should continue with the same lifestyle but the materials that we use should be fixed and some so-called environmentally friendly materials should be introduced by replacing the old material with the new ones. It means that environmental issues can be fixed with technological advancements. This view promotes "having more" which is hazardous to the well-being of nature, humans, other living beings and the wider systems that supports life (Stibbe, 2015; Halliday, 2001).

However, there are some instances, where the goal is "clean environment" and the strategies are to grow more trees/forests. This promotes actions which are healthier for the environment. However, neglects the basic issue of reduction of production. Based on the discussion above we may term this metaphor an ambivalent one.

4.3.8 ENVIRONMENTAL ACTION IS PERSONAL RELATIONSHIP

ENVIRONMENTAL ACTION IS PERSONAL RELATIONSHIP is another widely used CM in the corpus. Table 4.16 shows a list of words and their frequencies in the corpus that discuss environmental action in terms of personal relationship.

Table 4.16:

No.	Type	Frequency (Collocation)
1	friendly	607
2	embrace	27
3	attractive	21
	Total	655

Lexical items from the domain of PERSONAL RELATIONSHIP used to describe ENVIRONMENTAL ACTION

As can be noticed that the most common word to explain environmental action in terms of personal relationship is “friendly”. Other lexical items that serve the same purpose are, “embrace” and “attractive”. Following are a few instances of these words used in context:

50. …Federal capital would be the first city to have **environment friendly** electric transport… (Tribune, 2020: 96)
51. Shopping baskets made of cane or wicker are completely biodegradable and are, therefore, the most **environmentally friendly** option (Dawn, 2019: 55).
52. … to display his Cost Efficient Self Disintegrating **Eco Friendly** (CESDEF) Plastic Bags Project at the National Science Fair 2013. (Tribune, 2013: 163)
53. The government will pass necessary regulations to force the markets to allocate more money into climate-friendly solutions (Tribune, 2012: 119)
54. The capital will **embrace** complete ban on polythene or plastic bags [that are not friendly to the environment] (News, 2019: 56)
55. Will Pakistan be able to **embrace** EV revolution [linked to climate change]? (Tribune, 2020: 82)
56. …[the government warns] each of the kilns in the province to comply with the orders to **embrace environment-friendly** production or face closure (Ttibune, 2020: 23)

“Environmentally friendly” (“Environmentally-friendly”/ “environment friendly”/ “eco friendly”/ “climate friendly”) is the most frequently used word to trigger this CM. Since it is a well-established expression, its meaning is reported in most dictionaries. According to MD, the expression environmentally friendly means “designed not to harm the natural environment”. In all of the examples above friendly means to establish more or less the same meaning - not harmful. The most basic meaning of friendly, as in MD, is “pleasant and helpful towards other people”. So, *friendly* is used to show relationships between human beings only. Similarly, “embrace” or “embracing” is also a term specific to human relationships as we embrace other humans to show our feelings or friendship. The most basic meaning of “embrace”, according to MD is “to put your arms sound someone in order to show love or friendship”. “Attractive”, according to MD, is also used

to describe someone physically pleasant usually sexually pleasant. Hence, all the three lexical items are basically more or less used to describe human relationships. As can be noticed in Ex. 50-56 these words are not used for humans but for the environmental actions triggering the conceptual metaphor ENVIRONMENTAL ACTION IS PERSONAL RELATIONSHIP. In this CM, the target domain is environmental action, and the source frame is personal relationships. Environment, ecology, or climate cannot literally make friends or embrace or be sexually attractive as these are the traits attributed to human beings. Humans make friends, and can be friends with; embrace or be embraced, and can be sexually attractive or term other humans sexually or physically attractive. These personal traits of human beings are applied to environmental action in the above-documented examples (50-56). For instance, Ex. 50 mentions electric cars that are friends of the environment; Ex. 51, 52, and 53 discuss shopping baskets, and plastic bags respectively all friends of ecology/climate/environment. Ex. 56 mentions embracing all the products that are friends of the environment. When we are friends with someone, we are not harmful to them. So, are all the entities that we term as friends of the natural environment not harmful to the environment?

The motivation behind the conceptual metaphor ENVIRONMENTAL ACTION IS PERSONAL RELATIONSHIP is to motivate the masses to make a personal relationship with all the entities that are friends of the ecology i.e., that are not harmful to the environment (at least apparently it signifies so). Personal relationship requires care on both parts and desires each other to be happy, healthy, successful, and safe. We, as friends of the environment, should also want the same for the environment. However, this is just consumerism-coated truth. In reality, the metaphor explains how hazardous our actions are to the ecology. For instance, plastic bags, shopping baskets, EVs, and economic development all are the main causes of the degradation of the environment. These support excessive consumption of items which are not good for the well-being of the systems that support life. As Stibbe (2015) states, “to keep within environmental limits an immediate and large-scale reduction of total global consumption is necessary” (p. 14). EV and so-called environmentally friendly plastic bags promote production and have more which is not good for the well-being of the environment (Halliday, 2001). So, these so-called

friendly solutions to environmental degradation serve the purpose of toxic consumeristic thinking.

Further, the so-called techno-fix environmentally friendly solutions show shallow environmentalism only rather than deep ecology. Shallow environmentalism focuses on the immediate environmental concerns and proposes technological solutions to these issues instead of addressing "the underlying cultural, political and psychological causes" (Stibbe, 2014, p. 2). The major assumption of shallow environmentalism is that we can continue expanding technologies, economies and populations with alternate solutions (usually technological one) that are better for the well-being of the ecology (Henning, 2002). Deep ecological movement, on the other hand, sees the intrinsic value of everything in nature and calls for a deep change in human culture, politics, and psychology to remove the causes of ecological degradation at the root level (Naess, 1990; Devall & Sessions, 1985). The ecosophy of the present study supports deep ecology rather than shallow environmentalism; so, the conceptual metaphor ENVIRONMENTAL ACTION IS PERSONAL RELATIONSHIP is destructive due to the way it has been mapped in the context.

But, is it a mutual relationship? The environment might not be responding to these feelings apparently. But, the passive return of nature cannot be ignored for it gives us good, good air to breathe and so on. However, the environment responds back to the way we treat it. Romaine (1996) points out that the friendship metaphor in the environmental discourses is a matter of political opinion, same as it is in the war metaphors. It is the government that decides for us who are our friends and who are our foes. I argue that political opinions are hugely affected by the corporate sector as both depend on each other for survival.

4.3.9 NATURE IS A COMPETITION

PEC has some metaphors around "nature" as well. One important metaphor around nature is, NATURE IS A COMPETITION. The metaphor resembles previously discussed metaphors like ENVIRONMENTAL ACTION IS SPORTS; CLIMATE CHANGE IS A BOMB, and CLIMATE CHANGE IS A WAR. The metaphor is vivid and vibrant; hence, can be placed in the category of novel metaphors. Table 4.17 reports trigger words in the

corpus that constitute the source frame of COMPETITION around the target domain NATURE.

Table 4.17

No.	Types	Frequency (Collocation)
1	champions	8
2	fighting	6
3	win-win	3
	total	17

Lexical items from the domain of COMPETITION used to describe NATURE

The words "champions", "fighting", and "win-win" in Table are all from the source frame of COMPETITION. Below are some instances from the corpus in which some of the above-mentioned words are used in a way that underlies the conceptual metaphor NATURE IS A COMPETITION. The context of a few of these words in the corpus is mentioned below:

57. Our real **champion of nature** is prime minister Imran Khan (Tribune, 2020: 6).
58. …the WEF recognised the government's green initiatives and stated that **champions for nature** is a community of leaders who contend to protect environment, combat climate change, support global economic growth and save the world against any environmental degradation until 2030. (Tribune, 2020: 6).
59. With his [Dr Mansoor Kazi] death we have lost **champion of nature** and animal conservation in the country (Dawn, 2020: 13).

The word, "champion" in the Ex. 57-59 is a word that triggers the metaphor NATURE IS A COMPETITION. In this CM, competition is the source frame, and nature is the target domain. Competition is usually between two or more living beings. According to MEDAL, competition is "the activities of people who are trying to get something that other people also want". So, like sports, in competition as well, we have winners and losers. Competition is an important concept of human societies. According to Larson (2011),

humans have a natural tendency towards competition. We struggle for resources and survival by placing ourselves in competition with each other, or with other living beings.

In the above-given examples, this metaphor puts us in a situation where there must be a winner, and human beings are the winners. These winners/champions should try their best to maximise their interests. So, the human champions are champions because they "protect the environment, combat climate change, support global economic growth and save the world against any environmental degradation" (Ex. 58). Here, the competition is between humans to protect the environment against global climate change, and to save the world against environmental degradation. So, humans are sort of saviours. The competition is between humans to find out the champion, and the champion is the one who saves the world more or whose actions are more in this regard. Imran Khan is the "real champion of nature" because of his "Billion Tree Tsunami" project. His move is to plant more trees to save the environment. However, the same saviours (humans) are responsible for the degradation of the environment in the first place. Further, Ex. 58 mentions one of the qualities of champion for nature as supporting "global economic growth". Economic growth is one of the major causes of ecological issues. Now, the saviour is to promote economic growth, and at the same time to save the world from further environmental degradation - both of these activities are contrary to each other. Economic growth will be at the expense of environmental degradation. That might be the reason that Ex. 57 mentions "real" champion of nature which means that there are some fake or artificial champions as well like the one who promote economic growth.

Larson (2011, pp. 75, 86) favours the competition metaphor and states that competition is a "powerful, ideological metaphor that justifies how we act in relation to the natural world and toward one another…By balancing corporate liberalism with a more cooperative worldview, we may set ourselves more firmly on the sustainability path". The sort of balance that Larson supports is not favourable to the ecological balance as per the ecosophy of the current study.

The competition metaphor encourages anthropocentric views. It also favours economic growth which is one among the causes of environmental degradation for

economic growth depends upon consumerism. However, according to the ecosophy of the current study, human superiority and consumerism are not good for the environment (Stibbe, 2015). So, the metaphor may be termed a malevolent one.

4.3.10 NATURE IS A PERSON

In many instances nature has been personified in the corpus. The personification of nature is of different level - from organism to the Gia theory. Table 4.18 shows the number of trigger words that evoke NATURE IS A PERSON metaphor.

Table 4.18

No.	Types	Frequency (Collocation)
1	health	41
2	mother	20
3	save	5
4	treatment	3
	total	69

Words and their frequencies from the domain of PERSON used to map with NATURE

Context of a few of these words in the corpus are mentioned below:

60. Snow leopard … is the indicator of **ecosystem health** in the harsh terrain. (Dawn, 2017: 112)
61. Birds are indicators of a **healthy ecosystem**. (Dawn, 2012: 13).
62. Monoculture is not a good strategy for maintaining a **healthy** ecosystem (Dawn, 2016: 20)
63. Parks and open spaces … **healthy** ecosystem.
64. Water is the **Soul** of the Earth (Tribune, 2019: 183)

In NATURE IS A PERSON, the source frame is person, and the target domain is nature. A person or organism breathes and requires good food and some other factors to

remain healthy. According to MEDAL, the most conventional meaning of "healthy" is "physically strong and not ill". Like a person, nature also needs to remain healthy. According to Ex. 60 and 61, a healthy ecosystem requires a balance of all species. Birds and snow leopards are among such organisms whose presence is the indicator of a healthy ecosystem. Ex. 62 mentions that monoculture is a threat to the health of nature. So, having varieties of cultures promotes a healthy ecosystem. Further, Ex. 63 favours parks and open spaces as important factors to keep the body of the ecosystem healthy.

Some studies discuss the NATURE IS A PERSON metaphor and have differing conclusions on the nature of the metaphor. Lackey (2007) calls the NATURE IS A PERSON metaphor a destructive one because the goals to remain healthy are set by the scientists rather than by the policymakers. Similarly, Nerlich and Jaspal (2012) term this metaphor as destructive because of "geo-engineering" and "chemotherapy" as the solution to treat the ailing nature (p. 139). On the other hand, Keulartz (2007) talks more positive about the metaphor. He argues that this metaphor insists upon the "cooperation between natural, social, and medical scientists" which may bring about some consensus among these people to term what ecosystem health is.

The current study does not find, in the corpus, any example terming geo-engineering and technology as the tips to a healthy ecosystem. As mentioned earlier, the tips to remain healthy are having balance between organisms, multiculturalism, and greenery. Stibbe (2015) mentions that a deep change in the current cultural and social systems, giving equal importance to all living beings and all cultures are beneficial to the ecological balance.

The more specific instantiation of the person metaphor in the corpus is NATURE IS MOTHER. A few of such examples in the corpus are documented below:

65. A letter from **Mother** Earth (Dawn, 2012: 61).
66. …please don't call me **mother** if you can't respect and treat me like a **mother** (Dawn, 2012: 61).
67. … express their love for mother earth by conducting environment-friendly activities. (Tribune, 2019: 128)

68. …[animals] have cared for mother earth far more than humans… (Dawn, 2019: 230)

In this CM, the source frame is mother, and the target domain is nature. The proponent of Gaia theory, James Lovelock used this metaphor frequently (Stibbe, 2015). In Greek mythology, Gaia or Gaea is the personification of earth. She is the goddess of earth; the mother of all life. Mother has many roles. She nourishes life; takes care of the children. She is full of love and care. Earth also nourishes life; takes care of life on it; and feeds her children. Children make mistakes but the mother forgives them. She is always full of prayer for them. Similarly, humans, as one among the children of Earth, make mistakes, and Earth still feeds them and gives them warmth and food. However, as Ex. 68 shows that humans are not the only children of Earth, animals and other beings are also children of Earth, and they are better children as they care for their mother more. So, children can be bad as humans or good as animals.

Gaia is one of the conventional metaphors that is part of different cultures. In Pakistani culture, we call Earth as دھرتی ماں/ Mother Earth. There are differing views about the Gaia metaphor. Romaine (1996: 183) terms Gaia metaphor as ‘anthropocentric' because it gives more importance to humans rather than organisms. Berman (2001) further finds an issue with terming Earth as a female. There is a similarity between the oppression of women by men with that of Earth by humans. Like women are weakened and given fewer rights, similarly, Earth is weakened and given fewer rights. Berman (2001, p. 267) states:

> The association of women and femininity with Nature in environmental discourse perpetuates patriarchal traditions and domination. It can therefore be seen that uncritical gendering of Nature and the use of the rape metaphor re-creates the dominant ideology of oppression.

Verhagen (2008, p. 8), on the contrary, terms the Gaia metaphor more positive and states that the personification of Earth, “implies that it has intrinsic value and that its interests as a whole are worthy of human consideration. By thus encouraging a sense of reverence for life, it is to be welcomed”.

However, the status of the mother is different in Pakistani culture. Mother has been given very high status in Islam which is the base of Pakistani culture. Prophet SAWS said, “Paradise lies beneath the feet of mother” (Nasai, Jihad, 6; Sunan al-Nasā’ī, p. 3104). There are many such Hadiths that call for deep reverence for mothers and motherhood. The same prevails in Pakistani society. The Gaia metaphor demands the same respect and care for Earth as well. Ex. 66 explains this respect. The letter from Mother Earth to humans states that if humans cannot treat and respect Earth like a human mother then humans should not call Earth a mother. The respect that a mother deserves in Pakistani society should be given to Earth as well.

The Gaia metaphor is anthropomorphic but not anthropocentric because it “gives a reason for the existence of forests, plants and nature beyond the narrow utilitarian goal of supporting human lives” (Stibbe, 2015, p. 71). As can be seen in the Ex. 61 other living beings are also termed as children of Earth, not only humans. Further, since the metaphor demands respect for the Earth, we can term this metaphor as a benevolent one at least the way it has been presented in the corpus of the present study.

4.3.11 NATURE IS A MACHINE

Another important vivid metaphor in the corpus is NATURE IS A MACHINE. The findings in Table 4.19 shows the words that set up this metaphor in the corpus.

Table 4.19

No.	Types	Frequency (Collocation)
1	fix	98
2	repair	13
3	tool	10
4	maintenance	6
5	management	4
6	mismanagement	4
7	toolkit	3
8	misuse	3
9	use	2
10	condition	2
	total	145

Selected word types corresponding to NATURE IS A MACHINE metaphor

As evident from the list of the words, these all belong to the domain of machine. In the metaphor, NATURE IS A MACHINE, nature is the target domain and machine is the source frame. Nature is a complex concept, and it needs some concrete frame to be mapped with and understood; in this case, the frame is machine. Below are a few examples from the corpus in which the CM NATURE IS A MACHINE has been manifested linguistically using some of the trigger words listed in Table 4.19:

69. There is no quick **fix** solution to the sea's erosion. (Dawn, 2019: 78)
70. **Fixing** this will require massive investment in clean technology (Tribune, 2014: 66).
71. **Fixing** pollution and global warming is not rocket science, it just needs an honest and sincere effort. (Tribune, 2013: 139)
72. Broken bank is a crisis we can **fix**; broken Arctic we cannot. (Dawn, 2015: 66).
73. Government sets out to **fix** environment (Tribune, 2017: 105)
74. The only way we can **repair** the damage done by us is by planting more trees… (Dawn, 2012: 27)

75. …let it [nature] **repair** itself. (Dawn, 2020: 65).
76. …we have a collective responsibility towards its [earth's] proper **usage, maintenance**, preservation and towards leaving the earth and its resources in a better **condition** for the upcoming generation. (Dawn, 2018: 34).

As discussed earlier, in NATURE IS A MACHINE "nature" is the target domain and "machine" is the source frame. Machine, according to MED, is "a piece of equipment that does a particular job by using electricity, steam, gas etc.". Machines are for providing ease by completing a particular task. They require proper "maintenance" to work better and for a longer period. However, machines can get out of order. If this happens then machines can be "repaired" or "fixed" by a technician or an engineer. If we talk of nature as a machine, then we map these traits of machine onto nature. NATURE IS A MACHINE means that nature is also a piece of equipment that does a particular job like serving humans. Like all machines, nature is used, and it requires proper maintenance. However, if abused then nature can be out of order like all machines. In such a case, nature should be fixed or repaired. According to MEDAL, "repair" means "to fix something that is broken or damaged". Similarly, the word "fix" means "to repair something". The examples given to explain these words are of machines like clock, washing machine and so on. The broken parts of nature can be repaired by "investment in clean technology" (Ex. 70), through "honest and sincere efforts" (Ex. 71), by the government bringing new technology to produce more crops (Ex. 66), "by planting more trees" (Ex. 73), and by being more sensitive towards nature (Ex. 75). This corresponds to another metaphor; PLANET IS A REPAIRABLE ENTITY. Like all other machines, nature can also be fixed by humans because they are the operators of this machine. However, Ex. 75 mentions nature to be left alone to repair itself which is rare for many machines. Machines can be abused so much that they may not be able to repair further; we discard such machines in the garbage. Some of the damages done to nature are also either difficult to be repaired or irreparable (see Ex. 69 and 72 respectively). Sea erosion and the broken Arctic are among such irreparable damages. So, should we discard this machine and buy another one? No wonder humans are searching for another planet in the galaxy to live there and discard planet Earth.

Apparently, the metaphor is to protect nature, but in reality, this CM places nature in a subordinate position and humans in a superordinate position - nature is a machine having different parts, performing different tasks, and it is operated by humans. Further, as Stibbe (2015) argues that the machine metaphor implies that machine is "assembly of parts" and if any part gets damaged then that can be repaired or replaced "without having to consider the system as a whole" (p. 69). This promotes the misplaced optimistic view that geo-engineering or planting trees can fix the isolated ecological issues without bringing "any change to the larger social and cultural systems" which are the root causes of all the issues (p. 69). Even the acknowledgement of the threat of possibility of some irreparable damages to some parts of the machine (as in Ex. 72) does not instigate to bring change in the larger social and cultural systems but suggests coming up with some techno-fix solutions to avoid irreparable damages. Hence, the machine metaphor fades humans" sense that their living style and cultures are actually the root cause of the damage and a deep change in lifestyle and cultures are required to stop further damage.

The CM further promotes the idea that environmental damages can be fixed as easily as damages to any other machine like a car or a computer as pointed out by Nerlich and Jaspal (2012) in their work. The repair is usually done by scientists, policy makers, and engineers which implies that other humans do not have any responsibility towards bringing social changes and cultural shifts to contribute to restoring the well-being of larger systems that life depends upon (Nerlich and Jaspal, 2012).

Moreover, the CM, NATURE IS A MACHINE excludes other living beings "who live within and are part of nature" (Stibbe, 2015, p. 69; Verhagen, 2008).

Due to the metaphor NATURE IS A MACHINE making humans at the controlling and superior end, geo-engineering as a solution to the ecological damage, only scientists, politicians and engineers the ones responsible for repairing the damage and neglecting the celebration of the other than human life on earth- the metaphor can be termed as malevolent one as suggested by the previous studies as well.

4.3.12 NATURE IS A WEB

NATURE IS A WEB is another important metaphor to explain interconnectedness in nature. The findings in Table 4.20 shows the words that set up this metaphor in the corpus.

Table 4.20

No.	Types	Frequency (Collocation)
1	web	8
2	life	5
3	interconnection	5
4	destroy	4
5	weaken	3
6	thicken	3
7	disturb	2
	total	30

Selected word types corresponding to NATURE IS A WEB metaphor

As evident from the list of the words in Table 4.20, these all words belong to the domain of web. In the metaphor, NATURE IS A WEB, nature is the target domain and web is the source frame. As discussed earlier, nature is a complex concept and it needs some concrete frame to be mapped with and understood; in this case, the frame is web. The web metaphor around nature shows the complexity of the interrelationship between entities in the ecosystem. The source frame web can refer to different types like that of a spider or the World Wide Web. However, the mapping is usually with the spider web. One of the qualities of the spider web is interconnectedness. The strings of a web are connected to each other in a complex but organised way. However, not all the connections are the same on the web. Some of the points may be connected through a thickened string while the other may be connected through weak or loose strings. However, if there is a breakage of connection at any point in the web then even the strongest strings are disturbed - the effect is on every point of the web. Similarly, in web of life, or web of food, invisible strings connect all living beings for food and other necessities. The presence of one living being

is dependent upon the presence of another being. Humans are also part of this complex web. However, some living beings are more strongly connected to other living beings. If there is any disturbance in this chain of life, then the whole web of life is disturbed. All living beings are dependent upon the existence of the other living beings in this web of life (Ex. 70).

Below are a few examples from the corpus in which the conceptual metaphor NATURE IS A WEB has been manifested linguistically using some of the trigger words listed in Table 4.20:

77. All living things have their own unique role in **ecosystem**, if we remove one, we disturb the whole system. Imagine it as all living things joined together in a **web of life**, if one string of the web **breaks**, it rocks and weakens the whole web… many species of animals and plants have disappeared, and steps are taking place to preserve those who are endangered and make efforts to prevent loss of further valuable life forms. (Dawn, 2019: 88)
78. If we don't act soon to protect and restore nature and use it sustainably, then we will end up destroying the **interconnected web of life** on Earth (Tribune, 2019: 98).
79. …an estimated 80% of the fish caught in coastal waters depend on the **food web** within the **mangrove ecosystem**. (Tribune, 2019: 98)
80. The decline of environmental **systems** on earth that are all **interconnected** have been **disturbed** by human activity - the water cycle, climate cycle, food cycle, ocean currents, animal migrations, carbon/oxygen exchange and so on. (Dawn, 2017: 77)

Ex. 77 explains the metaphor NATURE IS A WEB in detail. It explains how the breaking of one string can contribute to disturbing the whole ecosystem. Ex. 77 and 78 shows further appeal to humans to preserve the endangered species in order to keep the web of life strong. Ex. 79 points towards many mini webs within the larger web of life. The mini web in question is of mangrove. However, disturbance in these mini webs will affect the larger web of life. In Ex. 80, human activity has been considered the main culprit in disturbing the Earth's ecological system.

NATURE IS A WEB is among those metaphors that include humans as just one part of nature. As Stibbe (2015, p. 72) states, "humankind has not woven the web of life. We are but one thread within it. Whatever we do to the web, we do to ourselves. All things are bound together. All things connect." So, this metaphor entails that since humans are one part of the web, whatsoever humans do, will have an effect not only on the other parts of the web of life but also on the humans themselves (Raymond et al. 2013:). However, species are getting extinct due to human activity which will have a ripple effect on the entire web of life including humans (Ex. 78 and 80). According to Stibbe (2015), one criterion for judging metaphors around nature is to know if they consider humans as part of nature or outside nature. NATURE IS A MACHINE considers humans not part of nature but an entity outside nature. Similarly, NATURE IS A PERSON metaphor also considers human outside nature rather than being part of it. If we take Stibbe's criterion of judging nature metaphor, then NATURE IS A WEB is a benevolent metaphor.

However, the metaphor NATURE IS A WEB has some limitations as explained by Yan Ji (2020). One of the limitations is that the nonlinguistic complexity of the web of life cannot be "fully expressed in a few words" (Yan Ji, 2020, p. 371). Further, the web may be confused with the World Wide Web and masses may try to map the traits of WWW with the target domain nature. This may create confusion.

So, the web metaphor conveys the complex interconnectedness of beings in nature by mapping it with the characteristics of a spider web to make the phenomenon easy to understand but it does so "at the expense of detail and at the risk of conflating it with the other "web" metaphors" (Yan Ji, 2020: 371). Despite all of its limitations, NATURE IS A WEB metaphor can be placed under the banner of benevolent metaphors.

4.3.13 THE EARTH IS A HOUSE

Another conceptual metaphor evident from the words in Table 4.21 is THE EARTH IS A HOUSE. This metaphor can also be termed as a novel metaphor for it can be noticed consciously in the texts. Table 4.21 shows the trigger words that evoke the source frame GREENHOUSE to describe the target domain EARTH.

Table 4.21

No.	Types	Frequency (Collocation)
1	Greenhouse	312
2	Floor	32
3	sink	11
4	build	7
	total	362

Lexical items from the domain of house used to describe Earth

The lexical items “greenhouse”, “floor”, and “sink” are used to describe the earth in the material. Hence, they trigger the conceptual metaphor THE EARTH IS A HOUSE. The following are a few concordances of these words in the corpus:

81. Being a sub-set of climate change, global warming is a problem attributed to an increase in **greenhouse gases** due to industrial activity (Dawn, 2011: 2)
82. **Greenhouse gases emissions** from cars and factories have made the earth steadily warm (Dawn, 2015: 86)
83. …Atlantic ocean **floor**… (Dawn, 2019: 163)
84. [trees] act as carbon **sink** (Dawn, 2012: 23)

In the metaphor THE EARTH IS A HOUSE, the earth is the target domain and house is the source frame. However, as can be noticed, the house is of a specific type i.e., greenhouse. Greenhouse according to MEDAL is “a building made of glass that is used for growing plants that need protection from the weather“. So, a greenhouse is a building having transparent walls and a roof mostly made up of glass. Plants are grown in this structure to protect them from the outside harsh cold weather. These structures range from small sheds to huge industrial-sized buildings. The transparent structure lets the sunlight enter the house freely to make the internal of the house warmer than the external cold weather. The glass of the greenhouse prevents the heat from escaping out of the house which makes trees grow. In the material, the earth has been termed as greenhouse. The

earth is a greenhouse, and the atmosphere is its transparent glass walls and roof. The atmosphere stops the heat from escaping from the earth.

Ex. 81 and 82 mention greenhouse gas emissions. Greenhouse gases are the gases that are emitted by the plants in the greenhouse. However, in these examples, it has been shown that the greenhouse gas emissions are from industrial activity, cars, and factories into the atmosphere. Here, it is noticeable that while the heat in the greenhouse promotes life, heat trapped inside the earth is caused by life-damaging entities like cars, and factories. But, trees can act as "sinks" to absorb these toxic greenhouse gases.

The greenhouse metaphors, one of the widely used metaphors in environmental discourse, are a little confusing as the mapping is not much evident. One of the reasons of having no explanations for this metaphor may be that the mapping of the metaphor is supposed to be understood (Asplund, 2011).

Contrary to Romaine's (1996) claim, who terms the greenhouse explanation of earth a beneficial one (because the earth has been seen as a shelter which is cosy and comfortable), the current study argues that THE EARTH IS A HOUSE is a malevolent metaphor for various reasons. First, this metaphor fails to feature the complexity and diversity of the amount of life that resides under this greenhouse - earth. The actual greenhouse has a much less complex ecosystem than that of the earth. Further, houses are built and run by humans. Similarly, a greenhouse is also designed, built and controlled by humans. This entails that earth as a greenhouse is also controlled by human beings, and we have the authority to run it in any way. Thus, the conceptual metaphor THE EARTH IS A HOUSE promotes anthropocentrism. Lastly, humans do not live in actual greenhouses. If we map this element of greenhouse to earth, then that may entail that humans are outside the earth controlling it from outside. It further entails no matter what we do to the earth, it will not have any effect on us.

4.3.14 ENVIRONMENTALISM IS A SCALE OF CLEANLINESS

Another important conceptual metaphor is ENVIRONMENTALISM IS A SCALE OF CLEANLINESS. This CM has been manifested in the texts to talk about the extent to which something is ecologically friendly or not in terms of cleanness. The following table

lists the words along with their frequencies from the domain of clean used to describe environmental action/environmentalism.

Table 4.22

No.	Types	Frequency (Collocation)
1	clean	220
2	cleaner	101
3	dirty	72
4	black	21
5	dirtier	1
	total	415

Lexical items from the domain of CLEAN/DIRTY used to describe ENVIRONMENTALISM

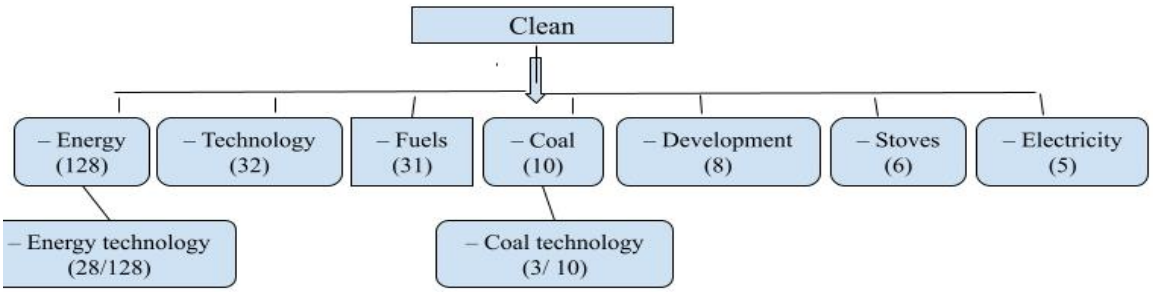
As obvious the dominant words are “clean”, and “dirty”. Similarly, the type “cleaner” is used multiple times to show the scale. Below are some examples showing some of the distinct ways these words are used in context in PEC:

85. The university is setting up the plant… to produce **clean** and pollution free **energy**. (Tribune, 2013: 69)
86. **Clean coal** can slow down the [carbon] emissions… (Tribune, 2017: 95)
87. The money then generated can be used for **clean development initiatives** (Tribune, 2015: 120)
88. Push for **cleaner stoves** in poor countries to cut pollution. (Dawn, 2015: 63)
89. Europe has washed its hands of **dirty energy.** (Dawn, 2015: 66)
90. Pakistan stepped up its climate action ambition in the energy sector by boldly announcing shift away from **dirty coal**… (News, 2020: 127).
91. And yet **black carbon** is largely unregulated… (Dawn, 2015: 63)

In the metaphor ENVIRONMENTALISM IS A SCALE OF CLEANLINESS, the target domain is environmentalism, and the source frame is a scale of cleanliness. Ex. 85-

88 shows how “clean” and “cleaner” have been used to talk about different entities like coal, energy, development, and stoves. Clean has also been used to talk about other entities as reported in the figure below:

Figure 4.4



Collocations of “clean” with different entities related to the natural environment

As the figure shows clean has been used with different topics that are of interest to the environmentalists. However, it may be noted here that these are not the only instances where the word clean has been used. Out of a total of 1,750 uses of the word “clean” only 220 times the word has been used metaphorically. Hence, it is important to know the meaning of the word clean. According to MEDAL, the meaning of clean is, “not dirty” (a. “clean air or water has no dirty or dangerous substances in it”; b. “clean machines and processes do not create a lot of pollution”). The meaning “not dirty” is vague. I take option “a” as the most basic meaning of the word as it is precise and easier to imagine. So, cleanliness does not have dirty or hazardous substances in it which implies that the type of energy, coal, technology etc will also not have any dirty or hazardous substances in it.

Ex. 85 describes clean energy as the goal of environmentalists. Similarly, Ex. 86 describes clean coal as the goal of environmentalism. However, can development, coal and other entities mentioned in the figure be literally clean? Since they are not literally clean, so they form the metaphor, ENVIRONMENTALISM IS A SCALE OF CLEANLINESS. So, we can take that the type of energy, coal, stoves, and development described in Ex. 85-

88 as less hazardous than the other type of the same entities. There are some other types of these entities which are dirty, hence, hazardous to the environment (Ex. 89-91); hence, they should not be used. According to MEDAL, the meaning of "dirty" is "not clean". So, environmentalism is to move from such dirty entities to cleaner entities. The nearer the entity is to the clean on the scale, the more environmentally friendly it is.

This CM can be connected to two other higher degrees CM's i.e. ENVIRONMENTALISM IS MOVEMENT and MORAL/ETHICAL IS CLEAN. The former has already been discussed in detail in the current chapter. So, environmentalism is a movement towards cleanliness. It can be connected to MORAL/ETHICAL IS CLEAN because this CM evokes the readers' sense of social and religious morality. The higher degree metaphor MORAL/ETHICAL IS CLEAN was first discussed by Kövecses (2002). Kövecses explains that the expressions *have clean hands* and *have blood on one's hands* are a linguistic manifestation of the conceptual metaphor, MORAL /ETHICAL IS CLEAN (2002: 210). MORAL /ETHICAL IS CLEAN implies that it is ethical to use anything that is clean including clean energy, and it also implies that it is unethical to use anything that is dirty including dirty energy. Since, clean coal, energy etc, are more environmentally friendly so they should be used which implies that environmentally friendly is also ethical. The word clean is used in a sense that gives meaning, to behave in a moral or honest way. So, cleanliness is associated with morality. Even in Islam cleanliness has been termed as half of faith. The association of the word clean with any entity will morally and religiously bind people to use these entities. However, are these entities (coal, development, stoves etc.) really environmentally friendly?

The metaphor entails that different kinds of environmentally hazardous entities pollute the environment to different extents, and we can prefer one type of them, for instance coal or development, over the other type of the same entity. It means if the risk to the environment is comparatively less, then these entities should be used. However, the metaphor hides the fact that coal and these other entities are hazardous to the environment no matter whether you term them as clean or dirty. This metaphor can mislead the masses that some types of "coal", "energy", "development" etc. are not dangerous to the

environment but in reality, they still pollute the environment irrespective of the scale of cleanliness they are on.

The metaphor supports technological development rather than discouraging it. It promotes the idea that having more is good for the environment but the choices we make should be taken care of. However, as discussed earlier, technological-fix like a more efficient or different types of stoves are not the solution to environmental degradation. These are just superficial solutions and promote only shallow environmentalism rather than deep ecology (part of the ecosophy of the present study). Further, Halliday (2001) states that idealizing having more is not good for the well-being of the system that supports life. Development and technological advancements are the actual cause of the ecological issues, and these should be dealt with rather than coming up with superficial solutions to the issues (Stibbe, 2015). Shaw and Nerlich (2015) while discussing the term "clean energy" argues that the concept of clean energy "effectively supplants any sentiment of using less energy and works to reaffirm an overarching perspective that presupposes increased use of energy" (p. 38). Hence, clean energy and other "clean" metaphors apparently seem to promote environmentalism but are actually promoters of an increase in technology, innovation and efficiency.

Based on the above-mentioned discussion with the lens of the ecosophy of the current study, the metaphor ENVIRONMENTALISM IS A SCALE OF CLEANLINESS can be placed in the category of malevolent metaphors.

4.4.15 ECOLOGICAL DAMAGE IS AN ACCIDENT

There are a few instances in PEC in which the ecological damages especially the deaths of animals are termed as mere accidents. The word "accident" and "accidental" are used 07 times to term ecological destruction as an accident. The following are some of the instances in which the metaphor ECOLOGICAL DAMAGE IS AN ACCIDENT is manifested linguistically in the texts:

92. We need to be prepared for future **pollution accidents** (Tribune, 2019: 76)

93. allowing the construction of restaurants in the hills caused the **accidental deaths** of wild animals, an increase in vehicular and garbage-related pollution and had adverse effects on the flora and fauna. (Dawn, 2015: 39)
94. … regretted the **accidental mortality** of Bryde's whale (Dawn, 2019: 248).

In the above-documented examples, we can notice that the accidents are not road accidents but all of them are associated with an ecological-related issues like pollution. The word "accident" around these issues forms the conceptual metaphor ECOLOGICAL DAMAGE IS AN ACCIDENT. In this metaphor target domain is the ecological damage and the source frame is accident. According to MEDAL, the conventional meaning of accident is "a crash involving a car, train, plane, or other vehicles". However, we can see that in this case there is no involvement of a car, train, or other vehicles. Hence, the meaning is different from the conventional one so we can take this as a metaphoric usage of the term "accident". Accidents, as we know, involve chance. So, there is no one responsible for the accident as it happens by chance. Further, there are sufferers of road accidents and usually, these are humans, animals, or some infrastructures. Moreover, accidents cause damage that may be permanent or temporary. Mapping these characteristics to the ecological damage would mean that there is no one responsible for the damage as it happens by chance. In Ex. 92 we can see that pollution has been termed as an accident which implies that this is a matter of chance, and no one should be blamed for it. But, is there really no one to be blamed for pollution? Further, the sufferers from ecological accidents are living beings and other larger systems that support life. For instance, in Ex. 93 and 94 the sufferers are termed as flora and fauna. Moreover, the damage due to ecological accidents is usually permanent.

This CM is malevolent as it hides the fact that human beings are responsible for the ecological damage. It takes responsibility from human beings and terms it as a matter of chance. The fact is that humans" lust for technology and material has caused pollution; animals do not die accidentally but humans have been invading their habitat causing them to die, and the rare Bryde's whale did not die by chance, but it died because it entangled in the human laid fishing net. The lack of responsibility will encourage humans to come up

with more technological advancements and other activities which will be damaging to themselves, to other living beings and for the wider physical environment.

4.3.16 PRODUCTION OF RENEWABLE ENERGY IS FARMING

The next metaphor to be noticed in the corpus is PRODUCTION OF RENEWABLE ENERGY IS FARMING. This CM is manifested in the corpus through the trigger words documented in Table 4.23.

Table 4.23

No.	Type	Frequency (Collocation)
1	Farm	13
2	Produce	1
	Total	14

Word types from the domain of farming used to describe energy

The lexical items "farm" and "produce" are used to talk about solar and wind energy. These two lexical items are from the domain of farming. The following are some of the instances in which these words are used in context:

95. A key feature of Babcock Ranch is the adjacent 440-acre **solar farm**, which provides enough energy to the local utility, Florida Power and Light, to offset the energy use of nearly 20,000 homes. (Tribune, 2017: 153)
96. Horses are seen nearby the **wind farm**… (Dawn: 2012: 10)
97. Engro team proudly talked about their Tenaga **Wind Farm** in Gharo which would **use wind power** to generate electricity. (News, 2016: 43)
98. Recently, the country has been leading the way in **green living** with the government announcing the completion of the world's largest **floating solar farm** and now the beginning of the construction of the world's first forest city to help reduce air pollution. (Tribune, 2017: 109)

99. The **solar farm** will actually **produce** far less than the much touted 1000 MW of electricity (Dawn, 2015: 17)

As stated earlier, “farm” and “produce” are words that have meaning basically dealing with agriculture. The basic meaning of the word “farm”, according to MEDAL, is a piece of land to be used for growing crops or raising animals. Similarly, the word “produce” means growing something in large quantities for the purpose of selling them. However, in the above-mentioned examples 95-99 these lexical items are used to discuss the production of renewable energy, hence, triggering the conceptual metaphor PRODUCTION OF RENEWABLE ENERGY IS FARMING. In this CM, the source frame is farming, and the target domain is the production of renewable energy. Farming is the practice of cultivating the soil, growing crops or raising animals. These are further used to prepare products which are sold in the market for people to be purchased and used. These traits are mapped onto the production of renewable energy. In solar and wind farms, solar or wind is used to generate electricity as mentioned in Ex. 95-99. This energy is generated for the common public to be purchased and used as mentioned in Ex. 95 and 97. Further, in conventional farming soil, seeds, water, and solar light are required to cultivate and grow crops for the production of food and clothing. Similarly, for the production of energy, solar panels, and sunlight (in the case of solar farms); or wind turbines, land, and wind (in the case of wind farms) are required for the generation of electricity. The actual farms provide food and clothing which are the basic necessities of human beings. Is electricity (a production of solar and wind farms) also a basic necessity of human beings?

The metaphor, PRODUCTION OF RENEWABLE ENERGY IS FARMING entails that, a) like agricultural farming is important for human societies and does not harm the ecological systems that life depends upon, production of renewable energy is also important for human beings, and it does not disturb the wider ecology. b) Food and clothing are basic essentials of human households. Similarly, electricity is also a basic need, and right of human beings. You cannot live without food; similarly, you cannot live without electricity. The CM can be termed as malevolent on the basis of the above two equations of the production of electricity with the production of food and clothing.

Food is a basic necessity of human beings, no doubt, but electricity, though important for the modern lifestyle, is not a basic necessity of human beings. People had been living without electricity in the past, and humans have never been able to live with food. Equating food with electricity means going to any extent to get this because living is not possible without it. Animals, plants and other living beings still live without electricity, but will not be able to live without food.

Further, although farming is a man-made method of growing food, the old methods of farming are generally good for the well-being of life and the physical environment. However, modern farming is not eco-friendly. Similarly, the production of more electricity is also not a natural phenomenon and is not good for the well-being of the environment. However, there is no form of electricity production which makes is good for the well-being of the environment and living beings. Solutions to the environmental issues is not switching to the production of renewable energy, but bringing about social, cultural and psychological changes. The same electricity will be used to turn on air conditioners, refrigerators, factories and so on which will in turn eventually become hazardous to the natural environment by polluting the air, depleting the ozone layer etc. As discussed earlier more production is hazardous be it produced in any way. The need is to bring a deep change rather than shallow environmentalism (Naess, 1990; Stibbe, 2015; Stibbe, 2004).

4.3.17 DEALING WITH CORONAVIRUS IS A WAR

The recent spread of the Covid-19 (coronavirus) pandemic across the globe is captured by print media around the world. The current corpus depicts a very obvious metaphor to describe the challenges faced by us due to this global pandemic - the metaphor of war. Table 4.24 shows the words that trigger the conceptual metaphor DEALING WITH CORONAVIRUS IS A WAR.

Table: 4.24

No.	Type	Frequency (Collocation)
1	fight	16
2	threat	15
3	worriers	14
4	affected	11
5	strategy	7
6	explosion	7
7	threaten	7
8	danger	5
9	battle	3
10	lose	3
	total	88

Word types and their frequencies from the domain of war used to describe Covid-19

Lexical items especially “fight”, “threat”, “front-line worriers” and others are from the domain of war. These words are used around pandemic and coronavirus to trigger the conceptual metaphor DEALING WITH CORONAVIRUS IS A WAR.

In the metaphor, DEALING WITH CORONAVIRUS IS A WAR, coronavirus is the target domain and war is the source frame. As discussed earlier in the CLIMATE CHANGE IS A WAR, the domain of war has different aspects. The aspects of war are mapped onto the coronavirus. The opponent in war is our enemy and in DEALING WITH CORONAVIRUS IS A WAR, the enemy is coronavirus. Soldiers as per PEC are human beings as the pandemic is a global issue. However, the front-line fighters are the doctors and other healthcare professionals. The battlefield is the world and more specifically the hospitals, especially for the front-line fighters. The strategies to fight and win against the war are social distancing, wearing masks, quarantine, and washing hands etc. The weapons are masks and vaccination.

Below are some examples from the corpus depicting how lexical items triggering the war frame are used around coronavirus in the context:

100. Measures imposed by government to **fight** the pandemic has contributed to a ‘significant peak in violations of press freedom (Dawn, 2020:39)
101. Pandemic **strategy** overlooks inequalities (Tribune, 2020: 66)
102. [girls] are caring for their families, sustaining livelihoods and leading efforts to **fight** the pandemic… (Dawn, 2020: 11).

The word ‘fight” in Ex. 100 and 102 show that the pandemic has been dealt with as a war. However, the strategies to fight this war might not be favourable for some strata of society like the poor (Ex. 101), the press (Ex. 100) and girls/women (Ex. 102). The strategies as stated earlier are mainly social distancing and quarantine. These strategies though non-beneficial for some, are termed to be beneficial for the environment, animals, and other living beings as mentioned in the texts.

103. As people around the globe stay home to stop the spread of novel coronavirus, the air has cleaned up, albeit temporarily (Dawn, 2020: 33)

The human inactivity has not only “cleaned up the air” but also made many animals come out and be seen “in places and at times they don’t usually” (Dawn, 2020: 33). However, the question is: will these changes be permanent? The answer is no.

War metaphor around natural calamities and diseases is not new. Nerlich et al (2002) describe the war metaphor around the foot and mouth disease (FMD) in their study. The severe outbreak of the disease in the UK was expressed in the print media using the war metaphor. According to the study, the war metaphor around FMD resulted in the killing and burning of hundreds of animals. Nerlich et al warn against the use of war metaphors around the outbreak of diseases. Coronavirus is different from FMD as the war metaphor around coronavirus does not involve the killing of animals or affected humans but the virus itself.

The metaphor DEALING WITH CORONAVIRUS IS A WAR, according to the ecosophy of the current study is an ambivalent one. The metaphor stresses upon the fight

against our deadly enemy, the coronavirus. The fighting encourages people to gather their strength to defeat the enemy. However, long wars can make people tired of the war. In this case, it took almost three years for the virus to lessen its deadly effect on humanity and we are still having some effects of the virus. It seems that it will take a large time before we expect to get over the crisis of this pandemic. The war for an undetermined amount of time will bring battle fatigue which may derail all the efforts. Hence, the effect of the war metaphor will be effective initially but may not remain effective in the long run.

Next, the war metaphors may not be beneficial to living beings and the physical environment in the long run. Hanne (2022) mentions in his work that the war metaphor does not affect social inequalities, racism, and ecological emergencies. Although the strategies to fight against the pandemic mentioned in the texts do claim that these war strategies have a positive effect on the ecology and bring about ecological balance, but these effects are not long-lasting. The war metaphor does not contribute to any post-war lessons, so, the world will get back to its routine after the pandemic. Hanne (2022) warns against the war metaphor and urges to use some other ecologically inspired metaphors to talk about coronavirus - metaphors that bring forth empathy, equity and resilience, and not war. On the contrary, the war metaphors promote governmental control rather than equity and solidarity (Sanderson and Meade, 2020). This encourages us to accept the authoritarian powers of the government. However, the political leaders may use the situation for their own purpose.

War justifies defeating the enemy at any cost. All the resources are subsumed into fighting the enemy in the war situation which sweeps aside the normal concerns and priorities. The normal concern for ecological issues may halt due to the war-like concern of the pandemic which literally happened.

4.3.18 COMPANY IS A PERSON

COMPANY IS A PERSON is one of the frequently expressed metaphors in the corpus. Table 4.25 documents the word types and their frequencies that act as triggers to activate this CM.

Table: 4.25

No.	Type	Frequency (Collocation)
1	has	77
2	will	41
3	say	28
4	pay	7
5	aims	6
6	involve	6
7	work	6
8	make	6
9	launch	5
10	plan	5
11	buy	3
12	plant	2
13	do	2
14	dump	2
15	lease	2
16	provide	2
17	sell	2
18	take care	2
19	put up	1
20	build	1
21	move	1
22	extract	1
23	cut	1
24	agree	1
	total	210

Word types and their frequencies from the domain of person used to describe company

There are many companies/corporations mentioned in the selected texts about environmental issues like The Body Shop, Pakistan Tobacco Company (PTC), National Transmission and Despatch Company (NTDC), Tetra Pack etc. Almost all of the mentioned companies are personified in the corpus using auxiliaries like “has”, “will”, and some actions verb like “say”, “pay”, “aim” etc. Many of these words along with their frequencies are mentioned in Table 4.25. “Will” and “has” are the top two words collocated with the company. “Has” is a marker of present perfect tense which indicates what the subject has done. “Will” is the marker of future tense and it is collocated with “company” to show what it will do in the future. Following are some of the instances in which a few of these words are used in context:

104. …and the company **would buy** space for landfill site. (Tribune: 2012: 159)
105. A Malaysian company **has shown interest** in installing waste disposal facilities in Karachi… (Tribune, 2015: 150)
106. The company is **conducting** cleanliness drives in different areas of the city besides awareness raising activities in **collaboration** with different stakeholders, like traders, students, and non-governmental organizations (Tribune, 2018: 98)
107. As part of the new initiative, the company is also **recycling** and **re-filling** empty bottles customers bring in to stores. This includes being able to recycle other beauty brands bottles, but if customers return Body Shop containers, they will be entitled to a rewards scheme. (Tribune, 2019: 160)
108. …the ministry signed a memorandum of understanding (MOU) with Pakistan Tobacco Company (PTC), under which the company will **plant one million trees** per annum in Banigalaís reserved forest area… (Tribune: 2015: 80)

All of the above-mentioned examples show how company has been given human-like qualities to trigger the conceptual metaphor COMPANY IS A PERSON. In this CM person is the source frame, and company is the target domain. Aspects of person are applied on to company to explain it in a better way. A human being can buy land but in Ex. 104, it has been shown that the company has a plan to buy land. Once again humans plan, non-living things cannot do so. Further, only humans can show interest and install waste disposal facilities (Ex. 105), conduct a cleanliness drive (Ex. 106), recycle and refill empty

bottles (Ex. 107), and plant trees (Ex. 108). However, these human traits are mapped onto different companies indicating that these words are used metaphorically rather than literally.

According to Stibbe (2015), in most of the instances, the metaphor COMPANY IS A PERSON is triggered by the use of metonymy. Metonymy, according to Stibbe, is the substitute of one word with another closely related one. In this case, the word "company" is a substitute for the director or owner of the company. For instance, "interest" in Ex. 105 is a human mental activity and here it is used metonymically with "company". This is not a usual metonymy but a metaphoric one creating the metonymy INSTITUTION FOR PERSON RESPONSIBLE (Lakoff & Johnson 1980). Lakoff and Johnson further state that metonymic concepts also structure "our thoughts, attitudes and actions" (p. 39).

A person can be good or bad. He/she can have some positive personality traits and some negative ones. The use of the trigger words in context shows that the company has been portrayed as a person who is active, responsible, powerful, professional, and environmentally sensitive. Company is a person that cares for the environment and takes great steps to protect the environment and intends to do the same in future. For instance, Ex. 105 depicts company as a responsible and powerful person who wishes to solve the waste disposal issues of Karachi. Ex. 106 shows company an active volunteer who has conducted a cleanliness drive. In Ex. 107, the Body Shop has been shown as a person who cares for the environment, so it recycles and refills empty bottles and encourages others to do so as well. Ex. 108 portrays PTC as someone who is powerful and plans to plant one million trees per annum to lessen environmental degradation.

The metaphor is malevolent in many ways. First, if we give human-like traits to corporations/industries that play a major role in the degradation of the physical environment, then we attribute all the rights to them which are attributed to human beings. Humans have a basic right to live, and killing a human is against the morality, law and the ecosophy of this study. However, killing/shutting down a company is better for the well-being of life and the wider systems that life depends upon. Giving human rights to a company would entail that shutting down a company is ethically and morally wrong and

that a company is as important as human life is. This, in turn, gives a moral license to the corporate sector for prospering at the expense of ecological destruction.

Next, a company is not only a person, but a perfect person as depicted in the examples shown above. A perfect person like this would not be expected to make some drastic mistakes, including the destruction of the natural environment. Consequently, people will not doubt its actions but rather support it. They will not doubt its intentions and will not accept the potential harm it could bring to the ecology.

Finally, the so-called perfect man is the root cause of environmental degradation. The story COMPANY IS A PERSON hides this fact. For instance, in Ex. PTC has been depicted as a person who takes care of the environment especially if he wants to improve the air quality. However, PTC in itself is responsible for polluting the air. It sells cigarettes that create toxic fumes which pollute the air and makes humans and other living beings seriously ill. However, PTC planting trees hides this fact and portrays it as a responsible person. Stibbe (2015:) explains that the person metaphor serves the purpose of the corporation - i.e., compelling people to buy their products which results in the consumption of unnecessary products.

> "There is only a narrow range of "personalities" that the discourse of neoclassical economics represents corporations as having, and all are self-centred focused on extrinsic values such as profit" (Stibbe, 2015, pp. 76-77).

So, the sole purpose of this metaphor, according to Stibbe (2015), is to sell their products. Hence, the metaphor furthers the consumerist thinking that is toxic to life and to the wider systems that life depends upon.

Conclusion

Environmental discourses are to communicate topics related to the physical environment. However, such texts are usually produced to sensitize and show concern related to environmental degradation. The findings reveal that most of the frequently used words in the PEC are related to Pakistani environmental issues like climate change, pollution, water scarcity etc. Many of these words act as triggers for a number of underlying conceptual

metaphors. Metaphor is an important discursive tool in environmental discourses. The current chapter identifies metaphorical construction in PEC and discusses it critically to know if the metaphors in question create malevolent, ambivalent, or benevolent discourses.

The findings of the chapter show that the most dominant target domains in CM in PEC are CLIMATE CHANGE, CO_2, ENERGY CRISIS, ENVIRONMENTAL ACTION/ENVIRONMENTALISM/CLIMATE ACTION, NATURE, EARTH, ECOLOGICAL DAMAGE, ENERGY CRISIS, CORONA VIRUS and COMPANY. All of these are related to ecological issues. These are complex domains and it is difficult to understand them without mapping their traits with that of other easy-to-grasp domains. The finding reveals a number of such easy-to-understand domains or simply the source domains. The source domains used to talk about the target domains as per the findings of the current study are WAR, TIME BOMB, PERSON, MOVEMENT, JOURNEY, SPORTS, PERSONAL RELATIONSHIP, COMPETITIONS, MACHINE, WEB, HOUSE, CLEANLINESS, ACCIDENT, and FARMING.

The findings reveal the type of metaphor and the type of discourses that these metaphors constitute. It further reveals that a majority of these metaphors constitute malevolent discourses. A few of such malevolent metaphors are NATURE IS A MACHINE, ECOLOGICAL DAMAGE IS AN ACCIDENT, and EARTH IS A GREENHOUSE. A few of them like DEALING WITH CORONAVIRUS IS A WAR, CLIMATE CHANGE IS A JOURNEY are found to be ambivalent metaphors constituting the corresponding discourse. An even less number of metaphors like NATURE IS A WEB, AND NATURE IS A PERSON are found to be benevolent to the life on earth and the natural environment.

A number of underlying stories and their effectiveness on life and the natural environment have been discussed according to the ecosophy of the current study. The two most prevalent stories found promote consumerism and techno-fix solutions to the environment.

The findings of this chapter give answers to Q1 through Q3. The next chapter analyses novel compounds in PEC to know if they constitute the same or different stories.

CHAPTER 5

NOVEL LEXICAL COMPOUNDS

Introduction

As stated earlier, the current environmental discourses gave rise to environmental discourses. To Communicate and sensitize about climate change and many other environmental issues many linguistic tools have been used in environmental discourses. One among such linguistic tools is metaphor which has been identified and analyzed in chapter 4 of the current study. However, metaphor is not the only linguistic and cognitive tool in environmental discourses. Over the last decade, a novel form of linguistic framing has been noticed in environmental discourses. These clusters are called compounds. The current chapter analyses the three most prevalent novel compounds. The lexical combination of two roots around "carbon", "green" and "eco" are extensively discussed for the way these lexical combinations frame the topics relevant to ecology. The chapter groups these compounds on the basis of the kind of frames that they evoke. Each group is then critically analysed and discussed according to Stibbe's story theory and the ecosophy of the current study. The ecological analysis of the frames gives a deeper understanding of how they may affect our environment. In doing so, the current chapter answers questions 4 & 5 of the present study.

The chapter has a total of three sections apart from the introduction and conclusion. Section 5.1 and its subsections analyse carbon compounds and the frames they evoke. Similarly, section 5.2 and its subsections analyse green compounds and the frame that they evoke. Finally, section 5.3 and its subsections analyse eco compounds and the way they frame the topics related to environmental issues. It is noteworthy that due to time and space constraints, not every single compound and its occurrences are documented in the current chapter. On the contrary, a few of the compounds and their some occurrences are discussed in the chapter.

5.1 Carbon Compounds

A prominent lexical item around which two-word novel compounds are formed is "carbon". Such compounds can be called "carbon compounds" as these lexical compounds are formed around "carbon" as their hub (Nerlich & Koteyko, 2009). The present section discusses these compounds and how these compounds frame "carbon", an essential topic in environmental discourses, especially in the climate change discussion.

The word "carbon" in all the carbon compounds discussed in this section is an ellipsis that stands for "carbon dioxide". Carbon dioxide is the original and the oldest carbon compound as it appeared first in 1867 according to OED. (Carbon dioxide will be called as carbon from now onwards.)

Carbon is the most important greenhouse gas on Earth as it is responsible for absorbing and radiating heat (Lindsey, 2022). Carbon absorbs heat emitting from Earth's surface and spreads it in all directions. Carbon is important because without it, Earth might not have been able to keep its average temperature above freezing. However, recently, it has been noted that Earth's temperature has been rising immensely which is due to the extra release of carbon in the air. Humans have been using fossil fuels in large quantities which is a major cause of the rising carbon. It has been noted that the amount of carbon that humans have returned to the atmosphere in the past century, is the amount of carbon that plants and trees pull out of the atmosphere over millions of years (Lindsey, 2022).

Further, carbon is important in the Earth system because it dissolves into the ocean and reacts with water molecules to produce carbonic acid. This process lowers the ocean's pH level means it raises the water's acidity. It implies that the more carbon is absorbed in the ocean, the more acidic the water will be; that has been observed in recent years. The drop in pH level or the rise in acidity of water is called ocean acidification (Lindsey, 2022). Hence, maintaining the carbon levels in the Earth's atmosphere and the ocean is very important for the well-being of life and the systems that life depends upon. Further, carbon is also important in the climate change discourses.

The word carbon appeared 1524 times in the corpus indicating how important it is in the environmental discourse. However, not all of the instances formed novel compounds. For instance, many times it appeared alone without forming any compound, and in some cases, the compound is formed but not a novel one. For instance, carbon emission is one

of the most frequently appearing compounds in the corpus, but it is not a novel compound as the meaning of each part of the compound is literal rather a metaphoric one. Table 5.1 lists novel lexical creativity around carbon and the frequency of each compound in the corpus.

Table 5.1

Carbon Compounds

No.	Compound	Frequency
1	carbon footprint	82
2	carbon credits	39
4	low carbon	33
5	carbon capture	20
6	carbon tax	17
7	carbon sequestration	15
8	carbon neutral	15
9	carbon neutrality	13
10	carbon economy	11
11	carbon budget	10
12	carbon pollution	9
13	carbon market	7
14	carbon sinks	7
16	carbon dust	6
17	carbon partnership	6
18	carbon stocks	6
19	carbon future	6
20	sequester carbon	5
21	carbon spewer	3
23	carbon savings	1
24	carbon-pricing	1
25	carbon pledges	1

26	carbon bootprint	1
27	carbon values	1
28	carbon friendly	1
	Total	316

List of lexical compounds around Carbon

The table includes total of 28 compounds having carbon as hub. However, the number of occurrences of these compounds varies; for instance, carbon footprint occurred 82 times in the corpus, and on the other hand, carbon friendly occurred only once. It is noteworthy to mention that the table only includes those clusters around carbon that are metaphoric in nature. Further, as can be noticed that only two-word compounds have been documented in the table.

As mentioned earlier, carbon emission is an important issue in the environmental discourse. To talk about the importance of the reduction of carbon emissions, different frames have been used. A closer look at these compounds reveals that these compounds evoke three major frames i.e. finance (such as carbon budget), political/war (such as carbon neutral), and moral (such as carbon footprint). The following subsections discuss these innovative clusters, their usage in context, how they are framing the issue of carbon emission, and a critical discussion of these frames from an ecolinguistics perspective.

5.1.1 Carbon Compounds Having Finance Frame

The financial framing of reducing carbon emissions is the most dominant and oldest one (Koteyko et al., 2010). The root cause of the evolution of these compounds is the allowance of the complex mechanism of carbon trading by the Kyoto Protocol. Carbon compounds as mentioned in Table 5.1 reveals that the most dominant frame to discuss carbon emissions is finance. Table 5.2 lists novel compounds that evoke the finance frame to tackle the issue of carbon emissions.

Table: 5.2

No.	Compound
1	carbon credits
2	carbon tax
3	carbon economy
4	carbon budget
5	carbon market
6	carbon partnership
7	carbon stocks
8	carbon savings
9	carbon-pricing

Carbon compounds having finance frame

Compounds like in Table 5.2 evoke a financial frame to mitigate the consequences of carbon emissions. Lexical items like “credits”, “tax”, “economy”, “budget”, “market” and so on are all from the domain of finance. Carbon has been placed as a modifier with these words to form novel compounds. However, these compounds are not mere lexical innovations; they are constructed to communicate the issue of carbon emissions. The context expresses the complex meanings that construe Earth’s tolerance to carbon emissions concerning economic concepts. The following are some of the instances in which carbon compounds are used in context in PEC:

1. That offers Millet another way to cash in, via the European Union's cap and trade emissions scheme, which gives greener companies a market to sell leftover **carbon credits** to more polluting concerns. (Dawn, 2018: 111)
2. The price of a **carbon credit**, which represents the right to emit one ton of carbon dioxide (CO2), has come down to around $2 from an average of $10 last year…trade in **carbon credits** is meant to be the cost-effective way for companies in developed world to reduce their carbon footprint. Instead of spending huge amounts in their own countries to update industrial processes, the companies there buy **carbon credits** from developing countries to compensate for the emissions. (Tribune, 2013: 115).

3. **Carbon taxes** have been efficient in bringing down CO2 emissions... For Pakistan, **a carbon tax** can bring additional benefits in the shape of more revenue that could help the government put its fiscal house in order. (Dawn, 2019: 04)
4. …**a carbon tax** may be a less efficient option [for raising climate finance] in developing countries like Pakistan because of already weak industry and high costs of production.
5. It is critical that companies and policy-makers move faster to transition to **low carbon economy** and more sustainable business models (Dawn, 2020: 63).
6. The global **carbon budget** produced by 76 scientists from 57 research institutes in 15 countries found that the major drivers of 2018 increases were more coal-burning in China and India (Dawn, 2018:144).

"Carbon credits" is at the top of the list occurring 39 times in the corpus. "Credit" is a financial term which means "the money that you have in bank account" (OED). According to OED, carbon credit is the right of a country or an organization "to produce a particular amount of carbon dioxide and other gases that cause global warming" and "which may be traded between countries and organizations" (OED). The emission targets are agreed upon in the Kyoto Protocol.

In the compound, carbon credits, the head noun "credits" is modified by the modifying noun "carbon". However, the context has a rather complex meaning that construes Earth's tolerance to carbon emissions with reference to an economic concept. The frequency of this compound shows the importance of carbon credits to Pakistan and industries in Pakistan. Pakistan is a developing country and according to the World Bank, Pakistan emitted 0.98 metric tons of carbon per capita in 2018 (Data Commons Place Explorer, 2018) which is less than the allowed carbon emissions to Pakistan. In Ex. 2, the author laments over the delay in selling carbon credits to other countries as the price of a credit has gotten lower now. As mentioned that the concept of carbon credit facilitates "the developed countries" as they need not improve their industries and make them more environmentally friendly because they have another comparatively cheap way of buying carbon credits from "developing countries". Similarly, in Ex. 1, the company Millet, a greener company, plans to sell its leftover carbon credits. Both of the examples evoke the finance/transaction frame as there is selling and buying, seller and buyer, and a specific

commodity i.e. carbon. However, the usage of this compound in context clearly works against the ecosophy of the current study in two ways. First and the most important point is that this compound promotes industrialization which is the root cause of environmental degradation. However, the main purpose of limiting carbon emissions in the Kyoto Protocol was to limit the emissions of carbon which is mainly because of burning fossil fuels for producing energy that is required to run industries. “To keep within environmental limits an immediate and large-scale reduction of total global consumption is necessary” (Stibbe, 2015, p. 14). However, consumption is the prime goal expressed through this compound. The focus is not to bring deeper level social and cultural change but a more convenient solution of purchasing the excessive carbon credits and keeping on with industrialization.

Second, it promotes inequality between developed and developing countries. Due to financial stability, industries in developed countries are given the right to deteriorate the environment more than the developed countries. The context shows that the developed countries need not limit their industrial activities but they may compel the developing countries to emit carbon less so they can sell the credits to the developed countries. Stibbe (2015) states that for living with high well-being social justice in the consumption of resources is necessary in the world.

“Carbon tax” first coined in 1988, is another important carbon compound having a financial frame as a solution to the carbon emissions issue. “Tax” is money that people or organizations pay to the government which in turn uses it by providing different services (OED). Carbon tax, on the contrary, is “a tax or surcharge on the sale of fossil fuels that vary according to the carbon content of each fuel, and is designed to discourage the use of fossil fuels and reduce emissions of carbon dioxide” (ODEC, 2013, p.68). Ex. 3 and 4 show this compound in the context. In Ex. 3 carbon tax is defined as a solution to increasing carbon emissions. The money generated through this tax will bring more revenue which is the prime purpose of this tax. In Ex. 4 the money gathered through carbon tax is planned to be invested in making the physical environment cleaner and better. In both instances, the main purpose is to collect revenue.

“Carbon Economy” and “carbon budget” are two other important clusters around carbon that comes under the domain of finance. Ex. 5 and 6 show these compounds in

context. Carbon economy and carbon budget have not been documented by any dictionary yet. However, according to the context, we may explain a low carbon economy as an economy which is based upon the energy sources that emit low levels of greenhouse gases, especially carbon. Ex. 5 explains that a low carbon economy is crucial for businesses. Carbon budget, on the other hand, is the total amount of carbon emissions allowed to keep within a limit of temperature threshold (ODEC). The instance of this compound is given in Ex. 6. The other compounds documented in Table 5.2 are also used in the same manner as the frequently used ones. It is noteworthy that the rest of the compounds have also not made their way to any of the three dictionaries MED, OED, and ODEC.

Carbon compounds evoking financial frame to address the issue of carbon emission are coined to conceptualize carbon trade between countries and organizations. That means that in such clusters the focus is not on the individual management of carbon emissions, but on the economic management of carbon emissions by the corporations and the countries. Lohmann (2009) pinpoints that since the finance frame evoked by carbon compounds is directed to the government and the corporations, the environmental crisis has been mentioned in a way that transforms them into quantifiable commodities like other economic objects. He further analyses that this objectification of climate issues makes the crisis more natural and understandable to the stakeholders as they are stated in a way that is much more natural and understandable to the governments and the organizations. However, the instances analysed in the present study depict that the care for environmental issues through coinage of these carbon compounds is just superficial and does not contribute much to the well-being of the wider systems that life depends upon.

The novel fusion of finance and the reduction or production of carbon by the process of compounding convert the environmental phenomenon into commercial goods and services as mentioned by Lohmann (2009). The importance is given to trade and, the interests of the corporations rather than the environment. Compounds like carbon credits, carbon economy etc promote concepts that are superficially meant to make the environment healthy, but in reality, they serve the purposes of the corporations. For instance, in Ex. 1 carbon credits are meant to be sold to such countries and corporations that want to continue with environmentally unhealthy production. The concept of carbon credits is meant to motivate governments to come up with greener energy and greener

solutions by cutting down carbon emissions. However, the cutting down is of no use because the organization/country sells the credits to some other organization/country; hence, only the agent that is responsible for emissions of carbon is changed. Further, commercial goods and services are used and thrown when they get old. Once discarded and outdated, people look for new goods. If we equate environmental phenomena with commercial goods that will evoke stories that will promote anthropocentrism. For instance, in Ex. 5 reducing carbon emissions is important not for the well-being of the environment but for the sustainability of business. So, even environmentalism is for the sake of humans rather than for the environment itself. Just like commercial goods are to serve humankind, environmental phenomena are also to serve humans and humans can exploit the environment for their own use. On the contrary, humans are just part of the ecology and environmental phenomenon have their own intrinsic value rather than extrinsic ones (Stibbe, 2015).

The carbon compounds having financial frames offer financial solutions to the issue of carbon emissions or broadly speaking the issue of climate change/global warming. Carbon credits, carbon tax, carbon markets and other such compounds promote the view of the establishment actors like government and the corporations. The primary focus is not on environmental protection or social concerns but is to identify cost-effective ways of "meeting targets and reducing carbon emissions" (McNally, 2018, p. 277). Blue, (2015) highlights these issues and states that the finance frame supports status quo practices and the need for actual deep change at the social level that is required for promoting environmental well-being goes into the background. Compounds like carbon tax repeatedly refer toward putting a price on emissions of carbon to reduce global warming and to meet Kyoto targets. It avoids discussing the systems that create pollution and the contribution of consumerism and technology to the problem in hand. The blame is placed on individuals rather than corporations that promote the capitalist modes of production and consumption (McNally, 2018, p. 277). Thus, the frame furthers simplistic evaluations of financial measures; hence, places it at odd to the complex issue of climate change/carbon emissions. Further, the economic-fix is more like the techno-fix solutions to the environmental issues as discussed in detail in chapter 4 of this study. Stibbe (2015) mentions that language should promote such stories that favour the well-being of living beings and other life-

supporting systems not only today but in the future as well. The superficial economic-fix to the environmental issues is a temporary solution that in reality does not work.

Carbon compounds especially carbon credits highlight the idea that major polluting countries that are exceeding their goals can buy allowances from developing countries that emit comparatively less carbon (see Ex. 1 and 2). Such "cap and trade" systems promote the idea that having more money gives the privilege to the richer countries/corporations to pollute the environment more than the poor countries/corporations. So, carbon emissions depend upon the classes and segregate the poor from the rich. The concept of "Us" and "Them" is promoted through such compounds. Hence, the others are othered. Since the poor will remain indebted to the rich in this system, their national interests may divert from having alternative cleaner energy solutions. So, they may end up stopping investing in the production of cleaner energy options due to a lack of national interest.

So, the carbon economy may fail because carbon trading is unsystematic and preferential as there are no structured regulations for this. Similarly, many developing countries might not know much about carbon taxes, trading, and credits.

5.1.2 Carbon Compounds Having Political Frame

Certain carbon compounds evoke a political frame. Although finance compounds can also be placed under the political frame as finance of a country is the task of a country. However, they create a strong frame to be discussed in a separate frame. Table 5.3 lists carbon compounds evoking a political frame.

Table 5.3

No.	Compound
1	carbon neutral
2	carbon neutrality
3	carbon bootprint
4	sequester carbon
5	carbon sequestration
6	carbon capture

Carbon compounds evoking political frame

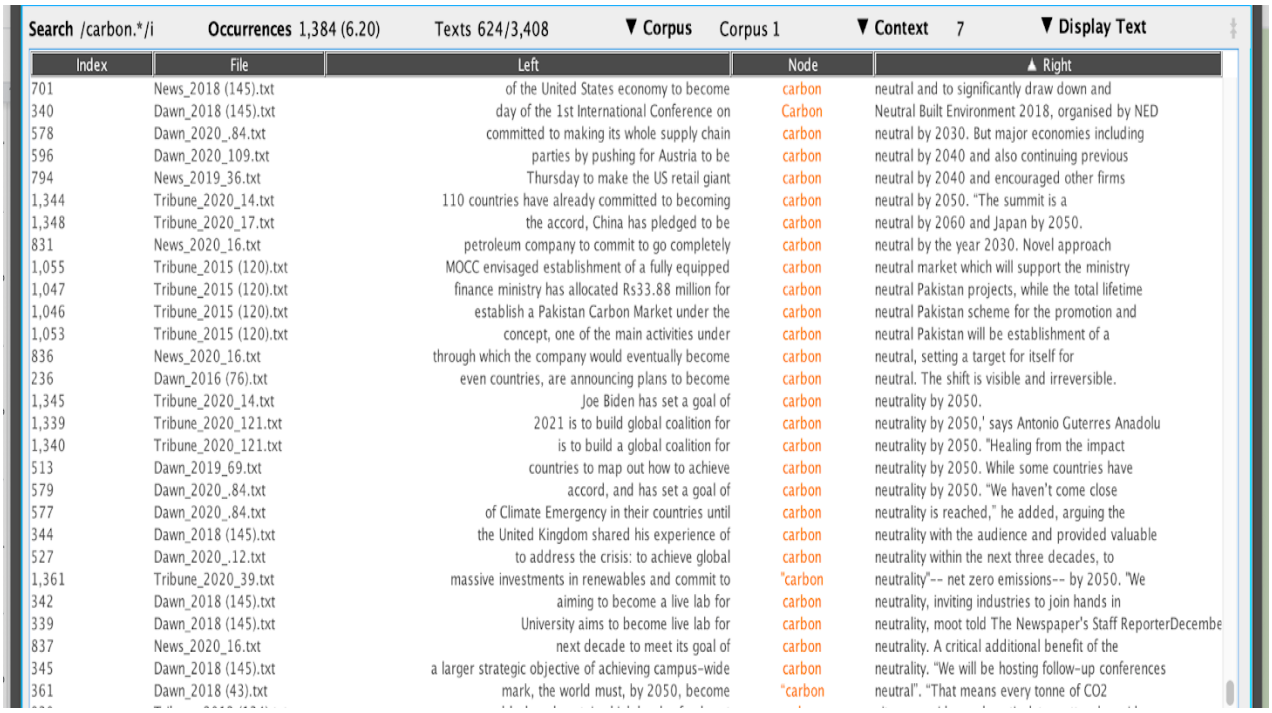
Carbon neutral and carbon neutrality are the two frequent carbon compounds under this frame. However, there are other compounds like carbon bootprint and carbon capture

as well. It can be noted that some of these novel compounds evoke the war metaphor as well. However, war is also a political decision. The following are some of the contexts in which these words are used in the corpus:

7. Business figures set to speak include Tim Cook, the chief executive of Apple, which has committed to making its whole supply chain **carbon neutral** by 2030 (Dawn, 2020: 84).
8. Amazon chief Jeff Bezos pledged Thursday to make the US retail giant **carbon neutral** 2040 (News, 2019: 36).
9. Joe Biden has set a goal of **carbon neutrality** by 2050 (Tribune, 2020: 14).
10. There is also a section on reducing the **carbon bootprint** of defence forces by using more efficient vehicles and alternative fuels. (Dawn, 2015: 70).

As stated earlier, the two important clusters activating the political frame are "carbon neutral" and "carbon neutrality". Both of the compounds mean more or less the same where the first one is a noun adjective compound and the later one is noun noun compound. Carbon-neutral or carbon neutral (occurred both with and without hyphen in the corpus) is something "in which the amount of carbon dioxide produced has been reduced to nothing or is balanced by actions that protect the environment" (OED). Carbon neutrality is the process in which carbon emissions are calculated, reduced and offseted to bring it to zero (Makwanya & Muchena, 2014). Collectively, these compounds occurred 28 times in the corpus, depicting the importance of the term. Businesses and developed countries usually use these terms to show their commitments towards the environment. For instance, in Ex. 7-9 representatives of Apple, Amazon and USA promise to become carbon neutral by a certain date. Most of the occurrences of these compounds show a promise or intention to reach to the carbon neutrality by a certain date. The following figure presents the concordance lines of these compounds for further detail:

Figure 5.1



Search /carbon.*/i Occurrences 1,384 (6.20) Texts 624/3,408 ▼ Corpus Corpus 1 ▼ Context 7 ▼ Display Text

Index	File	Left	Node	▲ Right
701	News_2018 (145).txt	of the United States economy to become	carbon	neutral and to significantly draw down and
340	Dawn_2018 (145).txt	day of the 1st International Conference on	Carbon	Neutral Built Environment 2018, organised by NED
578	Dawn_2020_.84.txt	committed to making its whole supply chain	carbon	neutral by 2030. But major economies including
596	Dawn_2020_109.txt	parties by pushing for Austria to be	carbon	neutral by 2040 and also continuing previous
794	News_2019_36.txt	Thursday to make the US retail giant	carbon	neutral by 2040 and encouraged other firms
1,344	Tribune_2020_14.txt	110 countries have already committed to becoming	carbon	neutral by 2050. "The summit is a
1,348	Tribune_2020_17.txt	the accord, China has pledged to be	carbon	neutral by 2060 and Japan by 2050.
831	News_2020_16.txt	petroleum company to commit to go completely	carbon	neutral by the year 2030. Novel approach
1,055	Tribune_2015 (120).txt	MOCC envisaged establishment of a fully equipped	carbon	neutral market which will support the ministry
1,047	Tribune_2015 (120).txt	finance ministry has allocated Rs33.88 million for	carbon	neutral Pakistan projects, while the total lifetime
1,046	Tribune_2015 (120).txt	establish a Pakistan Carbon Market under the	carbon	neutral Pakistan scheme for the promotion and
1,053	Tribune_2015 (120).txt	concept, one of the main activities under	carbon	neutral Pakistan will be establishment of a
836	News_2020_16.txt	through which the company would eventually become	carbon	neutral, setting a target for itself for
236	Dawn_2016 (76).txt	even countries, are announcing plans to become	carbon	neutral. The shift is visible and irreversible.
1,345	Tribune_2020_14.txt	Joe Biden has set a goal of	carbon	neutrality by 2050.
1,339	Tribune_2020_121.txt	2021 is to build global coalition for	carbon	neutrality by 2050,' says Antonio Guterres Anadolu
1,340	Tribune_2020_121.txt	is to build a global coalition for	carbon	neutrality by 2050. "Healing from the impact
513	Dawn_2019_69.txt	countries to map out how to achieve	carbon	neutrality by 2050. While some countries have
579	Dawn_2020_.84.txt	accord, and has set a goal of	carbon	neutrality by 2050. "We haven't come close
577	Dawn_2020_.84.txt	of Climate Emergency in their countries until	carbon	neutrality is reached," he added, arguing the
344	Dawn_2018 (145).txt	the United Kingdom shared his experience of	carbon	neutrality with the audience and provided valuable
527	Dawn_2020_.12.txt	to address the crisis: to achieve global	carbon	neutrality within the next three decades, to
1,361	Tribune_2020_39.txt	massive investments in renewables and commit to	"carbon	neutrality"-- net zero emissions-- by 2050. "We
342	Dawn_2018 (145).txt	aiming to become a live lab for	carbon	neutrality, inviting industries to join hands in
339	Dawn_2018 (145).txt	University aims to become live lab for	carbon	neutrality, moot told The Newspaper's Staff ReporterDecembe
837	News_2020_16.txt	next decade to meet its goal of	carbon	neutrality. A critical additional benefit of the
345	Dawn_2018 (145).txt	a larger strategic objective of achieving campus-wide	carbon	neutrality. "We will be hosting follow-up conferences
361	Dawn_2018 (43).txt	mark, the world must, by 2050, become	"carbon	neutral". "That means every tonne of CO2

Concordance lines of "carbon neutral" and "carbon neutrality"

The concordance lines of carbon neutral and carbon neutrality highlight that cut-off dates set by developed countries like Australia, China, US, UK and large businesses like Apple and Amazon to themselves to achieve the target of carbon neutrality. This will project them to be carbon sensitive which in reality might be a political stunt.

The word neutral and neutrality always create linguistic ambiguities which pave the way to background the real issue. Languages are not neutral; our words have always our ideologies attached to them and careful review can review these ideologies (Fiske, 1983). Similarly, the word neutral carries ideologies that are not good for the well-being of the environment. Carbon neutrality might evoke a false portrayal of businesses to compliance and adherence to carbon management standards. However, in reality, there is no such process as achieving neutrality, especially in language. The developed countries and large businesses do not want to comply with the set carbon measures and at the same time, they do not want to look nonsensitive towards the environment. So, they make promises like becoming carbon neutral in a certain period of time. These greenwashed terms make them dodge the environmental watchdogs and their business clients. This greenwashing is a political stunt which makes them keep their pace and supremacy over other countries. The

political frame evoked by these carbon compounds gives a false story that carbon neutrality can be achieved, and businesses and countries are striving to achieve this goal. However, in reality, global warming is a politically charged topic in which businesses try to achieve their goals through such politically charged language.

5.1.3 Carbon Compounds Evoking Moral or Religious Frame

Some of the novel carbon compounds evoke the moral or religious frames. Table 5.4 lists these compounds.

Table 5.4

No.	Compound
1	carbon footprint
2	carbon pledges
3	carbon values

Carbon Compounds having moral/religious frame

"Carbon footprint", "carbon pledges" and "carbon values" are the compounds that evoke the moral frame. Carbon footprint which is at the top of the list of all carbon compounds with a total of 82 occurrences in the corpus, is also one among these compounds. When used in the contexts these compounds evoke a moral frame to lessen carbon emissions by companies and individuals and eventually mitigate climate change. Following are a few of such contexts in the corpus:

11. there are choices that you make in your day-to-day life to reduce your own **carbon footprint** (News, 2020: 7).
12. An easy way to reduce your **carbon footprint** is to buy locally produced products. When you purchase local stuff, instead of buying products that were shipped from far away, you are actually supporting local brands. And also, processed goods take a lot of energy, first for processing part and then, the fuel consumption in transportation. (Tribune, 2018: 91)
13. How do I attend all the climate conferences I need to report on without flying there and adding to my own **carbon footprint**? (Tribune, 2019: 6).
14. We need to ponder over our respective lifestyle decisions and tap opportunities that will help each of us reduce our **carbon footprint**. "...Maximising use of public

transport instead of personal cars, Energy-efficient bulbs, Water conservation at all levels, Recycling -Turning off non-essential lights in offices and homes to **minimise carbon footprints.** (Dawn, 2015: 95).

15. …it has become evident that the first female architect of Pakistan wants to help the city mitigate the "effects of climate change by reducing its **carbon footprint**" — a significant **pledge** coming from someone who recognises that the industry she is associated with is responsible for nearly 40 percent of global climate emissions…She has her eyes on reviving the already available low-rise high-density buildings that are eco-friendly and an antidote to the multi-storey towers… 36pc of global energy is used in buildings and construction; cement is the cause of 8pc of global emissions. With these statistics in mind, Lari said it was **imperative** for architects to "lower the **carbon footprint**" in whatever they do. (Dawn, 2020: 60)
16. With an eye on **carbon pledges** that all countries are supposed to make by early next year in the UNFCCC talks, the report said decarbonisation required governments to think about the distant future. (Tribune, 2014: 66).
17. [Generation] replaced their plastic shopping bags to cloth bags and are planting a forest at the Generation premises to reduce their **carbon footprint** (News, 2019: 78).

The term carbon footprint was first coined in 1999 and soon after became popular in the British media and over the internet (Koteyko, 2009). The total number of its occurrences reveals its recent dominance in Pakistani newspapers as well. Footprint, according to OED, is a person or animal's foot or shoe mark left on the surface. The word footprints brings about the image of a person walking with bare feet and leaving out some permanent marks on the ground. Carbon footprint is the total amount of carbon and other greenhouse gas emissions due to an individual's lifestyle (Hensen, 2006). Experts measure and calculate a company's carbon footprints as compliance with the carbon emissions regulations is a must. In many countries, experts mention the amount of carbon emissions that different items produce.

The compound has been used so much in the climate change discourses around the world that in many instances it has been found to be used in elliptical form "footprint" as

well (Nerlich and Koteyko, 2009b). The meaning of "footprint" has now been evolved from just "the imprint of a foot on the ground" to "the impact of carbon emissions on the earth" (ibid). For instance, in Ex. 18 below, one can notice the elliptical footprint giving the modified meaning.

18. What we are doing right now is that we are buying **footprint** from China, she said. They are phasing out of coal and we are buying their **carbon footprint** (Tribune, 2017, 94).

However, the present section will focus only on the full compound "carbon footprint". The compound has spawned a new carbon-speak centred around bringing changes to lessen individual's carbon emissions Ex. 11 expresses this. However, in this article (that is published in News, 2020: 7), there is no mention of how an individual can lessen down his carbon emissions. On the contrary Ex. 12-15 are some of the examples from the corpus in which tips have been given to individuals for reducing carbon footprint. In Ex. 12 the advice is to buy locally produced products as the imports require fuel consumption and energy for the processing which causes extra consumption. Further, in Ex. 14 the advice to reduce carbon footprint are using public transportation and energy-efficient bulbs, conserving water, recycling, and turning off extra lights. In Ex.15, the individual architect notices how her profession has been contributing to the rising carbon emissions. She promises to support such designs of buildings which are eco-friendly and try to sensitize others in her field to support the old buildings in Lahore city as they are environmentally friendly. The promise is if individuals bring all these lifestyle changes, then they can minimize their carbon footprints and can be responsible citizens and humans. (Koteyko, 2009) notices a lot of other lifestyle carbon compounds around the carbon footprint in her study. However, there is no such creativity in the corpus used in the present study.)

This moral frame is further revealed through the compound "carbon pledges". Individuals, companies and countries are asked to fulfil their pledges to reduce carbon emissions. For instance, in Ex. 16 the countries are urged to make carbon pledges. A pledge is a promise to give, do, or refrain from something (OEDAL). Since abiding by promises is usually considered as a moral and religious responsibility, hence, this compound can be linked to the moral frame.

The moral responsibility of lessening carbon emissions is not only of individuals but also of companies and countries. In Ex. 16 the countries are shown to have a moral responsibility to lessen carbon footprints. Further, businesses like Generation (a clothing brand) also try to overcome its "carbon guilt" by changing plastic bags with cloth bags and by building a forest on its premises.

All of the above-mentioned examples show lexical creativity around carbon that evoke a moral frame. These compounds highlight how our current lifestyle and culture leave out permanent destructive marks on the earth. The unregulated industrial discharge into the water, air and ground, use of plastic, deforestation, and consumerism are some of such activities that leave carbon footprint. All such activities and attitudes are morally wrong as we are polluting our homeland. Hence, it is our moral responsibility to bear such activities that bring about more carbon emissions and replace them with such attitudes and activities that lessen the carbon emissions. Individuals need to bring changes to their lifestyles, businesses to their products, and countries to fulfil their promises of reducing carbon footprints in order to satisfy their moral sense. These regulative compounds are to make citizens and companies conscious to the environmental issue of climate change by measuring, calculating and avoiding their carbon footprints.

The moral frame highlights constraint as a major ethic guiding lifestyle choice. The constraints are on buying imported items (Ex. 12), on flying even for climate debate conferences (Ex.13), and on all the other such activities that can cause more carbon/greenhouse gases emissions. The moral frame emphasises individual, company and countries involvement with carbon emissions by linking their actions to global warming. However, it seeks alternatives rather than questioning consumption. The questions here are: are the alternatives mentioned the real solutions? Are the solutions to build resilient societies? Most of the solutions are to further promote consumerism and to give a temporary fix to the current issue. For instance, in Ex. 12 the focus is more on promoting the local brands rather reducing the carbon emissions. Similarly, in Ex.17 instead of lessening the production, Generation tries to create an environmentally conscious and responsible brand by introducing cloth bags and cultivating a forest. The introduction of cloth bags is although an environmentally healthy act but it does not do much towards the climate change issue as the main issue is production. The clothes production industries are

mainly responsible for the excessive emissions of greenhouse gases. Similarly, advice in Ex. 15 although values the older construction of buildings and stresses upon having more space for families in the houses. However, it mentions a simple solution to the complex issue of climate change. The main reason is over-population which should be addressed. Mere eco-freindly houses will only give a temporary solution to the issue and may be termed as only shallow environmentalism. As per the ecosophy of the current study, the solution should make living with high well-being possible for the future generations and for the environment in future as well (Stibbe, 2015). Hence, the focus should be on slowing down the population growth rather than eco-friendly houses.

There are a few contexts in which the same carbon compounds stress upon environmentally freindly behaviour as per the ecosophy of the study. For instance, in Ex 14 conservation of water and turning off lights have been advised. However, at the same time it gives advice of having an energy-efficient bulb which is a techno-fix solution; hence, shallow environmentalism rather than a deep ecology.

The morality frame questions the current lifestyle choices, actions, and unrestrained use of energy by humans. It asks for certain lifestyle changes to limit the unrestrained use of energy which is harmful to the environment. However, it at the same time shifts the attention from limiting the production of certain gases in the environment through changes in lifestyle and cultures, to a moral story regarding the necessity of personal limitations (Appleton, 2007). It further gives such solutions to the issue of climate change that support capitalist consumeristic thinking and promote shallow environmentalism. "Carbon values" are more like an illusion than reality.

The carbon compounds used in the corpus are less in number and creation than the ones found by previous studies (e.g. Nerlich and Koteyko, 2009b; Koteyko et al., 2010). Overall, the study of novel lexical compounds around carbon (as used in the corpus) can be categorised into three traditional domains i.e. finance, politics, and morality. The most dominant among all is the finance frame to mitigate the effect of climate change. Carbon compounds like "carbon diet" that evoke the dietary frame, which was frequently found in previous studies (e.g. Nerlich and Koteyko, 2009b; Koteyko et al., 2010), are not found in the present study. It reveals that the dietary/lifestyle changes to achieve a low/zero carbon future are not yet part of Pakistani media discourses.

The stories that these compounds develop are mostly destructive to the well-being of life and wider systems that support life. The stories support consumerism and techno-fix solutions to the issue of carbon emissions. Moreover, these linguistic compounds and the frames that they evoke make the other greenhouse gases like nitrous oxide and methane invisible. Carbon is not the only gas that is responsible for the rising temperatures; other greenhouse gases also contribute to climate change. However, these carbon compounds are sidelined not only from the discourses but also from our cognitive systems.

5.1 Green Compounds

Another prominent lexical item around which two-word novel compounds are formed is "green". Such compounds can be called "green compounds" as these lexical compounds are formed around "green" as their hub. The present section discusses these compounds and how these compounds frame different entities related to the natural environment.

Green, according to MEDAL, is a colour. The initial meaning of green got associated with the living plants and grass in the old ages. However, in 1971 it got the environmentally friendly connotation (OED).

"Green" forms compounds with many morphemes like belt, leaves, land, house, travel and so on. Some of these compounds are literal references to the colour green. However, many of these form novel compounds like "green economy". Here the reference is not to the colour green but the morpheme green is used in sense of "environmentally friendly". Many of the novel compounds use the word green to refer to something that is "designed to protect the environment or to limit damage to the environment" (MEDAL).

The word green appeared 2,080 times in the corpus indicating how important it is in the environmental discourse. However, not all of the instances formed novel compounds. For instance, many times it appeared alone without forming any compound, and in some cases, the compound is formed but not a novel one. For instance, green capsicum is one of the most frequently appearing compounds in the corpus, but it is not a novel compound as the meaning of each part of the compound is literal one rather a metaphoric one. In this compound, green is taken in its literal meaning i.e., the colour. Table 5.5 lists novel lexical creativity around the word green and the frequency of each compound in the corpus.

Table 5.5

Green Compounds					
No.	Compound	Frequency	No.	Compound	Frequency
1	Green Pakistan	198	47	Green taxes	5
2	Green economy	51	48	Green products	5
3	Green energy	36	49	Green bus	5
4	Green growth	36	50	Green firecrackers	4
5	Green jobs	35	51	Green vision	4
6	Green bench	34	52	Green pockets	4
7	Green buildings	31	53	Green Sindh	3
8	Green revolution	30	54	Green Peshawar	3
9	Green house	28	55	Green recovery	3
10	Green courts	23	56	Green industries	3
11	Green city	21	57	Green peace	3
12	Green technology	20	58	Green urbanization	2
13	Green initiatives	19	59	Green cement	2
14	Green development	15	60	Green rikshaw	2
15	Green school	14	61	green pakistani	2
16	Green investments	13	62	Green vehicles	2
17	Green Karachi	11	63	Green lobby	2
18	Green Islamabad	11	64	Green transport	1
19	Green living	11	65	Green selfie	1
20	Green Punjab	11	66	Green run	1
21	Green office	10	67	Green roofs	1
22	Green financing	9	68	Green rooftops	1
23	Green waste	9	69	Green receipt	1
24	Green campaign	8	70	Green principles	1
25	Green infrastructure	8	71	Green politician	1

26	Green finance	7	72	Green politics	1
27	Green force	7	73	Green political will	1
28	Green gold	7	74	Green police	1
29	Green group	7	75	Green pledges	1
30	Green practices	7	76	Green plastic	1
31	Green campus	6	77	Green NGO	1
32	Green character	6	78	Green nation	1
33	Green division	6	79	Green Multan	1
34	Green drive	6	80	Green mulk	1
35	Green programme	6	81	Green market	1
36	Green squads	6	82	Green menifesto	1
37	Green town	6	83	Green loan	1
38	Green banking	6	84	Green chemistry	1
39	Green bonds	5	85	Green factory	1
40	Green power	5	86	Green equilibrium	1
41	Green credentials	5	87	Green car	1
42	Green innovation	5	88	Green carpet	1
43	Green issues	5	89	Green electricity	1
44	Green movement	5	90	Green electric buses	1
45	Green parliament	5	91	Green Guide	1
46	Green rally	5	92	Green curriculum	1
			93	Green values	1

List of novel green compounds along with their frequencies

Table 5.5 includes total 93 types of compounds having green as hub. However, the number of occurrences of these compounds varies; for instance, “green economy” occurred 51 times in the corpus, and on the other hand, “green taxes” occurred only 5 times. It is noteworthy to mention that the table only includes those clusters around green that are

metaphoric in nature. Further, as can be noticed that only two-word compounds have been documented in the table.

To talk about the importance of environmental well-being different frames have been used in these compounds. A closer look at these compounds reveals that these compounds use the following major frames i.e. finance (such as “green financing”), places (such as a “green city”), technology (such as “green car”), movement (such as “green rally”), and lifestyle (such as green living). The following subsections discuss these innovative clusters; their usage in context; the way they are framing the topics that are of concern to the natural environment like development, growth, technology etc; and critical discussion of these frames with an ecolinguistic perspective.

5.2.1 Green Compounds Evoking Finance Frame

Like carbon compounds, one of the important frames that green compounds evoke is the finance frame. Table 5.6 enlists all the green compounds that have the lexical items belonging to the domain of finance. These finance terms work as the head of the compounds around green.

Table 5.6

Finance Green Compounds

No.	Compound
1	Green economy
2	Green investments
3	Green financing
4	Green finance
5	Green banking
6	Green credentials
7	Green market
8	Green taxes
9	Green loan

Green compounds having finance frame

Compounds like in Table 5.6 evoke a financial frame around entities that are important in the environmental discourses. Lexical items like “economy”, “tax”,

"investment", "financing", "banking" and so on are all from the domain of finance. Green has been placed as a modifier with these words to form novel compounds. However, these compounds are not mere lexical innovations; they are constructed to communicate environmental topics. The context expresses the complex meanings of environmentalism with reference to economic concepts construe. The following are some of the instances in which green compounds are used in context in PEC:

19. **Green economy** has four components, green technology, natural resources and ecosystems, educated people and social institutions. For the third world, it is important for eradicating poverty to move in this direction (Tribune, 2012: 115)
20. …a **green economy** is one which is "low carbon, resource-efficient and socially inclusive…Each corporation should have an internal **green budget** and also push the government to announce a **green budget** day before the annual federal budget. The government's **green budget** could include the financial assessment of Pakistan's natural assets. (Tribune, 2013: 106)
21. …the Punjab government will promote **green financing** as a way to mobilise resources for **green investments** beyond the programme's implementation period, and will directly support priority **green investments** in both the public and the private sectors. To mobilise domestic capital markets as a sustainable source of finance for **green investments**, the finance department will develop a set of principles for the issuance of **green bonds**. (Dawn, 2018: 28)
22. **Green banking** has emerged as an important player in the fight against climate change. A recent study shows that Pakistan is currently at the very initial stages of **Green Banking** adoption. (News, 2020: 24)
23. **Green taxes** to help achieve inclusive growth… **green taxes** have the potential to resolve dirty fuel, natural resources and water use. (Tribune, 2019: 18)
24. … allows the government to distribute the revenue generated from **green taxes** to support environmental programmes and institutions (Dawn, 2019: 6)

"Green economy" is at the top of the list occurring 51 times in the corpus. "Economy", according to MEDAL, is a financial term which is, "the system by which a country's trade, industry and money are organised". So, economy is all about money and generation of money. Green in the green economy can trigger some green colour related

images in the mind. Green economy is “an alternative vision for growth and development” (Söderholm, 2020, p. 1). Its focus is to bring economic betterment in people’s lives in such a way that brings positive changes in the environmental and social well-being (Ibid).

There are different expectations from the policies introduced in a country’s green economy. Ex. 19 reveals the four important components of the possible green economy of Pakistan - “green technology, natural resouces, educated people and the social institutions”. These components should make sure to come up with Pakistan’s financial system which focuses on reducing carbon emissions, is resource efficient and is effective for all the strata of the society (Ex. 20).

In the green economy frame, green is the modifier and economy is the head. Within this frame economy is the target domain and greenness of grass, plants is the source frame. Like plants growth does not hurt the environment, the same is expected from green economy. So, any economy that is green should be beneficial to the natural environment. However, is green economy really ecologically friendly?

Economy is the main concern of governments. However, money generation sectors like energy, transportation, industrial and other such sectors have been critisized for polluting air and contaminating the natural environment. Hence, the concept green economy has been presented that, in contrast to the traditional economy, is “low carbon, resource-efficient and socially inclusive” (Ex. 20). So, the solution to environmental situation due to economic system is coming up with another system that fixes the damages to the environment through modern technological measures like EVs, plant-based homes, solar panels, wind farms etc. This techno-fix approach is against the ecosophy of the current study. Stibbe (2015) states that the reduction of consumption should be the focus of the system rather than more consumption through different ways. The use of solar panels and wind farms are just the alternative methods for following the same living style. The energy produced through such measures will still be used for such activities which will cause harm to the earth.

Green economy, on one hand, promotes the idea that the current conventional economic system of many countries is not ecologically friendly so there is a need for another economic system that is ecologically friendly. On the other hand, the alternative to the conventional economy does not support bringing deeper levels of social and cultural

change in societies. It promotes the idea that we can still go with the same living style, and more consumption by coming up with more technical solutions to the current issues.

Under the same green economy concept, we have another compound, “green tax”. Like green economy, green tax also has the target domain as finance and the source domain as greenness of natural plants. The traits of greenness of natural plants are mapped onto the components of taxes. Green taxes are taxes on resources, pollution, energy and transport. So, taxes on the activities that are harmful to the environment are called as green taxes. Like carbon tax, the purpose of green tax is also to promote environmentally friendly activities and discourage environmentally hazardous economic activites. So, for instance, taxes on petrol, diesel, coal, and other energy sources discourage its usage and encourages a switch to cleaner energy sources and environmentally friendly activities (Ex. 23). In Ex. 23, green tax has been termed as the solution to dirty fuel, natural resources and water scarcity. The revenue generated through this tax can be spent on improving the natural environment and supporting the institutions that work for improving the natural environment (Ex. 24). The use of the compound in the context and the frame that it evokes underlie the story that environmental damages can be reversed by spending some money on the projects that are environmentally beneficial.

“Green banking” is another compound that comes under the domain of finance. Some other related concepts mentioned in PEC are “green financing”, “green bonds”, and “green investments. Ex. 21 and 22 show these compounds in context. According to Khan & Szegedi (2019), green banking is the type of banking in which the financial sector supports practices that are eco-friendly. Such banks support policies that turn the country’s economy towards a low-carbon economy. Reducing paperwork and using solar energy for ATMs and banks are some of the steps that banks take to bring changes in their organizational structures. Similarly, economic funding and investing in such activities or businesses that are for the betterment of the natural environment also come under the green banking concept. Green banking which plays a vital role in fighting against climate change, is a very new concept in Pakistan (Ex. 22). Green fiancing and green investments are important tasks that green banks should promote (Ex. 21). Punjab government plans to promote green financing, and issue green bonds. “Green financing” is an investment in such companies or corporations that support eco-friendly products and practices (Guide to

Green Investing, 2022). “Green bonds”, like other bonds, are fixed-income securities; but these are particularly designed to be used for environment-friendly projects (U.S. Department of Energy, 2022). Such bonds are attractive because they come with tax incentives (Sustainable Debt Global State of the Market 2021, 2022). Green banking focuses more on finance rather environment. Financing projects and companies that claim to have environmentally sensitive and produce products which are claimed to be environmentally safe is promoting the consumerist approaches - which are among the root causes of ecological disturbances. The concern is more financial rather than ecological.

Like the finance frame evoked by carbon compounds, that of green compounds is also meant for the organizations like banks or the government. These compounds place the responsibility of addressing environmental issues by countries and organizations. The individual management of the economy for environmental benefits is not the focus. The focus is more policy-oriented and hence, political. Environmental crises are transformed into quantifiable commodities which makes them more understandable to policymakers and organizations (Lohmann, 2009). At the same time, this commodification serves the purposes and interests of the corporations rather than the environment. These frames underlie stories that promote consumerism. The revenue generated through green tax, and the money given to or invested in green projects like solar energies is ultimately used to produce stuff and hence, support consumeristic approaches.

Further, commercial goods and services are used and thrown when they get old. Once discarded and outdated, people look for new goods. If we equate environmental phenomena with commercial goods that will evoke stories that will promote anthropocentrism.

Next, green tax promotes the story that if you spend more money, you can temper the environment. And, environmental issues can be solved by spending money that is generated through environmentally destructive activities.

5.2.2 Green compounds as place clusters

Another dominant group of clusters around green is the places group. Certain green compounds are from the place domain. Table 5.7 lists green compounds having place frame.

Table 5.7

Green Compounds having Place Frame

No.	Compound
1	Green buildings
2	Green town
3	Green city
4	Green house
5	Green infrastructure
6	Green division
7	Green parliament
8	Green campus
9	Green office
10	Green courts
11	Green urbanization
12	Green school
13	Green Punjab
14	Green rooftops
15	Green Sindh
16	Green roofs
17	Green principles
18	Green pockets
19	Green Peshawar
20	Green nation
21	Green Multan
22	Green mulk
23	Green Pakistan

Green compounds in the “place” group

"Green building" and "green city" are the two frequent green compounds under this frame. However, there are other compounds like "green town" and "green campus" etc. as well. The following are some of the contexts in which these words are used PEC:

25. Compared with conventional, **green buildings** provide, in theory, almost equal to natural environment, promote healthy living, minimise environmental impact and enhance water conservation. Given the climate in Pakistan, a **green rooftop** is a good idea to save energy especially in summer as they provide a cooling effect whilst acting as insulators in winter…Interior fixings such as lighting in the building, location of home appliances installation, use of water heaters, insulation of water pipes, sealing of ducts, application of water conservation technologies including maintenance of water pipes result in **reduced energy consumption** from 30-40 per cent in a **green building.** (Dawn, 2015: 103)
26. …the **green cities** concept should be introduced with buildings, transport facilities and other infrastructure abiding by environmental structure (Tribune, 2011: 35)
27. A resident of **Green Town**, Nousheen Bibi, said the government is making false claims that it has changed the face of the provincial metropolis by ensuring proper cleanliness. (Tribune, 2018: 53)
28. Parliament House gets **Green Parliament** Award 2018: Parliament House of Pakistan got the distinction to be the World's first largest **Green legislative** by taking comprehensive energy conservation measures as a first fuel, implementation of energy management system (EnMS) and shifting on renewable energy. (News, 2018: 151)
29. [PTCL) is actively pursuing a **Green Office…** [by] reducing the company's energy consumption and engages employees to play their role in climate change mitigation and urban sustainability issues which will help in environment preservation. (Tribune, 2014: 93)

The use of these compounds in the context reveals that "green" before any area/architectural structure point towards the environmentally friendly phenomenon of that structure or area. For instance, **"green buildings"** are structures that make the environment equal to the natural one, however, only in theory (Ex. 25). Such buildings have **green rooftops** that are best to save energy. So, green is environmentally friendly and we need to

come up with green solutions in order to save energy. Green buildings are built in such a way that they reduce the consumption of energy (Ex. 25). So, a **Green building** is an energy-sufficient building which is built in such a way that it consumes less energy and less water, and emits less carbon. Hence, placing Green before "villa" points towards its being more environmentally and budget friendly. Houses usually consume lots of water and energy. However, the modern buildings are designed in such a way that they will consume less energy, less water and emit less carbon. For villas having these qualities, a new compound has been coined named as Green building.

Similarly, examples 26-29 show other important compounds related to the "place" domain, named as **green cities, green town, green parliament,** and **gree office**. All of these place/area clusters have "green" as their hub. Green cities should have green infrastructure (environmentally friendly) like building and transport (Ex. 26). Recently, the impact of urbanisation on the environment has been debated and alternative solutions to the current cities have been discussed by many studies (for example, Beatley, 2012; Kahn, 2006; Karlenzig, 2007). The concept of green city first originated in European countries (Beatley, 2012). However, it has been spreading to other countries as well. The concept is to make the cities work in a way that is beneficial to the environment and that meets up environmental limits (Khan, 2006; Karlenzig, 2007). Green cities have green buildings, green transportation system and other green infrastructures (example 26).

"Green mulk" is another innovative compound that comes under the place domain. The compound is innovative in a sense that it is combination of English and Urdu words. "mulk" is an Urdu word that means "country". Hence, "green mulk" means green country. This macaronic[7] compound underscores the multicultural and multilinguistic society of Pakistan. It appears in the Dawn News (2019: 71) stating that how our "mulk" (country) is not green. The stinky city gutters, polluted air, and changing climate - all make our mulk greenless. It raises the question, "jhanda tou green hain mulk kiyun nhi? Flag is green, why not the country? Now, this slogan connects the colour green with the metaphorical meaning of green. Stating the fact that the colour of the Pakistani flag is green, but the country is not green/environmentally clean.

[7] Macaronic compounds are created by combining elements from different languages, and they often reflect the multicultural and multilingual nature of the society using them. The term "macaronic" itself comes from Latin "macaronicus," and it originally referred to a jumble of Latin and vernacular language.

Within the same article the suggestions to make our mulk green are to change the master plan of the cities (technologically), "reduce/regulate emissions, shift to renewable energy source" (Dawn, 2019: 71). Technological advancements are the solution to making this greenless mulk with green "janda" (flag) green and prosperous.

Similarly, green parliament is one that uses renewable energy and EnMS (Ex. 28). Likewise, green office is the one that saves energy and where the employees are much more concerned about the natural environment and urban sustainability (Ex. 29). However, not all the green place clusters are environmentally healthy. For instance, Green Town is not green at all. It is not clean as it does not have a proper waste management system (Ex.27).

The consciousness of the impact of urbanisation on the natural environment and habitat and its subsequent modern concepts of cities and other places led to the emergence of these places green clusters. Green compounds having place domains show environmental sensitivity by constructing buildings and places that are technologically better in saving energy and water. Are these the real solutions to mitigate the environmental impacts caused by human activities?

According to the ecosophy of the present study, the green compounds from the domain of places are not the real solutions to the issue. These compounds put forward the idea that modern technological advancement is the solution to different issues especially water and energy crises. It promotes the thinking that constructing smart buildings and cities etc will solve the environmental problems that urbanisation contributes towards, and we can continue with the same advancements by just coming up with some modern technological fixes to the urban areas and infrastructure. However, this is just a temporary solution to the issue. For long-term impacts, the need is to create resilient societies and bring deep cultural and social change. The very consumption of energy be it through sustainable resources or not, will cause emissions that cause climate change.

Further, the contexts show that the focus is more on meeting up with the energy and water needs rather than the actual ecological issues that these activities pose. Temporary human comfort is much more important than the real damage to life and other life-supporting systems on Earth. For instance, green rooftops are actually for saving energy. The idea is to use that energy on some other activities that are hazardous to the

natural environment. This utilitarian approach underlies the anthropocentric stories. Human living style is much more important than other living beings and the natural environment. So, green is just for the sake of saying; otherwise, green is not actually green as mentioned in Ex. 21 that Green Town is not green at all.

5.2.3 Green compounds having technology domain

Modern technological advancements have been termed as a major cause of environmental degradation and resource depletion by many studies (For example Stibbe, 2015). Setting up new factories for manufacturing goods, cars and other automobiles, air conditioner technologies etc. are a few examples of modern technological advancements that caused environmental issues. Recently, scientists and others have tried to come up with environmental technology that is environmentally friendly called as green or clean technology. Green technology aims to check and minimize the negative impacts of technology on the natural world and on the consumption of resources. There are certain green clusters in PEC that evoke the technology domain. Table 5.8 enlists these novel green compounds.

Table 5.8

Green Compounds having Technology Frame

No.	Compound
1	Green Development
2	Green Growth
3	Green technology
4	Green energy
5	Green innovation
6	Green transport
7	Green rikshaw
8	Green receipt
9	Green power
10	Green plastic
11	Green industries
12	Green factory
13	Green car

14	Green electric buses
15	Green electricity
16	Green carpet
17	Green cement
18	Green vehicles

Green clusters evoking technology frame

As Table 5.8 shows that in this category, there are 18 compounds with a varied frequency of occurrences in PEC. Three important green compounds are "green development", "green energy", and "green technology". The following are some of the instances in which these and some lesser-used green compounds are used in context in PEC:

30. …implementation of a comprehensive plan was started under **Punjab Green Development Project** to make the province smog-free by promoting **eco-friendly technology**. (News, 2018: 130)
31. … World Bank's **Punjab Green Development Programme** will enhance EPA's capacity and introduce vehicle inspection systems in Punjab…The programme will also provide funds to shift away from polluting technologies used in steel furnaces and brick kilns and provide subsidies to farmers to move away from crop burning. Aslam is also planning to plant urban forests in Lahore from February next year and wants to set "clear timelines/targets" to tackle the smog.
32. KP's **green growth** vision was developed to counteract the vulnerability of the province's economy (News, 2016: 2)
33. If we…use **green energy technologies** and materials while constructing the buildings, we could save electricity. (Tribune, 2013: 65)
34. **Green cars** in spotlight as India eyes electric revolution. (Tribune, 2018: 13)
35. The **"green rickshaw"** project, aimed at introducing environment-friendly transportation in the local market…Compared to regular rickshaws, the vehicle does not have a CNG or petrol-based engine but is equipped with batteries that are charged through electricity generated from solar energy. (Dawn, 2014: 80)

Due to powerful impact of “development” on cultures, it is of interest to ecolinguists. According to MEDAL, development is the “process of improving economy of a country or region by increasing the amount of business activity”. Compounds like “green development” and “green growth” have been used multiple times in PEC. As stated earlier, green triggers the image of green plants and the growth of plants is beneficial for the environment. Similarly, these traits are mapped with human growth or development. Human Developmental activities have been termed as having a negative impact on the environment (Halliday, 2001). However, the compound “green development” and “green growth” make these erms appear positive as can be seen in the corpus as well.

Figure 5.2

Search green development Occurrences 15 (0.07) Texts 12/3,408 ▼ Corpus Corpus 1 ▼ Context 7 ▼ Display Text

Index	File	Left	Node	Right
1	Dawn_2018 (28)	Bank has given approval to the ‘Punjab	Green Development	Programme’ to strengthen environmental governance and pr
2	Dawn_2018 (54)	Pakistan will receive $37 million from the	Green Development	Fund, which will be used to monitor
3	Dawn_2019_20.	management through awareness campaigns on pollution and	green development,	as part of the Clean Green Pakistan
4	News_2018 (13(	a comprehensive plan was started under Punjab	Green Development	Project to make the province smog-free by
5	News_2018 (5).t	green and eco-friendly. Recently, China has made	“green development”	one of the five guiding principles in
6	News_2018 (99)	initiative will offer myriad opportunities to boost	green development	in the country through optimizing and enhancing
7	Tribune_2013 (6	Pakistan Green Building Council was to promote	green development.	PHOTO: FILE Qureshi said the purpose of
8	Tribune_2013 (6	Pakistan Green Building Council was to promote	green development.	PHOTO: FILE LAHORE: It is time for
9	Tribune_2013 (6	Pakistan Green Building Council was to promote	green development.	He said the council was committed to
10	Tribune_2018 (5	Punjab Cities Programme ($200 million) and Punjab	Green Development	Programme ($200 million). EAD Secretary Syed Ghazanfar
11	Tribune_2019_1	the province and was informed that Punjab	Green Development	Programme had started to work in this
12	Tribune_2019_2	carry out activities identified under the Punjab	Green Development	Programme, the establishment of Environmental Laboratories
13	Tribune_2019_2	the air and water quality. The Punjab	Green Development	Programme (PGDP) funded by the World Bank
14	Tribune_2019_4	and promotion of green investment through Punjab	Green Development	Programme,” the minister said. “For this purpose,
15	Tribune_2019_9	He says that the World Bank’s Punjab	Green Development	Programme will enhance EPA’s capacity and introduce

Concordance lines of “green development” in PEC

The concordance lines of green development in figure 5.2 show that green development is taken as something positive and desirable as it has words like “promote”, in its surrounding. The concept of green development was originally generated from the 1970’s environmental movement in UAS (Rocky Mountain Institute, 1998). Today, this concept has become popular all over the world including in Asian countries. It has made its place in PEC with total of 15 occurrences. As Ex. 30 shows that a certain green development project’s main purpose is to overcome the smog issue. However, this development can be achieved through innovative technology only. The check and balance of vehicles for the iron that is used in it will lessen pollution and hence, smog (Ex.31). Check and balance of material used in vehicles is good to some extent, but it is not the

solution to the issue. Car and other modern technologies are the major cause of the environmental issues in the first place. Ex. 34-35 mentions some other so-called green vehicles like green car and green rikshaw. So, any vehicle that does not require fuel or gas is green vehicle. Green vehicles do not pollute the environment as they run on renewable energy resources like solar energy.

Green energy and green technologies to produce green appliances and green vehicles etc. claim to use technologies that convert renewable energies like sunlight and wind into electricity or power through devices such as solar panels, water and wind turbines. Hence, these technologies are safe for the environment. However, the green technology frame tries to justify the actions of developing the so-called green energy through wind and water turbines. This production seems to be green but in reality, it is not green, and it still damages the natural environment. For instance, a wind power station can kill birds with its rotor blades, force birds to migrate and produce noise pollution and metal pollution (Jaber, 2014). Similarly, the hydropower station may kill fish and force them to leave their habitat. It also causes water pollution. Next, green vehicles are not green as they still produce noise pollution. The production of these vehicles has its own consequences to the environment.

Furthermore, as stated earlier, technological advancement is not the solution to environmental issues. Striving for more and attaching a positive connotation to “more” causes trouble to the environment. This frame does not question energy consumption or our lifestyle. It also does not promote societal responsibility and deeper change in the culture. On the contrary, it promotes the view that we should change only the type of energy that we use, rather than decrease the amount of its consumption. The beneficial methods of energy generation present techno-managerial language. As energy permeates everything humans do, the lack of insight into this matter may make energy policy invisible and it will cause inaction to create deeper change by the public and the government.

A much befitting compound may be “limited green development” or “limited green growth”. These compounds depict that no development or technology is completely green. It also points out that development should be limited in amount as having more is not the solution to the environmental problems. The green technology frame can be termed as an ambivalent one due to the above-mentioned reasons.

5.2.4 Green compounds evoking lifestyle frame

Certain green compounds belong to another distinct category, the lifestyle category. Green compounds from the lifestyle domain, as found in PEC, are listed in Table 5.9 below:

Table 5.9

Green Compounds having Lifestyle Frame

No.	Compound
1	Green living
2	Green practices
3	Green waste
4	Green products
5	Green values
6	green pakistani
7	Green pledges
8	Green selfie
9	Green Guide
10	Green firecrackers

Green compounds from the lifestyle category

Green compounds from lifestyle group are total 10 in number. However, their occurrences in PEC vary. Under this group, "Green living" has the highest number of occurrences in PEC. Following are a few instances in which some of these compounds are shown in context:

36. We need to turn to **green living. Green living** is basically a lifestyle that tries in as many ways as it can to bring into balance the conservation and preservation of Earth's natural resources, habitats and biodiversity with human culture and communities…This is done basically by working with nature, not against it, reducing consumption and waste, reusing and recycling things, replanting, using environment-friendly things and disposing of wastes of all kinds properly so as not to pollute the environment… all of you…can become excellent **green angels**. (Dawn, 2017: 77)

37. …brochures such as **The Green Guide** to Hajji and **Muslim Green Guide** to Reducing Climate Change by different UK-based Islamic foundations provide Muslims tips on conservation and waste reduction during special rituals such as the pilgrimage and otherwise. (Tribune, 2013: 74)

"Green living" has not made its place in any of the dictionaries, consulted for this study, yet. In example 36, green living is shown a lifestyle that tries to bring a balance between ecological concerns, and human culture and communities. Individuals bring some lifestyle changes to achieve this goal. Those who bring such lifestyle changes are termed as green angels. The changes mentioned are the reduction of waste, recycling, replanting, usage of eco products and proper disposal of waste. In Ex. 37 lifestyle changes are recommended particularly for Muslim pilgrims. The changes include the reduction of waste during Hajj and other pilgrimages.

The lifestyle green compounds spawn a new green-speak centred on how individuals can contribute towards a healthy ecosystem. Compounds like green living, green Pakistani, green angels etc., constitute a frame that encourages the reorganisation of life for the purpose of attaining a healthy ecosystem. The changes like reduction of waste, recycling, replanting, usage of eco products and proper disposal of waste are stressed upon in almost all of the contexts in which this compound has been used in PEC. This frame encourages changes at the individual level rather than at the government or policy level.

The lifestyle compounds create a moral/religious frame as these compounds depict restraint or bringing changes as a heroic lifestyle choice. Complying with the required lifestyle changes will make one a "green angel" (Ex. 36). This moral religious frame urges green practices even during religious pilgrimages like Hajj. It shows that non-compliance with the green living standards as sin. Although the moral frame may not work in some societies where people are less religious and believe more in science; but in Pakistani society where religion has its own stronghold in all spheres of life, the religious/moral frame may be more effective.

So, it underlies the stories that unrestrained human energy and materials use is harmful to life and the natural environment on Earth and hence, these have to be limited by making certain lifestyle changes. It further gives the message that every individual

should take the responsibility for bringing about these green changes in our lifestyle and behaviour.

At the same time, a religious frame may divert the emphasis from environmental issues as the damage to the natural environment due to human activities and the necessity to limit these activities through lifestyle changes, to a moral/religious story regarding the requirement for lifestyle changes (Appleton, 2007).

Moreover, considering behaviour change as the main aim makes individuals as the problem rather than the various environmental issues e.g., “high carbon lock-in” (McNally, 2018, p. 280). This further avoids discussion of structural problems, the reasons for environmental issues, and the barriers to individuals” action. Furthermore, only individuals are asked to make changes to their lifestyles; societal groups like families, mothers, fathers, siblings, elders, teenagers etc. are not directed to make lifestyle changes “and thus fail to personalise the issue for readers” (280).

Overall, we can term the lifestyle frame as an ambivalent one due to the above-mentioned discussion.

5.2.5 Green compounds from the domain of movement

Another dominant group of green compounds evoke the movement frame.

Table 5.10

Green Compounds having Movement Frame	
No.	Compound
1	Green revolution
2	Green initiative
3	Green movement
4	Green rally
5	Green campaign
6	Green squads
7	Green drive
8	Green programme
9	Green vision
10	Green run
11	Green recovery
12	Green force
13	Green politician
14	Green politics
15	Green political will
16	Green peace
17	Green NGO
18	Green manifesto
19	Green lobby
20	Green police

Green compounds evoking movement frame

Table 5.10 reports all of the green clusters that come under the movement group. It shows that there are total 20 types of green compounds in PEC that can be placed in the movement group. Under this category, “green revolution” has occurred most frequently in PEC. The following examples show a few instances of these compounds as occurred in their context in PEC:

38. A second '**Green Revolution'** is needed to increase global wheat production by sixty per cent by 2050 when the world population is predicted to be 9.3 billion, global wheat research organisation, 'Wheat Initiative' said in a report. (Dawn, 2020: 94)
39. UN Habitat to extend support for **clean, green movement** in Pakistan. The adviser added the youth of country should register and participate in this drive for which they will receive government recognition and rewards. He also said electric vehicles will be introduced to reduce environmental pollution in the country. (Tribune, 2019: 101)
40. Around a hundred young people from the capital city took part in the **'Go Green Rally!'** organised by the Heinrich Boll Stiftung (HBS) in collaboration with the Sustainable Development Policy Institute (SDPI). The campaign promotes the idea of 'There is no planet B - so let's change our policies, not the climate' with the aim to spread awareness at all levels of policy formulation and implementation on climate change. (Dawn, 2015: 53)
41. Environment conservation: Students in **Green run** a marathon to spend awareness (Tribune, 2012: 149)
42. HRCP Hyderabad task-force coordinator Dr Ashothama Lohana said **green laws and technology and green peace movements** were being made and raised in the world as healthy environment was a fundamental human right. (Dawn, 2018: 30)

The recent environmental issues made the social and political forces come up with some movements for bringing about awareness among the masses for the purpose of social reformation regarding the natural environment. Clusters having green as their hub emerged and are emerging to name and communicate about such reformative movements. The expression "Go green" has appeared 24 times in PEC to sensitize Pakistanis about environmental issues and to motivate to take positive steps. "Green revolution" in wheat has been demanded by a social group in a report (Ex. 38). Similarly, Clean, Green Pakistan movement has been supported by UN Habitat that encourages youth to participate in the drive for which they will get incentives (Ex.39). Go Green Rally movement tries to sensitize people regarding environmental issues by arranging a marathon (Ex. 40-41).

Furthermore, Green laws and green peace movements by HRCP Hyderabad task-force are some other efforts in driving people to become more environmentally friendly.

Green clusters under this group and the way they are used in the context show that the main aim of such movements is to increase people's awareness of environmental issues and to decrease the environmentally destructive behaviours of humans. The movements and actions help to build awareness but do not result in automatically enforcing behavioural changes in many cases. However, the initiatives like green laws and green police can stop people forcefully from doing certain acts that are environmentally hazardous in this case, littering in tourist areas.

The green movements can be actually effective if they promote deep ecology. However, unfortunately, many of these movements promote ideas that are not of much benefit to the environment. For instance, more wheat production has been focused upon rather than decreasing the population (Ex. 38). In Ex. 39, EVs have been supported thinking they are environmentally friendly. Similarly, in the same example, people are motivated by some social benefits rather than making them sensitised to environmental issues. Hence, extrinsic values have been promoted here. Further, Ex. 40 also promotes extrinsic values. It further promotes anthropocentrism as the Earth should be saved only because we do not have any other option to live. Humans and their needs are more important than any other living being or the natural environment. Had we had any other planet to live upon then we could have tempered the Earth to any extent. So, the Earth is important only because it serves the purposes of human beings. Hence, the movement frame can be termed an ambivalent one.

In short, like carbon compounds, many of the green compounds also evoke frames that are ambivalent or malevolent. The word green in green compounds is usually used to greenwash the vocabulary and serve the purpose of consumeristic and/or political views.

5.3 Eco compounds

'Eco' is another important noun that has given rise to many new words. Eco-, an important prefix today in the environmental lexicon, became part of the lexicon during the 1970s. It was initially noticed by Russell and Porter (1972) in their study. Eco-bag, and eco-house are some of the eco-words that they cite in their volume of *American Speech*. Eco- is a shortening of "ecology" that is used to give the meaning of someone or something that is

against environmentally destructive activities like pollution (Benz, 2000). According to OED, “eco-” is an affix that is used to form nouns, adjectives, and adverbs. This combining form in the words means “connected to the environment”.

The corpus data also confirms that in many instances eco- has been used as a bound morpheme. However, there are some examples in which eco works as a free morpheme and some of these words form novel eco compounds. This affirms Benz’s (2000) prediction that the term will gradually become a free morpheme (although many dictionaries still count it as a bound morpheme). OED3 (2008) describes eco as a free morpheme that is a shortening of ecological and which means environmentally friendly. The following 21 examples and their frequencies in the corpus affirm Benz’s prediction.

Table 5.11

Eco Compounds				
No.	**Compound**	**Frequency (with space)**	**Frequency (With hyphen and no space)**	**Frequency (total)**
1	Eco Friendly	6	204	210
2	eco products	5	0	5
3	Eco Pakistan/Pak	4	0	4
4	Eco Water	2	0	2
5	eco unfriendly	2	1	3
6	Eco Resort	2	1	3
7	Eco Marathon	2	51	53
8	Eco Internships	2	0	2
9	Eco Hike	2	1	3
10	eco capsule	2	0	2
11	eco villa	1	9	10
12	eco visa	1	0	1
13	eco village	1	1	2
14	eco travels	1	2	3
15	Eco Tourism	1	19	20
16	eco structures	1	0	1
17	eco solution	1	0	1
18	eco projects	1	0	1
19	eco impact	1	0	1
20	eco freaks	1	0	1
21	eco dynamics	1	0	1
	Total	**40**	**289**	**329**

List of novel lexical compounds around Eco with/without space and hyphen

It is very difficult to point out if eco is used as a prefix or as a free morpheme (Wang, 2016). The present study takes all the eco words having in-between space as compounds, and the ones having hyphens, or no space are not taken as compounds. Although this is no criteria to mark the difference but since in all of the institutionalized eco words having no space or hyphen, eco is taken as a bound morpheme, so this has been applied here as well. In each compound in Table 5.11 eco works as a freestanding noun. In many of the instances in the corpus compounds like eco friendly, Eco Marathon etc are joined together with a hyphen affirming lexicographers' claim of considering eco- as a bound morpheme. However, in a few of the occurrences, there is a space between eco and its headword, making eco a free-standing morpheme. There are only few occurrences of the compounds in which eco works as a free morpheme (see Table 5.11) which shows that the process of liberation is still ongoing at least in Pakistani English newspapers. Finally, it is noteworthy that many of the ecocompounds having space are used in other contexts with hyphens or no space.

The table includes a total of 21 compounds having eco as a hub. However, the number of occurrences of these compounds varies; for instance, eco friendly occurs 6 times in the corpus, and on the other hand, eco villa occurs only once. It is noteworthy to mention that the table only includes those clusters around eco that are metaphoric in nature. Further, as can be noticed that only two-word compounds have been documented in the table.

All of the novel compounds listed in Table 5.11 are noun-noun compounds in which eco works as a noun. Some of these novel compounds like Eco Pak, Eco Internships, and Eco Hike are proper nouns. The recent dictionary meaning of eco- as a prefix has been mentioned at the start of this section. However, the question arises what is the meaning of "eco" in eco compounds? Initially, eco in the compounds was used to give a more general meaning of the environment which is the same as used for the prefix eco-. However, it has been recently used to give green meaning. It denotes something or someone concerned with restoring the environment (Benz, 2000). So, as a source frame, the noun eco is attached to the target domains to either show as if it is related to the environment or if someone or something is environmentally sensitive. In short, it greens the headword it is combined with.

The environmentally sensitive charged eco compounds play an important part in framing different issues that are of great importance to the environmental discourses. These compounds evoke different frames dominant of which in the corpus are architecture, personal relations, and tourism.

5.3.1 Ecocompounds having the architecture domain

Words like villa, village, capsule, resort, and structure belong to the domain of architecture. These have been combined with the noun eco to form eco compounds evoking the architecture frame. Eco Villa, Eco Village, eco capsule, Eco Resort, eco infrastructure are the compounds found in the corpus. Below are some of the examples from the corpus in which some of the eco compounds are used in their contexts:

43. The scheme is geared towards the beautification of the city's infrastructure as it will constructively utilise concrete pillars by turning them into **eco structures** that will aid in making the environment cleaner by reducing urban heat and pollution. (Dawn, 2019: 259)
44. …that the **eco-villa** not only generates its own electricity but would be able to also export excess electricity to the national grid. Shahab said that Abu Dhabi government would introduce for the first time to pay back in cash to its customers who put excess electricity in **Eco Villa** through using less watts. (News, 2017: 24)
45. **Eco-capusule** has the answer to the world's homeless people. **Eco capsule** was nominated for the Tech Lexus Award in 2015 (News, 2018: 31)

The use of these compounds in the context reveal that eco before any architectural structure point towards the environmentally friendly phenomenon of that structure. For instance, **eco structures** are structures that make the environment clean as it reduces urban heat and pollution (Ex. 43). Similarly, **Eco Villa** is a energy-sufficient building which is built in such a way that it can generate its own electricity. It consumes "less energy" and "less water", and emits less carbon. Hence, placing Eco before villa points towards its being more environmentally friendly. Villa, according to OED, is a house in which people stay when they are on holidays. Houses usually consume lots of water and energy. However, the modern villas are designed in such a way that they will consume less energy, less water and emit less carbon. To show villas having these qualities, a new compound has been coined named as Eco villa.

Similarly, Ex. 45 shows another important compound, named as **eco capsule**. Capsule, according to OED, is "a small plastic container" which has some liquid or substance in it. Capsule in eco capsule is an architectural structure. The compound has not become part of any dictionary (consulted in the current study) yet. Eco capsule is a "self-sustaining, micro home" which is "environmentally friendly". It can "accommodate two adults at a time". This modern structure has all the facilities of a home but at the same time, it is self-sufficient in terms of power for it uses solar power.

Recently, the impact of architecture on the environment has been debated and researched (for example Heeren et al., 2015; Pourdehqan et al., 2015). It has been noticed that the architecture is hazardous to the environment during the construction phase as well as after the construction. During the construction of buildings, a lot of energy and water is consumed which causes carbon emission and scarcity of water. Further, the transportation and many other factors involve consumption of fuel which also causes carbon emissions (Heeren et al., 2015). After the completion of the construction of the buildings, the functioning of the building leaves a long-lasting effect on the ecosystem as the consumption of energy and water convert into greenhouse gases and water is wasted after its use. The construction material also causes long-lasting environmental impacts (Ibid). To talk about these impacts and come up with solutions to these issues a new eco vocabulary has evolved as noticed above. The compounds eco structures, eco villa, eco capsules, eco villages and eco resort are the solutions to these environmental issues as analysed when used in the context. These architectural structures show environmental sensitivity by reducing energy and water consumption. Are these the real solutions to mitigate the environmental impacts caused by the architecture industry?

According to the ecosophy of the present study, the eco compounds from the domain of architecture are not the real solutions to the issue. These compounds put forward the idea that modern technological advancement is the solution to mitigate the environmental effects, especially global warming. It promotes the thinking that constructing smart buildings will solve the environmental problems that architecture contributes towards, and we can continue with the same advancements by just coming up with some modern technological fixes to the architecture. However, this is just a temporary solution to the issue. For long-term impacts, the need is to create resilient societies and

bring deep cultural and social change. The very consumption of energy be it through sustainable resources or not, will cause emissions that cause climate change.

5.3.2 Ecocompounds from the domain of personal relationship

Ecocompound like eco (un)friendly evokes personal relationship frame. The most basic meaning of friendly is "liking each other" (MED). Here the reference is toward humans. Humans like each other. So, being friendly is being nice to each other. Eco friendly should be then being nice to the ecology. According to MED, the adjective eco-friendly means something that is designed in such a way that it causes as little as possible harm to the environment. Eco friendly as an AdjC (adjective compound) also has more or less the same meaning. Following are a few instances of eco friendly in the corpus:

46. **Eco unfriendly**: The loss of Karachi urban wetlands (Tribune, 2015: 108)
47. **Eco (un)friendly**: For the KMC (Karachi Metropolitan Corporation) money does grow on trees (Tribune, 2018: 1) park
48. Ahad Raza Hashimi made '**My Eco Friendly Car'** and won the under-10 category award in the Seventh Annual Toyota Dream Car Art Contest. His car used garbage as fuel and converted it into clean energy (Tribune, 2014: 92).
49. Pakistan is going towards a more **eco friendly future**. Planting ten billion trees in Pakistan is ambitious as this project is the largest **eco-investment** ever to be done in Pakistan. (News, 2018: 99).

Ex. 46 is title of an article. In this instance loss of wetlands in Karachi has been termed as harmful to the environment. Wetlands are an important phenomenon of a natural environment. They are habitats of birds and other species. However, recent human encroachments and industrialization caused the wetlands to disappear and the article terms this act as eco unfriendly. These wetlands are considered to be "assets" of Pakistan which have turned into "gutters" or "residential areas" now. The loss of wetlands in modern cities is eco unfriendly. However, in the context, it has been termed as bad because wetlands are important assets. This makes them have extrinsic value. Further, in Ex. 47 stopping work on turning a park into a forest using modern techniques has been called eco unfriendly. A lot of money has been spent on this project; however, KMC stops the project in between which according to the author is eco unfriendly. Forests are an important phenomenon of ecology and have their own value. However, in this example, the concern is more financial

rather than environmental. Similarly, in Ex. 48 a car has been declared as eco friendly because it uses "clean energy". It promotes the idea that we can go with the same lifestyles through techno-fix. Lastly, Ex. 49 terms the Billion Tree Tsunami Project leading towards eco friendly future. However, the plantation of trees is considered as eco-investment which entails that trees themselves do not have any value. They are valuable because they are used by humans.

Compounds evoking personal frame are used in the context in such a way that constitute stories which are not beneficial for life and the wider systems that life depends upon. Wetlands, trees and other entities which play a vital role in the ecological system are urged to be saved and restored only for the benefit of humans. The frame connects to the financial frame giving extrinsic value to the natural beings. Further, it stresses upon the technological fix of all the hazardous materials. So, a car which is not good for the environment can become eco friendly if we use clean energy in it. However, as Stibbe (2015:69) states that the optimism that a techno-fix like cars having clean energy or geoengineering will "solve isolated environmental issues" stops bringing any change into "larger social and cultural systems which underlie all the issues". This further makes only scientists and engineers responsible for finding solutions to environmental issues. In this way such frames "absolve the rest of the population from considering the social changes and the cultural shifts necessary to adapt to the inevitable environmental change". The responsibility "to contribute to the preservation of the systems that support life" is removed from the other masses (Ibid, 69).

5.3.3 Ecocompounds evoking tourism frame

Ecocompounds "eco tourism", "eco travels" and "eco visa" in the corpus point toward the tourism frame. Following are some of the contexts in which these compounds are used in the corpus:

50. 'Mangrove's **Eco Tourism'** has also been put to halt… (Tribune, 2011: 34)
51. Tourism, read **ecotourism**, can be utilised as a great source of socioeconomic uplift for the people of the area. (Dawn, 2012: 55).
52. …I embarked on my recent journey to the east coast of Thailand, a place thriving on **ecotourism**. My destination was the Faasai **Eco Resort,** which would be the

base of my **eco travels** in the serene location of Kung Wiman Peninsula. (Tribune, 2011: 3)

Tourism is the business of providing services to people who intend to travel for their holidays (MED). Eco tourism is providing travelling services that are designed in such a way that causes the least damage to the environment, and the amount that tourists pay is used to protect the natural environment and the animals (OED). In Ex. 50-52 eco tourism/ecotourism has been used in the context. Ex. 50 shows concern about mangroves because they promote eco tourism. However, cutting them will affect the Mangrove's Eco Tourism project which will cause economic issues for the area. In Ex. 51, ecotourism has been termed as boosting the socioeconomic situation of a certain area. The concern is once again economic. In Ex. 52 a person expresses his tour to Thailand as ecotourism because he stayed at Eco Resort. He terms his travels as eco travels.

Modern tourism, though important for the socioeconomic uplift of a country, has been considered hazardous to the wider environment in many studies (for example, Budowski, 1976; Cohen, 1978; Chawala and Romela, 2006). Tourism causes depletion of natural resources; air, noise, and waste pollution; degradation of ecosystems; loss of biological diversity; and climate change (Sunlu, 2003). As tourism is important for the socioeconomic situation of the communities, the solution to these issues is presented as eco tourism. Eco tourism green washes the concept of tourism and creates stories that make tourism appear beneficial for the environment. However, if eco tourism is really beneficial for the environment is a debatable question. As can be seen from the use of this compound in the context the concern is not environment but economic benefits. The same has been communicated by Cater (1994) by calling compound eco tourism a confusing one. Although eco tourism gives the impression that it promotes travels that cause less harm to the environment and uplifts the socio-economic situation of the locals, in reality, this is not the case. As Wall (1997) points out that the visit of tourists to the seldomly visited areas places new demands upon the environment. The construction of roads and resorts causes emissions that are responsible for climate change. Frequent travels on the tracks cause soil erosion. Further, locals are usually exploited and the money that is generated goes to the main influential actors; locals get only the minimum benefit of the so-called eco-tourism. On the other hand, their habitat and cultures are affected the most due to tourist activities.

Similarly, rare species are hunted down and their habitats are disturbed. In short, eco tourism evokes a frame in which tourism is framed as a positive and responsible activity but on the contrary, it causes a lot of ecological issues.

5.3.4 Ecocompounds evoking consumerism frame

Many of the ecocompounds are proper nouns promoting the consumerist frame. Compounds like Eco Water, Eco Villa, Eco Resort, Eco Marathon, Eco Internships, and Eco Containers are to name some of such proper nouns. Eco Water (Dawn, 2012: 54) is a mineral water brand name. However, it is unknown how drinking water is environmentally less harmful. In the same article, Eco Water has been mentioned to be one of the brands that are hazardous to human health. Eco has been used as a marketing slogan in this case. Similarly, Eco Resort in Ex. 58 is the name of a resort. The morpheme eco has been made as part of the resort name just to attract the travellers to gain economic benefits. Hence, all of the proper nouns having eco as a fronting morpheme, use this morpheme only to enhance their businesses.

Eco, be it a prefix or a free morpheme, is one of the most productive morphemes in environmental discourses in terms of word formation. It is the first part of the compounds and creates stories that are harmful to the environment. It creates lots of frames some of which are most frequent are architecture, personal relations, and tourism. As discussed above, eco only greens the head of the compound. In reality, the way these compounds are used in the context shows that compounds like eco friendly, eco capsule and eco travels are not beneficial for the well-being of the systems that life depends upon. Many of these compounds promote consumerism and term geo-engineering and techno-fix as solutions to environmental degradation. Compounds like eco villa tell the stories that we can go with the same progress and routine, and the environmental issues can be solved through geo-engineering without bringing any deeper social and cultural changes to the societies. Further, some of the eco compounds like “eco friendly cars” entail that only scientists can play a role in fixing the environmental issues. Finally, the tourism frame supports the influential and economically strong players rather than the poor locals whom eco tourism claims to work for.

Conclusion

The recent environmental consciousness gave rise to novel metaphorical clusters in environmental discourses. These clusters are found to frame many topics that are of interest to an ecologist. The current chapter identified and analysed three of the dominant compounds i.e. carbon compounds, green compounds, and eco compounds. These compounds frame topics like development, tourism, architecture, carbon emissions etc. all of which have been termed as harmful to the natural environment and life of the earth. The source frames in these compounds are carbon, green, and eco. The target domains are topics like development, tourism, architecture, finance etc. A thorough analysis of these compounds in their groups revealed that many of them evoke frames that are ambivalent or malevolent in nature.

CHAPTER 6

CONCLUSION

6.1 Summary and Conclusion

Environmental discourses are basically to show environmental concern or to encourage people to behave in a way that is good for the environment. However, it has been noticed that the language patterns used for showing environmental concern underlie stories that are not healthy for the environment (For example, Romaine, 1996; Nerlich & Koteyko, 2009). In the present scenario, the current study, using Stibbe's stories framework, tries to identify lexical items that trigger conceptual metaphors and other metaphorical frames. Corpus techniques are used for the identification of these trigger words. Metaphors and frames, according to Stibbe, are forms of story that underlie linguistic features (in this case words and lexical compounds) and that promote stories related to ecological concerns. Stibbe's 4-step ecocritical analysis of metaphors and frames is used to analyse these forms of stories.

Since Saussure, it has been understood that language constructs the reality of human existence on this earth, and that language uses us as we live in the prison house of language, and it is not the other way round. The study of linguistics gives us tools for analysing the texts around us, and it also influences the culture we live in. (Stibbe, 2015: 2). Different linguistic features in the environmental discourses can be analysed to know the reality they reflect and at the same time constructs. Linguistic metaphors and lexical compounds are two such linguistic tools that are prevalent in discourses and that construct two forms of stories i.e. conceptual metaphors and frames respectively. The current study ecocritically analysed these two linguistic features to know the underlying stories. Once the stories are revealed then they can be questioned from an ecological perspective i.e.do these stories encourage us to harm or protect the wider ecosystems that life depends upon? The destructive stories can then be resisted and the beneficial be promoted.

The findings of this study, as documented in chapters 4 and 5, reveal that the environmental texts that are apparently written to either sensitize people regarding environmental degradation or to encourage people towards environmentally friendly behaviour, mostly promote stories that are malevolent to humans, other living beings, and the natural ecosystems that life depends upon. To start with the analysis of conceptual metaphors (chapter 4), a general know-how of the corpus was important. The analysis of the corpus for finding general themes answers Q1 of the study:

What are the major environmental/ecological issues discussed in the environmental discourses in the selected Pakistani English newspapers?

To answer this first question, a general list of words along with their frequencies within the corpus (PEC) was generated and analysed. As Baker (2006) states, the frequencies of words within the corpus reveal users' intentions. The analyses revealed that the most frequent words in PEC are mostly related to environmental concerns in Pakistan. The major environmental issues discussed in the texts and reflected through analyses of the frequently used words are climate change, pollution, waste management, pollution, smog, industrial waste, and carbon emissions. The metaphors extracted are mostly related to the general list of words and their frequencies in PEC.

In Baker's words, the frequency of the lexical items of a corpus reveals the intention of the users. Despite all of these articles regarding the environment, Pakistan is still dealing with severe environmental issues and Pakistanis are noticed to have habits that are not good for the life and the ecosystems that the life depends upon (Sajid & Rahman, 2021; Zeb et al., 2019; Raza et al., 2021). Studies like that of Sajid and Rahman (2021), Zeb et al. (2019), and Raza et al. (2021) analyses issues like water scarcity, deforestation, and pollution and terms cultural habits and government policies as the root causes of such environmental issues. This situation raises questions like; are the published articles related to these issues less in number to tackle the issue? Do the newspapers have less readership to have an effect? Or do the linguistic features employed in these texts prevail stories/thinking that is not good for the life and the physical environment? The present study does not tackle the first and the second question as they are out of the scope of the study. The second question of readership can be negated for present as the earlier studies on the reasons of environmental issues mention the issues with the environmental policies as well. Does this

infer that the educated people in the government are also indulged into the environmentally destructive activities? The present research adopts an ecolinguistic perspective, thereby endeavoring to address the third question.

The linguistic features that it explores are linguistic metaphors and the lexical compound. These features constitute 02 stories as mentioned by Stibbe (2015), conceptual metaphors and frames. Q2 & 3 concern the identification and analysis of conceptual metaphors.

Which conceptual metaphors are used in these environmental discourses?

How these metaphors depict benevolent, malevolent, or ambivalent thinking towards the ecosystems that life depends upon?

As for Q2 is concerned a total of 18 conceptual metaphors have been identified in PEC. The most dominant target domains of the metaphors are, CLIMATE CHANGE, CO2, ENERGY CRISIS, ENVIRONMENTAL ACTION/ENVIRONMENTALISM/CLIMATE ACTION, NATURE, EARTH, ECOLOGICAL DAMAGE, ENERGY CRISIS, CORONA VIRUS, and COMPANY. The target domains are topics usually discussed in environmental texts. However, due to the complexity of these topics within the environmental texts, they have extensively been understood by mapping them to traits of other domains that are easy to be grasped by humans. These metaphors are been conceptualized by mapping them onto different source frames like WAR, TIME BOMB, PERSON, MOVEMENT, JOURNEY, SPORTS, PERSONAL RELATIONSHIP, COMPETITIONS, MACHINE, WEB, HOUSE, CLEANLINESS, ACCIDENT, and FARMING (check chapter 4 for details).

The frequency of metaphorical contents in the texts, their critical analysis and discussion provide evidence that language and metaphor play a crucial role in individual and societal awareness and actions with regard to environmental issues. Upon ecocritically analysing these metaphors in their context, the study finds that most of them are malevolent, a few ambivalent, and a fewer benevolent. Malevolent/destructive metaphors are the metaphors that promote stories which are not good for the well-being of humans, other life and the wider ecosystems that are crucial to life. Most of the dominant metaphors identified in PEC apparently seem to be used to understand and protect the environment but in reality, depict malevolent thinking toward life and the natural environment on Earth.

For instance, the conceptual metaphor NATURE IS A MACHINE places nature in a subordinate position and humans in a superordinate position. Nature has been compared to a machine and humans as its operators. A machine is an assembly of different mechanical parts and damage to a certain part may be fixed through engineering. So, fixing damage to a certain part requires focusing only on that particular damaged part rather than the whole system.

NTURE IS A MACHINE and many other malevolent metaphors discussed in chapter 4 underly two dominant stories; i) the optimistic thinking that geo-engineering or plantation of trees may fix the environmental damages so there is no need to bring any change in the larger human social and cultural systems which are the actual cause of ecological disturbances, ii) humans are the supreme objects in the world and they are not part of the ecological system but are at the controlling end, outside the system. These two stories are prevalent in many of the other malevolent and ambivalent metaphors and compounds analysed in chapter 4 and 5.

The techno-fix story says that the recent environmental issues like climate change, sources depletion, water scarcity, pollution etc. can be resolved through technological advancements. Technological advancements can be having electric vehicles, renewable energy, low-carbon machines etc. as promoted through different metaphors.

CLIMATE CHANGE IS A JOURNEY is another malevolent metaphor that promotes the thinking that man-made gadgets can fix the issue of climate change. So, to reach the goal of achieving a healthy and prosperous ecological system, the path of new technological advancement should be followed. This metaphor can be connected to the metaphor PLANET IS A REPAIRABLE ENTITY that Nerlich & Jaspal (2012) discussed in detail. Hence, the techno-fix story prevails in European discourses as well. These metaphors promote only shallow environmentalism and do not focus on the deep social and cultural changes that can make a real difference.

In the Pakistani context, as a developing nation, struggling to get economic stability, the techno-fix stories make much more sense. The country idealizes developed countries of Europe and Americas to combat environmental issues and get economic stability. The recent call for installation of solar panels is one among such initiatives that the government is taking to show more sensitivity towards the environment and at the same

time to get economic dependency. Similarly, initiatives like that of Billion Tree Tsunami is another such initiative that reveals the optimistic view that environmental degradation can be reversed (Environmental Sustainability in Pakistan, 2020). The congruence of "techno-fix" narratives in Pakistanis discourses with comparable studies conducted in other regions demonstrates a notable consistency in the application of these concepts. This observation underscores the broader applicability of the "techno-fix" framework and highlights a significant commonality in the findings.

Another malevolent story of anthropocentricism is again what other studies from European and American culture have highlighted in their ecolinguistic studies on environmental discourses (e.g., Stibbe, 2015; 2014). Once again, the story is same but the metaphors that depict these stories are different to different cultures. For instance, the Gia metaphor around nature is found to be malevolent in studies like that of Romaine (1996), and Berman (2001). However, in Pakistani context this metaphor has been found benevolent due to the higher status that Pakistani society gives to motherhood.

The study also identified a few metaphors that tell stories that are beneficial to life and the life-supporting systems. These stories are, CLIMATE CHANGE IS A MOVEMENT, NATURE IS A WEB, and NATURE IS A PERSON. The underlying narratives in these metaphors like humans are responsible for the environmental degradation, and humans are part of nature rather superior beings are to be promoted for a thought system that favours environmentally friendly actions.

The present study does not limit itself to only metaphors; it also analyses novel carbon, green, and eco compounds in PEC. Q4-5 concern the identification and analysis of these novel compounds and the frames they evoke. It identifies the frames that these compounds evoke and analyses these frames ecocritically. These novel metaphors indicate the change in the linguistic spectrum, however, the change is found to tell stories that are hazardous to life and the natural environment.

The emergence of compounds and especially novel compounds in environmental discourses point towards the response of language to the change in the outside natural environment and the concern about this change. These tokens of creativity are also used to

communicate environmental topics in a simplistic and better way to avoid the scientific language that is difficult to grasp by the common public (Bowman *et al*., 2009). Further, the explosion of these compounds is not mere linguistic change but reflects the future orientation that the environmental discourses are taking at the time. Further, they reflect and construe the stories that we-live-by or the stories that we-will-live-by.

The study examined the lexical creativity around carbon and how these compounds frame different environmental topics. The frames of finance, religion, politics, place, technology, lifestyle, movement, architecture, personal relationships, tourism and consumerism are found to be evoked to map different environmental topics.

Carbon compounds were noticed first in the 1990s in online media (Koteyko et al., 2014). The frequency and creativity of these compounds show the importance of carbon in environmental discourses. Carbon dioxide is a greenhouse gas whose excessive emissions due to human activities are considered to be responsible for the issue of climate change. The stress on the reduction of carbon has recently been communicated through different groups of carbon compounds. Similarly, the topics of increased technology, urbanization, lifestyles, architecture etc concerning environmental issues and their solutions have given rise to two other important compounds - green compounds and ecocompounds. The word "green" in green compounds refers to the environmentally friendly action or nature of someone or something. Similarly, eco (clipping of ecology) in eco compounds also gives more or less the same meaning.

These novel compounds are used to communicate different framings related to complex and urgent topics related to the environment. The analysis of the framing of the topics through these compounds revealed that most of these frames are harmful to the environment. These stories mostly support consumerism and technologies as solutions to the issue of carbon emissions and other environmental issues. For instance, the financial frame evoked by carbon compounds like carbon credits, carbon tax and carbon economy offer a financial solution to the issue of climate change. They construct stories that are more focused on cost-effective ways of meeting the targets (McNally, 2018). These compounds turn the environmental phenomenon into goods and services (Lohmann, 2009).

Further, Compounds like carbon credit construe the story that spending more money can give the right to pollute the environment more. Moreover, the political frame evoked by compounds like carbon neutrality gives the false story that businesses and the government are sensitive towards the environment, and they tend to comply with the set carbon measures which actually is a simple greenwashing technique. Finally, carbon compounds make other greenhouse gases invisible from the discourses, hence, from the cognitive systems. They promote a story that only carbon dioxide is responsible for climate change. On the contrary, many other greenhouse gases also contribute to climate change.

Green and eco are placed to falsely show that the environmentally harmful domains are no more harmful usually due to some technological advancements; however, these terms are in general used to greenwash the vocabulary and give a false impression to the readers as if these domains are environmentally beneficial. On the contrary, these novel compounds constitute frames that are not beneficial to the well-being of life and the natural ecosystems that life depends upon. For instance, green economy promotes the thinking that the environmental situation due to the economic system can be improved by replacing the traditional economy with another financial system that promotes modern technological solutions like EVs, solar panels, and wind farms. This in turn promotes the production of modern technological gadgets and other systems. Consumption is among the major causes of environmental issues and the techno-fix approach does not work to tackle that. So, the modern concepts of eco city, green energy, eco tourism that apparently show concern for the environment are simply greenwashing of the vocabulary. In reality, they represent techno-fix solutions to environmental issues and promote consumption and these two stories are hazardous to life and wider ecosystems that life relies upon.

So, based on the discussion above, we may conclude that most of the metaphors and compounds in PEC constitute malevolent discourses. The findings of the current study are to expose these stories to bring awareness among the masses, especially to the journalists who are mostly involved in writing articles for newspapers. Newspapers being widely read in Pakistan, are a great source of having an impact on society. The usage of more careful linguistic features may bring positive cognitive impact, in this case on the natural environment. Climate change and many other ecological issues are basically

symptoms of much older underlying socio-cultural issues. These issues are mirrored in discourse structures such as those described in this thesis, as well as the social realities they (re)produce and perpetuate. Most of the metaphors and frames analysed in the current study depict social reality that may encourage behaviour that is more environmentally ambivalent than beneficial. Researchers, activists, and concerned citizens who want to avoid the repetition of environmentally ambiguous or detrimental social realities should examine the language used to create these realities. They may learn that the issue is more about using the "wrong language" in order to achieve the "right" thing.

The study criticizes Stibbe's three-fold categorization of discourses, which includes classifying them as malevolent, benevolent, or ambivalent. The critique suggests that this classification is overly simplistic and limiting. Instead, the study argues for a more nuanced approach by placing these discourses and stories on a linear ecological scale.

On this proposed scale, discourses and stories would be positioned in a way that better reflects their actual content and characteristics. This approach acknowledges that a discourse or story can exhibit both malevolent and benevolent features, but these features may not be evenly balanced; in other words, they might not be a perfect 50-50 split. Additionally, some discourses may lean more towards benevolence while having fewer malevolent elements, and vice versa.

The study highlights that categorizing all such diverse discourses as purely ambivalent does not accurately represent their variations. Some discourses may be significantly more malevolent than others on this scale, and the proposed linear ecological scale would account for these differences in a more comprehensive and precise manner.

In light of this categorization, the present study may be placed on the ecological scale of discourses that come under the ambivalent category but is nearer to the malevolent discourses.

The result and the conclusion of the study contribute to raising awareness about the role of the language on environmental perceptions and the importance of educating

journalists and other communications whose writings have wider impact. Educating these important personnel is important for the well-being of the environment.

It further highlights the role of print media in shaping public opinions and perceptions about the natural environment and the environmental issues. The study encourages media personnel to use language more responsibly. It promotes environmentally sustainable linguistic practices.

In short, the research attempt to bridge the gap between language, print media, and environmental sustainability and advocates positive discursive and attitude changes towards the environment.

6.2 Limitations

The present study is limited in various ways. The methodological limitations are discussed in detail in section 3.4. The methodological limitations are mainly concerned with selection of data and the corpus techniques. First, the scale is relatively large at ten years publication. This makes it difficult to identify all the metaphors because there is no known effective automatic way of identifying metaphors in a large corpus. Hence, there are chances that some of the metaphors relevant to the study are left out despite using both manual and corpus techniques. Second, only three Pakistani English newspapers are being selected based on convenience of availability. More local English newspapers whose readership is comparatively less, may have more local voice and hence local stories. Third, the study is ahistorical. It does not take into account relevant texts before and after Pakistan became part of Kyoto Protocol. It takes texts from a fixed point in time. A comparison of how discourses changed or remained the same after Kyoto in 1997 (ratified in 2005) and then later on after Paris in 2015 could have yield a different kind of discussion. Hence, the current study is biased towards synchronic rather than diachronic.

Further, compounds around only three lexical items (carbon, eco, green) are discussed. However, there are many other lexical items like “climate” around which novel compounds are formed. The study could not discuss them all due to time constraints.

Finally, the study does not take into account individual perception. So, it is not participation-based study instead it is more concerned with analysis of discourse. One of

the key goals of this work is to raise awareness of environmentally harmful discourses so that they might be resisted and transformed. What social actors really see, as well as how they respond to and engage with certain discourses of ecological modernisation, is outside the purview of this analysis and should be left to future research and a different academic approach.

6.3 Suggestions for Future Research

The recent importance to the research in the field of ecolinguistics (Hallidayan paradigm especially), particularly in metaphor, linguistics compounds in ecolinguistics, can be noticed in the relevant previous studies. Investigation in Metaphors and compounds in ecological and other texts has many possible avenues of inquiry. However, it is difficult to mention all the relevant possibilities in a few paragraphs here, so this section names only a few basic ideas for possible future studies.

A similar but diachronic ecoanalysis of metaphor and compounds, regardless of genre, in the Pakistani scenario may be a relevant research pursuit. For instance, similar ecocritical analysis in Pakistani textbooks, or online blogs over a period of time may potentially discover new strands that have new stories. This may reveal some benevolent stories which we are greatly in need of.

Metaphor, as an essential part of language and cognition, can be used as a powerful tool to bring some social change. Keeping in view the powerful effect of metaphors, more focused studies on the uses of metaphors in the context of environmental communication in Pakistani texts may reveal some more points. Identification and ecocritical analysis of metaphors in a small corpus comprising such texts may yield different results.

Another possibility can be to use this study for further comparative research. A comparison of the findings of the current research to that of another study having the same size, but having material from different sources or different genres can be another highly relevant research pursuit.

Furthermore, as can be noted that there are only a few studies on the use of novel metaphors in environmental discourses and that too are focused only on carbon compounds. An extensive study on the ecocritical analysis of other than the discussed novel compounds in environmental communication scenarios may shed more light on the way these compounds work and the discursive and cognitive impact they have.

WORKS CITED

A. Literature

Abram, D. (1996). *The Spell of the Sensuous: Perception and Language in a More-than-human World* (1st ed). Pantheon Books.

Adams, C. J., & Gruen, L. (Eds.). (2014). *Ecofeminism: Feminist intersections with other animals and the earth*. Bloomsbury.

Ahern, L., Bortree, D. S., & Smith, A. N. (2013). Key Trends in Environmental Advertising Across 30 years in National Geographic Magazine. *Public Understanding of Science*, *22*(4), 479–494.

Alcamo, J., & Bennett, E. (2003). *Ecosystems and human well-being: A framework for assessment: A report of the Millennium Ecosystem Assessment.* Island Press.

Alcott, B. (2005). Jevons' Paradox. *Ecological Economics*, *54*(1), 9–21. https://doi.org/10.1016/j.ecolecon.2005.03.020

Alexander, R. J. (2009). *Framing discourse on the environment: A critical Discourse Approach* (1st ed). Routledge.

Alexander, R., & Stibbe, A. (2014). From the Analysis of Ecological Discourse to the Ecological Analysis of Discourse. *Language Sciences*, *41*(A), 104–110. https://doi.org/10.1016/j.langsci.2013.08.011

Algeo, J. (1980). Where Do All the New Words Come from? *American Speech*, *55*(4), 264. https://doi.org/10.2307/454567

Algeo, J. (Ed.). (1993). *Fifty Years among the New Words: A Dictionary of Neologisms, 1941 - 1991* (1. paperback ed). Cambridge Univ. Press.

Allen, R. (2001). Choosing the Right Words: *Longman Grammar of Spoken and Written English*, Longman, 1999, Longman (Pp. Xxviii+1204) Languages *do* die: *Language Death*, by David Crystal, Cambridge University Press, 0-521-65321-5, 2000, hb UK £12.95, US $19.95, pp. 198. *English Today*, *17*(1), 57–62. https://doi.org/10.1017/S0266078401001080

Altakhaineh, A. R. M. (2017). *The Classification of Compounds*. *4*(2), 319–332.

Andreas, G. (1983). Ausgestorben oder ausgerottet? Beschonigende Begriffe

(Euphemismen) in Natur- und Umweltschutz. *Natur Und Landschaft*, *11*, 418–421.

Asplund, T. (2011). Metaphors in climate discourse: An Analysis of Swedish Farm Magazines. *Journal of Science Communication*, *10*(04), A01. https://doi.org/10.22323/2.10040201

Ayto, J. (1999). *Twentieth century words: The Story of the New Words in English over the last Hundred Years* (1st Ed.). Oxford Univ. Press.

Baker, S. (2006). *Sustainable Development.* Routledge.

Bartlett, T. (2012). *Hybrid voices and collaborative change: Contextualising positive discourse analysis*. Routledge.

Basa, I. (2009). Environmental discourse of architecture. *International Journal of Environmental Studies*, *66*(2), 271–279. https://doi.org/10.1080/00207230902859796

Basetto, A., & Sergio, S. (2005). The classification of Compounds. *Lingue e Linguaggio*, *4*(2), 319–332.

Bateman, D. A. (2021). Party Politics and American Racial Orders. *The Journal of Politics*, *83*(2), e17–e22. https://doi.org/10.1086/713304

Bauer, L. (1998). When is a Sequence of two Nouns a Compound in English? *English Language and Linguistics, 2*(1), 65–85.

Beatley, T. (2012). *Green Cities of Europe: Global Lessons on Green Urbansim*. Island Press.

Bec, & Dora. (2020). *Pandemic Metaphors*. PIRC. https://publicinterest.org.uk/part-4-metaphors/

Benz, B. (2000). Let it green: The Ecoization of the Lexicon. *American Speech*, *75*(2), 215–221. https://doi.org/10.1215/00031283-75-2-215

Berinsky, A. J., & Kinder, D. R. (2006). Making Sense of Issues through Media Frames: Understanding the Kosovo crisis. *The Journal of Politics*, *68*(3), 640–656. https://doi.org/10.1111/j.1468-2508.2006.00451.x

Berman, T. (2001). The Rape of Mother Nature: Women in the Language of Environmental Discourse. In A. Fill & P. Mühlhäusler (Eds.), *The Ecolinguistics Reader: Language, Ecology, and Environment* (pp. 258–269). Continuum.

Bill, D., & Sessions, G. (1985). *Deep ecology: Living as if Nature Mattered*. Gibbs Smith.

Black, J. C. (2004). *Corpus Approaches to Critical Metaphor Analysis*. Palgrave Macmillan.

Blackledge, A. (2008). Language Ecology and Language Ideology. In *Encyclopaedia of Language and Education*. Ecology of Language, 2. Springer Science; Business Media LLC.

Blackmore, E., & Holmes, T. (2013). *Common Cause For Nature: Values And Frames In Conservation*. Public Interest Research Centre.

Blue, G. (2015). Framing Climate Change For Public Deliberation: What Role For Interpretive Social Sciences And Humanities? *Journal of Environment and Policy Planning*, *18*(1), 67–84.

Bookchin, M. (1994). *Which Way for The Ecology Movement?* AK Press.

Bookchin, M. (2005). *The Ecology Of Freedom: The Emergence And Dissolution Of Hierarchy*. AK Press.

Botkin, D. B. (1990). *Discordant Harmonies: A New Ecology For The Twenty-First Century*. Oxford University Press.

Boykoff, M. T., & Boykoff, J. M. (2007). Climate Change and Journalistic Norms: A Case-Study Of US Mass-Media Coverage. *Geoforum*, *38*(6), 1190–1204. https://doi.org/10.1016/j.geoforum.2007.01.008

Brezina, V., Timperley, M., Gablasova, D., & McEnery, T. (in press). *A New-Generation Corpus Analysis Tools For Researchers, Students, And Teachers.*

Bringhurst, R. (2008). *The Tree of Meaning: Language*. Counterpoint LLC.

Brown, G., & Yule, G. (1983). *Discourse Analysis*. Cambridge University Press.

Budowski, G. (1976). Tourism and Environmental Conservation: Conflict, Coexistence, or Symbiosis? *Environmental Conservation*, *3*(1), 27–31. https://doi.org/10.1017/S0376892900017707

Cachelin, A., Norvell, R., & Darling, A. (2010). Language Fouls In Teaching Ecology: Why Traditional Metaphors Undermine Conservation Literacy: Language Fouls. *Conservation Biology*, *24*(3), 669–674. https://doi.org/10.1111/j.1523-1739.2010.01481.x

Callaghan, K., & Schnell, F. (Eds.). (2005). *Framing American politics*. University of Pittsburgh Press.

Cameron, L., & Deignan., L. (2003). Combining Small And Large Corpora For Investigating Tuning Devices Around Metaphor In Spoken Discourse'. *Metaphor and Symbol*, *18*((3)), 149–160.

Carson, R. (1962). *Silent Spring*. Houghton Mifflin Company.

Charteris-Black, J. (2004). *Corpus Approaches to Critical Metaphor Analysis*. Palgrave Macmillan UK. https://doi.org/10.1057/9780230000612

Charteris-Black, J. (2006). *Britain As a Container: Immigration Metaphors in The 2005 Election Campaign*. *17*(5), 563–581.

Chawala, R. (2006). *Ecotourism Planning And Management*. Sonali Publications.

Chawla, S. (1991). Linguistic And Philosophical Roots Of Our Environmental Crisis, *Environmental Ethics*, *13*(3), 253–262. https://doi.org/10.5840/enviroethics199113312

Chawla, S. (2001). Linguistic And Philosophical Roots of Our Environmental Crisis. In *The Ecolinguistics Reader: Language, Ecology and Environment* (pp. 115–123). Continuum.

Chawla, S. & Center for Environmental Philosophy, The University of North Texas. (1991). Linguistic and philosophical roots of our environmental crisis: *Environmental Ethics*, *13*(3), 253–262. https://doi.org/10.5840/enviroethics199113312

Chen, J. (2022). *Guide to Green Investing*. Investopedia. https://www.investopedia.com/terms/g/green-investing.asp

Chomsky, N. (1998). *Aspects of the theory of syntax* (20. print). MIT Press.

Chong, D., & Druckman, J. N. (2007). Framing theory. *Annual Review of Political Science*, *10*(1), 103–126. https://doi.org/10.1146/annurev.polisci.10.072805.103054

Christmas, S., Wright, L., Morris, L., Watson, A., & Miskelly, C. (2013). *Engaging People In Biodiversity Issues: Final Report Of The Biodiversity Segmentation Scoping Study*. Simon Christmas.

Citrin, J., Reingold, B., & Green, D. P. (1990). American Identity and The Politics Of Ethnic Change. *The Journal of Politics*, *52*(4), 1124–1154. https://doi.org/10.2307/2131685

Cohen, E. (1978). The Impact Of Tourism On The Physical Environment. *Annals of*

Tourism Research, *5*(2), 215–237.

Cohen, M. J. (2011). is the UK preparing for "war"? Military metaphors, personal carbon allowances, and consumption rationing in historical perspective. *Climatic Change*, *104*, 199–222. https://doi.org/10.1007/s10584-009-9785-x

Cole, D. C. (1999). Links between humans and ecosystems: The implications of framing for health promotion strategies. *Health Promotion International*, *14*(1), 65–72. https://doi.org/10.1093/heapro/14.1.65

Cook, G. (2006). *Discourse*. Oxford University Press.

Couto, H. H. D. (2018). Ecosystemic Linguistics. *The Routledge Handbook of Ecolinguistics*, 149–162.

Crompton, T. (2010). *Common cause: The case for working with our cultural values.* WWF-UK.

Crystal, D. (2000). *Language death*. Cambridge University Press.

Crystal, D. (2002). *The English language* (2nd ed.). Penguin Books.

Crystal, D. (2003). *The Cambridge encyclopedia of the English language* (2nd ed). Cambridge University Press.

Dabelsteen, C. B., & Jørgensen, J. N. (Eds.). (2004). *Languaging and language practices*. Univ. of Copenhagen, Faculty of the Humanities.

Daniel, H. (2002). *Buddhism and Deep Ecology.* 1stbooks.

Daniel Rodríguez-Vergara. (2018). The importance of discourse studies in linguistics, language teaching and translation. *US-China Foreign Language*, *16*(6). https://doi.org/10.17265/1539-8080/2018.06.001

Darnton, A., & Kirk, M. (2011). Finding Frames: New Ways to Engage the UK Public in Global Poverty. *Bond*. http://bond3.brix.fatbeehive.com/data/files/finding_frames.pdf

Deignan, A. (1999). Corpus-based research into metaphor. In L. Cameron & Graham Low, *Researching and Applying Metaphor* (pp. 177–199). Cambridge University Press.

Deignan, A. (2005). *Metaphor and corpus linguistics*. John Benjamins Publishing Company.

Devall, B., & Sessions, G. (1985). *Deep ecology*. G.M. Smith.

Diamond, J. M. (2011). *Collapse: How societies choose to fail or survive*. Penguin Books.

Dijk, T. V. A. (1998). *Ideology: A multidisciplinary approach*. Sage Publications limited.

Dijk, T. A. van. (2009). *Society and discourse: How social contexts influence text and talk*. Cambridge University Press.

Doring, M. (2008). Just Think how Little Children are Affected…!" Metaphors of distress, shock and coping in children's poems during the 2001 foot and mouth crisis in the UK. In *Language, Signs and Nature. Ecolinguistic Dimensions of Environmental Discourse.*

Drengson, A. R., & Inoue, Y. (Eds.). (1995). *The deep ecology movement: An introductory anthology*. North Atlantic Books.

Druckman, J. N. (2001). *The Implications of Framing Effects for Citizen Competence*. *23*, 225–256.

Dryzek, J. S. (2013). *The politics of the earth: Environmental discourses* (Third edition). Oxford University Press.

Dunayer, J. (2001). *Animal equality: Language and liberation*. Ryce Pub.

Eliasson, S. (2015). The birth of language ecology: Interdisciplinary influences in Einar Haugen's "The ecology of language". *Language Sciences*, *50*, 78–92. https://doi.org/10.1016/j.langsci.2015.03.007

Entman, R. M. (1993). Framing: Toward clarification of a fractured paradigm. *Journal of Communication*, *43*(4), 51–58. https://doi.org/10.1111/j.1460-2466.1993.tb01304.x

Fabb, N. (1998). *The Handbook of Morphology*. Blackwell.

Feindt, P. H. (2002). *Alle gegen Niemand. Zur Entwicklung des Umwelt- und Nachhaltigkeitsdiskurses in Deutschland, Forschungsjournal Neue Soziale Bewegungen* (pp. 20–28).

Fill, A. (Ed.). (1996). *Sprachökologie und Ökolinguistik: Referate des Symposiums Sprachökologie und Ökolinguistik an der Universität Klagenfurt, 27.-28. Oktober 1995*. Stauffenburg.

Fill, A. (2001). Ecolinguistics: State of the Art 1998. In A. Fill & P. Muhlhausler (Eds.), *The Ecolinguistics Reader: Language, Ecology and Environment* (pp. 43–55). Continuum.

Fill, A. (2018). Introduction. In A. Fill & H. Penz (Eds.), *The Routledge Handbook of*

Ecolinguistics. Routledge Taylor and Francis Group.

Fill, A., & Mühlhäusler, P. (Eds.). (2001). *The Ecolinguistics Reader: Language, Ecology, and Environment*. Continuum.

Fill, A., & Penz, H. (Eds.). (2007). *Sustaining language: Essays in applied ecolinguistics; [a special symposium with the title 'Angewandte Ökolinguistik - Applied Ecolinguistics' ... October 2005 ... Graz]*. LIT.

Fill, A., & Penz, H. (Eds.). (2018). *The Routledge handbook of ecolinguistics*. Routledge.

Fiske, S. T., & Taylor, S. E. (1984). *Social cognition*. Addison-Wesley Publishing Company.

Fiske, S. T., & Taylor, S. E. (2013). *Social cognition: From brains to culture* (2. ed). SAGE.

Foucault, M. (1996). *The archaeology of knowledge.* (6th ed.). Routledge.

Foucault, M. (1998). *The will to knowledge*. Penguin books.

Gamson, W. A., & Modigliani, A. (1987). The Changing Culture of Affirmative Action. In *Research in Political Sociology* (3rd ed., pp. 137–177). JAI Press.

Gigon, A. (1983). *Ausgestorben oder ausgerottet? Beschonigende Begriffe (Euphemismen) in Natur- und Umweltschutz*. *11*, 418–421.

Goatly, A. (1996). Green grammar and grammatical metaphor, or language and the myth of power, or metaphors we die by. *Journal of Pragmatics*, *25*(4), 537–560. https://doi.org/10.1016/0378-2166(95)00057-7

Goatly, A. (1997). *The language of metaphors.* Routledge.

Goatly, A. (2000). *Critical reading and writing: An introductory coursebook*. Routledge.

Goatly, A. (2001). Green Grammar and Grammatical Metaphor, or Language and Myth of Power, or Metaphors We Die. In *The Ecolinguistics Reader: Language, Ecology and Environment* (pp. 203–225). Continuum.

Goatly, A. (2018). Lexicogrammar and Ecolinguistics. *The Routledge Handbook of Linguistics*.

Gobard, H. (1976). *L'aliénation linguistique: Analyse tétraglossique*. Flammarion.

Grootaers, W. A. (1943). La Géographie Linguistique En Chine: Nécessité D'Une Nouvelle Méthode Pour L'étude Linguistique du Chinois. *Monumenta Serica*, *8*(1), 103–166. https://doi.org/10.1080/02549948.1943.11745173

Group, P. (2007). MIP: A Method for Identifying Metaphorically Used Words in Discourse. *Metaphor and Symbol*, *22*(1), 1–39. https://doi.org/10.1080/10926480709336752

Haeckel, E. (1866). *Generelle morphologie der organismen: Allgemeine grundzüge der organischen formen-wissenschaft, mechanisch begründet durch die von charles darwin reformierte descendenz-theorie. Band 1: allgemeine anatomie. Band 2: allgemeine entwicklungsgeschichte*. DE GRUYTER. https://doi.org/10.1515/9783110848281

Hagège, C. (1985). *L'Homme de paroles: Contribution linguistique aux sciences humaines*. Hachette.

Halliday, M. A. K. (1997). On the grammar of scientific English. *The Language of Science*, 181–198.

Halliday, M. A. K. (2001). New Ways of Meaning: The Challenge to Applied Linguistics. In *The ecolinguistics reader: Language, ecology, and environment* (pp. 175–202). Continuum.

Hanne, M. (2022). How We Escape Capture by the "War" Metaphor for Covid-19. *Metaphor and Symbol*, *37*(2), 88–100. https://doi.org/10.1080/10926488.2021.1935261

Hansen, A. (2018). Using Visual Images to Show Environmental Problem. *The Routledge Handbook of Ecolinguistics*, 149–162.

Hardin, G. (1974). Living in a lifeboat. *Bill Science*, *10*, 561–568.

Harré, R., Brockmeier, J., & Mühlhäuser, P. (1999). *Greenspeak: A study of environmental discourse*. Sage Publications.

Haugen, E. (1972). *The ecology of language*. Stanford University Press.

Haugen, E. (2001). The ecology of language. In *The ecolinguistic reader: Language, ecology, and environment*.

Haugen, E., Eliasson, S., & Jahr, E. H. (Eds.). (1997). *Language and its ecology: Essays in memory of Einar Haugen*. Mouton de Gruyter.

Heeren, N., Mutel, C. L., Steubing, B., Ostermeyer, Y., Wallbaum, H., & Hellweg, S. (2015). Environmental impact of buildings—What matters? *Environmental Science & Technology*, *49*(16), 9832–9841. https://doi.org/10.1021/acs.est.5b01735

Henning, D. H. (2002). *Buddhism and deep ecology*. Xlibris Corp.

Henson, R. (2006). *The rough guide to climate change*. Rough Guides.

Hine, D. (2018). The Dark Mountain Project. *KULA: Knowledge Creation, Dissemination, and Preservation Studies*, *2*, 20. https://doi.org/10.5334/kula.59

Hiscox, M. J. (2006). Through a glass and darkly: Attitudes toward international trade and the curious effects of issue framing. *International Organization*, *60*(03). https://doi.org/10.1017/S0020818306060255

Hjelmslev, L. (n.d.). Omkring sprogteoriens grundlæggelse. In *Travaux de Cercle Linguistique de Copenhague.* Hans Reitzels Forlag.

Hjelmslev, L. (1943). *Omkring sprogteoriens grundlæggelse.* Hans Reitzels Forlag.

Hjelmslev, L. (1961). *Prolegomena to a Theory of Language, second ed. (F.J. Whitfifield, Trans.).* University of Wisconsin Press.

Hjelmslev, L., Whitfield, F. J., & Hjelmslev, L. (1969). *Prolegomena to a theory of language* (Rev. Engl. ed., reprinted). Univ. of Wisconsin Pr.

Hodges, B. H., & Fowler, C. A. (2010). New affordances for language: Distributed, dynamical, and dialogical resources. *Ecological Psychology*, *22*(4), 239–253. https://doi.org/10.1080/10407413.2010.517086

Hodges, B. H., & Fowler, C. A. (2011). Distributed, Dynamical, and Dialogical: New Coordinations for Language. *Special Issue of Ecological Psychology*, *23*(3).

Hopkins, R. (2008). *The transition handbook: From oil dependency to local resilience*. Green Books.

Howlett, M., & Raglon, R. (1992). Constructing the environmental spectacle: Green advertisements and the greening of the corporate image. *Environmental History Review*, *16*(4), 53–68.

Huang, G. (2019). Alwin f. Fill and hermine penz, eds. *The Routledge Handbook of ecolinguistics*. *Pragmatics and Society*, *10*(2), 322–328. https://doi.org/10.1075/ps.00019.hua

Hughes, J. D. (2009). *An environmental history of the world: Humankind's changing role in the community of life* (2nd ed). Routledge.

Hulme, M. (2009). *Why we disagree about climate change: Understanding controversy, inaction, and opportunity*. Cambridge University Press.

Ibáñez Arenós, M. (2021). *Going up is always good a multimodal analysis of metaphors in a tv ad with filmip, the filmic metaphor identification procedure* (1. Auflage). LAP LAMBERT Academic Publishing.

İBRAHIM ÖZDEMIR. (2017). Muhammad Iqbal and environmental ethics. *Acta Via Serica*, *2*(2), 89–112. https://doi.org/10.22679/AVS.2017.2.2.89

IEA. (n.d.). IEA. Retrieved 6 September 2018, from https://www.ecolinguistics-association.org

Intergovernmental Panel on Climate Change (IPCC). (2007). *Climate Change 2007: Synthesis Report* [Governmental].

Jacobs, G. M. (1998). *Linking language and the environment greening the ESL classroom*. Pippin Publ.

Jacobs, R. A. (2005). Book review: The Cambridge Encyclopedia of the English language. 2nd ed. *Journal of English Linguistics*, *33*(1), 83–87. https://doi.org/10.1177/0075424204273956

Jacoby, W. G. (2000). Issue framing and public opinion on government spending. *American Journal of Political Science*, *44*(4), 750. https://doi.org/10.2307/2669279

Ji, Y. (2020). *Metaphoric Representation of Nature*. 3rd International Conference on Interdisciplinary Social Sciences & Humanities (SOSHU 2020), UK. https://doi.org/10.25236/soshu.2020.074

Johnson, M. (1983). Metaphorical reasoning. *Southern Journal of Philosophy*, *21(3)*, 371-89.

Joshi, S., Jasra, W. A., Ismail, M., Shrestha, R. M., Yi, S. L., & Wu, N. (2013). Herders' Perceptions of and Responses to Climate Change in Northern Pakistan. *Environmental Management*, *52*(3), 639–648. https://doi.org/10.1007/s00267-013-0062-4

Kahn, M. (2001). *The Passive Voice of Science: Language Abuse in the Wildlife Profession. In: A. Fill and P. Mühlhäusler*. The ecolinguistics reader: language, ecology, and environment.

Kahn, M. E. (2006). *Green cities: Urban growth and the environment*. Brookings Institution Press.

Kahneman, D., & Tversky, A. (1984). Choices, values, and frames. *American Psychologist*,

39(4), 341–350. https://doi.org/10.1037/0003-066X.39.4.341

Karlenzig, W. (2007). *How Green is Your City?* New Society Publishers.

Katamba, F. (1993). *Morphology.* St. Martin's Press.

Kavka, S. (2009). *Compounds and idiomatology* (The Oxford Handbook of Compounding). Oxford University Press.

Kemmerer, L. (2006). Verbal activism: 'anymal'. *Society & Animals*, *14*(1), 9–14. https://doi.org/10.1163/156853006776137186

Keulartz, J. (2007). Using metaphors in restoring nature. *Nature and Culture*, *2*(1), 27–48. https://doi.org/10.3167/nc.2007.020103

Key, M. R., Voegelin, C. F., & Voegelin, F. M. (1967). Languages of the world: Native America, fascicles 1-2. *Language*, *43*(4), 987. https://doi.org/10.2307/411982

Khan, Y., & Szegedi, K. (2019). The concept of green banking in Pakistan. *Sarhad Journal of Management Sciences*, *5*(2).

Kinder, D. R., & Sanders, L. M. (1990). Mimicking political debate with survey questions: The case of white opinion on affirmative action for blacks. *Social Cognition*, *8*(1), 73–103. https://doi.org/10.1521/soco.1990.8.1.73

Kingsnorth, P., & Hine, D. (2009). The Dark Mountain Manifesto. *Dark Mountain*. https://dark-mountain.net/about/manifesto/

Koteyko, N., Thelwall, M., & Nerlich, B. (2010). From carbon markets to carbon morality: Creative compounds as framing devices in online discourses on climate change mitigation. *Science Communication, 32*(1), 25–54. https://doi.org/10.1177/1075547009340421

Kövecses, Z. (2002). *Metaphor: A practical introduction*. Oxford University Press.

Kull, S., Ramsay, C., & Lewis, E. (2004). Misperceptions, the Media, and the Iraq War. *Political Science Quarterly, 118*(4), 569–598.

Kuypers, J. A. (Ed.). (2009). *Rhetorical criticism: Perspectives in action*. Lexington Books.

Lackey, R. T. (2007). Science, scientists, and policy advocacy. *Conservation Biology*, *21*(1), 12–17. https://doi.org/10.1111/j.1523-1739.2006.00639.x

Lakoff, G. (1988). Cognitive semantics. In Eco, U., Marco, S., & Patrizia, V (Eds.) *Meaning and mental representation* (Pp. 119-154). Indiana University Press.

Lakoff, G. (1993). *The contemporary theory of metaphor' in Ortony, A.* (Metaphor and thought). Cambridge University Press.

Lakoff, G. (2004). *Don't think of an elephant! know your values and frame the debate: The essential guide for progressives*. Chelsea Green Pub. Co.

Lakoff, G. (2008). *The political mind: Why you can't understand 21st-century politics with an 18th-century brain*. Viking.

Lakoff, G., & Johnson, M. (1980). *Metaphors we live by*. University of Chicago Press.

Lakoff, G., & Johnson, M. (1999). *Philosophy in the flesh: The embodied mind and its challenge to Western thought*. Basic Books.

Lakoff, G., & Johnson, M. (2003). *Metaphors we live by*. The university of Chicago press.

Lana, A. P. B., Lamounier, J. A., & César, C. C. (2004). Impacto de um programa para promoção da amamentação em um centro de saúde. *Jornal de Pediatria*, *80*(3), 235-240. https://doi.org/10.1590/S0021-75572004000400013

Larson, B. (2011). *Metaphors for environmental sustainability: Redefining our relationship with nature*. Yale University Press.

Levesque, S. (2016). Two versions of ecosophy: Arne Næss, Félix Guattari, and their connection with semiotics. *Sign Systems Studies*, *44*(4), 511–541. https://doi.org/10.12697/SSS.2016.44.4.03

Li, L., & Ye, M. (2018). Greenspeak: A corpus-based comparative study on the word Green and environmentalism. *Linguistics And the Human Sciences*, *13*(3).

Lieber, R. (2010). *Introducing morphology*. Cambridge University Press.

Lier, L. V. (2002). An ecological-semiotic perspective on language and linguistics. In C. Kramsch, *Language Acquisition and Socialization. Ecological Perspectives* (pp. 146–164). Continuum.

Lieven, A. (2012). *Pakistan: A hard country* (1st pbk. ed.). Public Affairs.

Lindsey, R. (2022). *Climate change: Atmospheric carbon dioxide*. Climate.gov: Science and Information for a Climate-smart Nation. http://www.climate.gov/news-features/understanding-climate/climate-change-atmospheric-carbon-dioxide

Lomborg, B. (2001). *The skeptical environmentalist: Measuring the real state of the world*. Cambridge University Press.

Macfarlane, R. (2013). Environment: New words on the wild. *Nature*, *498*(7453), 166–

167. https://doi.org/10.1038/498166a

Macgilchrist, F. (2007). Positive discourse analysis: Contesting dominant discourses by reframing the issues. *Critical Approaches to Discourse Analysis Across Disciplines*, *1*(1), 74–94.

Makwanya, P., & Muchena, E. (2014). Climate change mitigation and adaptation – the centrality of carbon clusters and creativity in climate change adaptation and mitigation: A linguistic perspective. *IOSR Journal of Dental and Medical Sciences*, *13*(6), 69–76. https://doi.org/10.9790/0853-13616976

Malm, A. (2016). *Fossil capital: The rise of steam power and the roots of global warming*. Verso.

Manji, F., & O'Coill, C. (2002). The missionary position: NGOs and development in Africa. *International Affairs*, *78*(3), 567–583. https://doi.org/10.1111/1468-2346.00267

Marcellesi, J. B. (1975). Basque, breton, catalan, corse, flamand, germanique d'Alsace, occitan: L'enseignement des 'langues regionales. *Langue Francaise*, *25*, 3–11.

Martin, J. (2004). Positive discourse analysis: Solidarity and change. *Revista Canaria de Estudios Ingleses*, *49*, 179–200.

Martin, J. R. (1999). Grace: The logogenesis of freedom. *Discourse Studies*, *1*(1), 29–56. https://doi.org/10.1177/1461445699001001003

McBay, A., Keith, L., & Jensen, D. (2011). *Deep green resistance: Strategy to save the planet*. Seven Stories Press.

McEnery, T., & Wilson, A. (2001). *Corpus linguistics*. Edinburgh Univ. Press.

McNeill, J. R. (2001). *Something new under the sun: An environmental history of the twentieth-century world* (First published as a Norton paperback). W. W. Norton.

Meisner, M. S. (1995). Old vinegar in new bottles? *Trumpeter*, *12*(1), 11–18.

Meisner, M. S., & Takahashi, B. (2013). The nature of Time: How the covers of the world's most widely read weekly news magazine visualize environmental affair. *Environmental Communication: A Journal of Nature and Culture*, *7*(2).

Merriam-Webster Online Dictionary. (n.d.). [Dictionary]. Merriam-Webster Online Dictionary. https://www.merriam-webster.com

Mey, L. (2018). The Pragmatics of Metaphor: An Ecological View. *The Routledge*

Handbook of Ecolinguistics, 149–162.

Mills, W. T. (1982). Metaphorical vision: Changes to Western attitudes to the environment. *Annals of the Association of American Geographers*, *72*, 237–253.

Minnis, D. L., & McPeake, R. J. S. (2001). An analysis of advocacy within the wildlife profession. *Human Dimensions of Wildlife*, *6*(1), 1–10. https://doi.org/10.1080/10871200152668643

Mio, J. S. (1997). Metaphor and Politics. *Metaphor and Symbol*, *12*(2), 113–133.

Mitman, G. (2009). *Reel Nature: America's romance with wildlife on film* (Weyerhaeuser environmental classic ed). University of Washington Press.

Mühlhaüsler, P. (1995). The independence of linguistic and biological diversity. In *The politics of multiculturalism in Indiana and Polynesia*. University of the Northern Territory Press.

Mühlhäusler, P. (1996). *Linguistic ecology: Language change and linguistic imperialism in the Pacific region* (1. publ). Routledge.

Mühlhäusler, P. (2001). Talking about Environmental Issues. In Fill, A., & Peter, M. (Eds.) *The ecolinguistics reader: Language, ecology, and environment* (pp. 31–42). Continuum.

Mühlhäusler, P. (2003). *Language of environment, environment of language: A course in ecolinguistics*. Battlebridge.

Naess, A. (1990). *Ecology, community and lifestyle: Outline of an ecosophy*. Cambridge University Press.

Nash, J., & Mühlhäusler, P. (2013). Linking language and the environment: The case of Norf'k and Norfolk Island. *Language Sciences*, *41*(PA), 26–33.

Neef, M. (2009). *IE, Germanic: German. Lieber, Rochelle Pavol Štekauer* (The Oxford Handbook of Compounding). Oxford University Press.

Nelson, T. E., & Kinder, D. R. (1996). Issue frames and group-centrism in American public opinion. *The Journal of Politics*, *58*(4), 1055–1078. https://doi.org/10.2307/2960149

Nerlich, B., Hamilton, C., & Rowe, V. (2002). Conceptualising foot and mouth disease: The socio-cultural role of metaphors, frames and narratives. *Metaphorik.De*, *2*, 90–108.

Nerlich, B., & Jaspal, R. (2012). Metaphors we die by? Geoengineering, metaphors, and the argument from catastrophe. *Metaphor and Symbol*, *27*(2), 131–147. https://doi.org/10.1080/10926488.2012.665795

Nerlich, B., & Koteyko, N. (2009). Compounds Creativity and Complexity in Climate Change Communication: The Case of 'Carbon Indulgences'. *Global Environmental Change*, *19*(3), 345–353. https://doi.org/10.1016/j.gloenvcha.2009.03.001

Nettle, D., & Romaine, S. (2000). *Vanishing voices: The extinction of the world's languages*. Oxford University Press.

Newmark, P. (1988). *A textbook of translation*. Prentice.

Nisbet, M. C. (2009). Communicating climate change: Why frames matter for public engagement. *Environment: Science and Policy for Sustainable Development*, *51*(2), 12–23. https://doi.org/10.3200/ENVT.51.2.12-23

Olsen, S. (2000). *Compounding and stress in English: A closer look at the boundary between morphology and syntax*. *Linguistische Berichte, 181*, 55–60.

Orr, D. W. (1992). *Ecological literacy: Education and the transition to a postmodern world*. State University of New York Press.

Ortony, A. (Ed.). (1993). *Metaphor and thought* (2nd ed). Cambridge University Press.

Özdmir, I. (2017). Muhammad Iqbal and Environmental Ethics. *Acta Via Serica, 2*(2), 89-112.

Palmer, J. D. (1974). Language ecology'. *TESOL Quarterly*, *8*(3), 225–232.

Patrick, B. (1986). Harte Energie und sanfte Sprache. Zum Sprachgebrauch der Energiepolitik und der Okologiebewegung in der BRD und in Frankreich. *Osnabrilcker Beitrage Zur Sprachtheorie*, *33*, 80–99.

Philippon, D. (2004). *Conserving words: How American nature writers shaped the environmental movement*. University of Georgia Press.

Plag, I. (2003). *Word-Formation in English*. Cambridge University Press.

Plag, I. (2006). The variability of compound stress in English: Structural, semantic, and analogical factors. *English Language & Linguistics, 10*(1), 143–172.

Pourdehqan, B., Rashidi, M., Firouzbakh, M. S., & Najafi, N. (2015). Environment and Sustainable Architecture. *European Online Journal of Natural and Social Sciences,*

*3(*3), 5-10.

Prempeh, H. (2001). Foot and mouth disease: The human consequences. *BMJ*, *322*(7286), 565–566. https://doi.org/10.1136/bmj.322.7286.565

Ravn. (2020)., *An Inquiry into the Cognitive and Discursive Power of Climate Change Metaphors*. Lund university.

Raymond, C. M., Singh, G. G., Benessaiah, K., Bernhardt, J. R., Levine, J., Nelson, H., Turner, N. J., Norton, B., Tam, J., & Chan, K. M. A. (2013). Ecosystem services and beyond: Using multiple metaphors to understand human–environment relationships. *BioScience*, *63*(7), 536. https://doi.org/10.1525/bio.2013.63.7.7

Rodríguez-Vergara. D. (2018). The importance of discourse studies in linguistics, language teaching and translation. *US-China Foreign Language*, *16*(6). 297-310. https://doi.org/10.17265/1539-8080/2018.06.001

Romaine, S. (1996). War and peace in the global greenhouse: Metaphors we die by. *Metaphor and Symbolic Activity*, *11*(3), 175–194. https://doi.org/10.1207/s15327868ms1103_1

Sachs, W. (Ed.). (2010). *The development dictionary: A guide to knowledge as power* (2nd ed.). Zed Books.

Sadia, S., & Ghani, M. (2018). Modality in editorials of Pakistani English newspapers: A corpus based study. *International Journal of English Linguistics*, *9*(1), 144. https://doi.org/10.5539/ijel.v9n1p144

Saeed, J. I. (2007). *Semantics. (2nd ed.) Blackwell Publishing.* Blackwell publishing.

Salzinger, K. (1979). Ecolinguistics: A Radical Behavior Theory Approach to Language Behavior. In Aaronson, D., & Rieber, R. W. (Eds.) *Psycholinguistic Research: Implications and Applications* (pp. 109–129). Psychology Press.

Sanderson, B., & Meade, D. (2020). *Pandemic Metaphors*. Public Interest Research Centre. https://publicinterest.org.uk/part-4-metaphors/

Sapir, E. (1912). Language and environment. *American Anthropologist*, *14*, 226–242.

Sapir, E. (1984). *Selected writings of Edward Sapir in language, culture, and personality* (D. G. Mandelbaum, Ed.; [Repr. d. Ausg. v.] 1949). Univ. of California Pr.

Saussure, F. (1916). *Cours de linguistique générale*. Payot. (Original work published 1916)

Saussure, F. (1972). *Cours de linguistique générale*. Payot.

Schäfer, M. S., & Neill, O. S. (2017). Frame Analysis in Climate Change Communication Schäfe. *Climate Science*.

Scheufele, D. A., & Tewksbury, D. (2007). Framing, agenda setting, and priming: The evolution of three media effects models: models of media effects. *Journal of Communication*, *57*(1), 9–20. https://doi.org/10.1111/j.0021-9916.2007.00326.x

Schultz, B. (2001). Language and the natural environment. In A. Fill & P. Muhlhausler (Eds.), *Ecolinguistics Reader: Language, Ecology, and Environment*. Continuum.

Semino, E. (2008). *Metaphor in discourse*. Cambridge University Press.

Semino, E., & Masci, M. (1996). Politics is football: Metaphor in the discourse of Silvio Berlusconi in Italy. *Discourse & Society*, *7*(2), 243–269. https://doi.org/10.1177/0957926596007002005

Shahid, Z., & Piracha, A. (2016). Awareness of climate change impacts and adaptation at local level in Punjab, Pakistan. *Balanced Urban Development: Options and Strategies for Liveable Cities*, 409–428.

Sharp, E. L. (2008). *Energy and the Environment: Issue Framing in Presidential Debates." Unpublished manuscript.*

Sims, A., Marks, N., Abdullah, S., & Thompson, S. (2014). *Happy Planet Index*. New Economics Foundation (NEF).

Sinha, C. (2006). Epigenetics, semiotics, and the mysteries of the organism. *Biological Theory*, *1*(2), 112–115.

Skinnemoen, J. (2009). *Metaphors in Climate Change Discourse*. [Master Thesis, The University of Oslo]

Skutnabb-Kangas, T., & Harmon, D. (2018). Biological Diversity and Language Diversity: Parallels and Differences. *The Routledge Handbook of Ecolinguistics*, 149–162.

Sniderman, P. M., & Theriault, S. M. (2004). The Dynamics of Political Argument and the Logic of Issue Framing. In *Studies in Public Opinion: Attitudes, Nonattitudes, Measurement Error, and Change* (pp. 133–165). Princeton University Press.

Söderholm, P. (2020). The green economy transition: The challenges of technological change for sustainability. *Sustainable Earth*, *3*(1), 6. https://doi.org/10.1186/s42055-020-00029-y

Steen, G. (2007). *Finding metaphor in grammar and usage: A methodological analysis of*

theory and research. J. Benjamins Pub. Co.

Steffensen, S. V., & Fill, A. (2014). Ecolinguistics: The state of the art and future horizons. *Language Sciences*, *41*, 6–25. https://doi.org/10.1016/j.langsci.2013.08.003

Stibbe, A. (2012). *Animals erased: Discourse, ecology, and reconnection with the natural world*. Wesleyan University Press.

Stibbe, A. (2014). AN ECOLINGUISTIC APPROACH TO CRITICAL DISCOURSE STUDIES. *Critical Discourse Studies*, *11*(1), 117–128.

Stibbe, A. (2015). *Ecolinguistics: Language, ecology, and the stories we live by*. Routledge, Taylor & Francis Group.

Stibbe, A. (2018). Positive Discourse Analysis: Rethinking Human Ecological Relationships. *The Routledge Handbook of Ecolinguistics*, 149–162.

Stibbe, A. (2004) Environmental Education Across Cultures: Beyond the Discourse of Shallow Environmentalism. Language and Intercultural Communication, 4 (4). Pp. 242-260.

Stocker, T. (2014). *Climate change 2013: The physical science basis: Working Group I contribution to the Fifth assessment report of the Intergovernmental Panel on Climate Change.* Cambridge University Press.

Stone, D. A. (1989). Causal stories and the formation of policy agendas. *Political Science Quarterly*, *104*(2), 281. https://doi.org/10.2307/2151585

Stubbs, M. (1996). *Text and corpus analysis: Computer-assisted studies of language and culture*. Blackwell Publishers.

Sunlu, U. (2003). Environmental impacts of tourism. In D. Camarda & L. Grassini, *Local Resources and Global Trades: Environments and Agriculture in the Mediterranean Region* (pp. 263–270). Bari: CIHEAM.

Sustainable Debt Global State of the Market 2021. (2018, April 19). Climate Bonds Initiative. https://www.climatebonds.net/resources/reports/sustainable-debt-global-state-market-2021

Tansley, A. G. (1935). The use and abuse of vegetational concepts and terms. *Ecology*, *16*(3), 284–307. https://doi.org/10.2307/1930070

Teymur, N. (1982). *Environmental discourse*. Question Press.

Thorne, J. P. (1983). George Lakoff and Mark Johnson, metaphors we live by. Chicago

and London: The university of Chicago press, 1980. Pp. Xiii + 242. - Dwight Bolinger, language the loaded Weapon: the use & abuse of language today. London and New York: Longman, 1980. Pp. Ix + 214. *Journal of Linguistics*, *19*(1), 245–248. https://doi.org/10.1017/S002222670000760X

Trampe. (1991). *Sprache und okologische Krise: Aus dem Worterbuch der industriellen Landwirtschaft,' in: E. Feldbusch, R. Pogarell and C. WeiB (eds 1991), Neue Fragen der Linguistik* (Vol. 2). Akten des 25. Linguistischen Kolloquiums.

Tversky, A., & Kahneman, D. (1981). The framing of decisions and the psychology of choice. *Science*, *211*(4481), 453–458. https://doi.org/10.1126/science.7455683

Verhagen, F. (2008). *Worldviews and metaphors in the human-nature relationship: An ecolinguistic exploration through the ages*. *Language and Ecology. 2*(3), 1–18.

Voegelin, C. F., & Voegelin, F. M. (1964). Languages of the world: Native America, fascicles one. Contemporary language situations in the new world. *Anthropological Linguistics*, *6*(6), 2–45.

Voluntary Human extinction movement. (2014). Vhemt.Org.

Von Lucke, F., Diez, T., & Wellmann, Z. (2016). Klimakämpfe: Eine komparative Studie der Versicherheitlichung von Klimawandel. *Zeitschrift Für Internationale Beziehungen*, *23*(2), 112–143.

Wall, G. (1997). Forum: Is ecotourism sustainable? *Environmental Management*, *21*(4), 483–491. https://doi.org/10.1007/s002679900044

What Are Green Bonds? (2022). Better Buildings: U.S. Department of Energy; U.S. Department of Energy. https://betterbuildingssolutioncenter.energy.gov/financing-navigator/option/green-bonds

Wikberg, K. (2008). The role of corpus studies in metaphor research. In N. L. Johanesson & D. C. Minugh, *Selected Papers from the 2006 and 2007 Stockholm Metaphor Festivals* (pp. 33–48). Stockholm University, Department of English.

Wilkinson, R., & Pickett, K. (2010). *The spirit level: Why greater equality makes societies stronger.* Bloomsbury Press.

Willis, R. I., & Porter, M. G. (1972). Among the New Words. *American Speech, 47*, 266–277.

Yahya, K., & Szegedi, K. (2019). THE CONCEPT OF GREEN BANKING IN

PAKISTAN. *Sarhad Journal of Management Sciences, 5*(2).

Yuniawan, T., Rokhman, F., Rustono, R., & Mardikantoro, H. B. (2017). The study of critical eco-linguistic in green discourse: Prospective eco-linguistic analysis. *Jurnal Humaniora*, *29*(3), 291. https://doi.org/10.22146/jh.27441

Zaller, J. (1992). *The nature and origins of mass opinion*. Cambridge University Press.

Zaller, J., & Feldman, S. (1992). A simple theory of the survey response: Answering questions versus revealing preferences. *American Journal of Political Science*, *36*(3), 579. https://doi.org/10.2307/2111583

Zimmer, Carson, & Solomon. (2016). *Seventy-five Years Among the New Words* (Vol. 19).

B. Dictionaries

Dictionary.com. https://www.dictionary.com

Macmillan English Dictionary. https://www.macmillandictionary.com

Merriam-Webster Dictionary. https://www.merriam-webster.com

Online Etymology Dictionary. https://www.etymonline.com

Oxford Dictionary of Environment and Conservation. Dictionary-Environment-Conservation-Oxford-Reference/dp/0199641668

Oxford English Dictionary. http://www.oed.com.

Oxford Online Learner's Dictionaries. https://www.oxfordlearnersdictionaries.com

Shorter Oxford English Dictionary on Historical Principles. https://www.emerald.com/insight/content/doi/10.1108/09504120810914501/full/html