

**Fiction as an Expression of Social and Environmental  
Commitment: An Ecosocialist Reading of Barbara  
Kingsolver's Flight Behavior**

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**Abstract**

Fiction is not alienated from people's lives, struggles and aspirations. Throughout literary history, writers have tackled the problems of their environment and society in divergent ways. With the sweeping technological breakthroughs, man's life and environment/ nature (used interchangeably in this paper) are gravely influenced. Consequently, writers of fiction have a deep commitment towards their society and environment. They highlight how the abuse of the environment and social injustice result in the degradation of both ecological and social systems. As a biologist, social activist and politically committed writer, Barbara Kingsolver attempts in her novels to delve deep into the interdependent connection between environment/ nature and social life. Her novels tackle issues of race, cultural clash, and the conflict between human beings and the ecosystems. This paper is devoted to analyze Barbara Kingsolver's Flight Behavior (2012) from an ecosocialist perspective. As a critical approach, Ecosocialism is based on Karl Marx's theory of the relationship between man and nature. It is built on the premise of the concomitant relationship between social inequality and environmental deterioration. In order to achieve life sustainability, man finds himself forced to look for alternative social and ecological systems.

**Keywords:** fiction, commitment, Ecosocialism, Barbara Kingsolver, Flight Behavior, climate change, Marx's three rifts

**Fiction as an Expression of Social and Environmental Commitment: An  
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With the sweeping technological changes and the changing economic and social systems, man's life has become more interlinked to these changes. The more progress man achieves and the more products he aspires for, the more ecological problems he causes. Therefore, there is a correlation between the environmental crises and the changing economic, social and political systems .

Climate change fiction or anthropocenic fiction (a term coined to refer to human beings' impact on the ecosystem) is a contemporary genre tackling the provocative emerging climate change disaster which put humanity in danger of extinction. (1) It reflects how "humankind has become a global geological force" (Steffen et al. 843). Likewise, Melina Pereira Savi adopts the same belief (945). Climate change has led to the rise of anthropocenic fiction which endeavours a systematic and thorough representation of climate change or global warming in an exciting narrative. Rather than the scientific abstractions of climate change data, anthropocenic novels focus on the interaction between man and nature as

well as issues of sustainability and survival of humanity. Climate change fiction is a form of commitment to the environment, reflecting how man's current social, economic, and political practices make humanity's survival at stake. Due to the interdisciplinary nature of climate change, new critical approaches are needed to explore the multi-layered aspects of such phenomenon. Accordingly, climate change genre recognizably needs a critical approach structured on science, history, philosophy, ecology and politics. Climate change novel, in this way, is a site for the representation of homo sapiens' impact on nature.

This paper attempts to examine Barbara Kingsolver's climate change novel, *Flight Behavior*, through an ecosocialist approach. Ecosocialism is basically an economic, political and social perspective based on Karl Marx's theory of metabolism or the relationship between man and nature. Choosing this approach arises from the interdisciplinary nature of climate change as an environmental problem caused by a combination of economic, social, cultural and political factors .

As a mixed blessing, scientific progress brings with it irreparable problems and drags millions of people into abject poverty as well as impoverishing the entire ecosystem. This progress instead of enhancing man's life span, it threatens his survival. It likewise disrupts the ecosystem balance, posing humanity in a challenge for survival and resilience. How can fiction display climate change in a fictional narrative without mainly being a scientific prosaic description? How can climate change narratives support the sustainability of man and nature? How can Ecosocialism enhance natural balance and man's prosperity? How can Ecosocialism contribute in analyzing literary texts? These questions are real challenges which face anthropocenic fictions. These fictions also reflect the issue of commitment; whether writers are obliged to tackle climate change in their novels or not.

This paper focuses on presenting Ecosocialism as a critical approach that can be manipulated in analyzing literary works that focus on man's impact on environment/ nature and specifically in anthropocenic works. It also sheds light on Kingsolver as a committed writer and renders a reading of *Flight Behavior* through an ecosocialist approach .

Having profound conviction in the correlation between ecological disasters and the social, economic and political system, Michael Löwy maintains that “[A]n ecology that does not recognize the relationship between productivism and the logic of profit is destined to fail—or, worse, to become absorbed by the system” (7). Löwy's idea is compatible with Marx's view of progress that “all progress in increasing the fertility of the soil for a given time, is a progress towards ruining the lasting

sources of that fertility” (Capital, Vol. 1, 474-475). Any progress that is not sustainable, in Marx’s perspective, is undesirable as it threatens the continuity of humanity and the entire ecosystem.

Marx’s socialism and how it tackles the ecological problems is one of the recent concerns of the Marxist writers like John Bellamy Foster and Löwy who find in Marx’s concept of the relationship between man and nature the basis of “Ecosocialism” (Foster “Marx’s Ecology” ; Löwy, Ecosocialism). Marx’s metabolism theory as the fundamental premise of Ecosocialism is only recently recognized as an approach to examine the interconnectedness of nature and society. In his review of Marx’s metabolism theory, Ian Angus attributes the overlooking of Marx’s metabolism theory to three basic reasons: “changed circumstances, unpublished works, and bad translation” (“Marx and Metabolism”. Angus believes that the world is changing in a baffling manner and this necessitates new approaches to probe into the realities of climate change; in addition, it intensifies the role of literature in representing this change. From this perspective, Marx’s Ecosocialism is an innovative appropriate approach that deconstructs the intricacies of climate change .

Löwy defines Ecosocialism as a “current of ecological thought and action that appropriates the fundamental gains of Marxism while shaking of its productivist dross” (6). From this perspective, Ecosocialism can be optimistically described as an aspiration for a utopian society in which people share the ownership of the production means in a democratic society that takes into account the interconnectedness of the social, economic and ecological development strategies. This view of Ecosocialism is also advocated by Daniel Tanuro in his interview with Alexandre Araujo Costa: “Ecosocialism is more than a strategy; it is a project of civilization”. The contemporary world’s dilemma, in Löwy’s view, is the outcome of the overwhelming inequity between the North and the South (the haves and the havenots) as well as the mode of progress which threatens all species (7). Angus, in his review “When Did the Anthropocene Begin...and Why Does It Matter?” asserts ecosocialism’s exploration of the interchange between economic and environmental catastrophes. Angus states that “ecosocialists have made huge strides in rediscovering and extending Marx’s view that capitalism creates an “irreparable rift in the interdependent process of social metabolism, leading inevitably to ecological crises” (7). Angus’s view implies a shift from socialism to ecosocialism to encounter the ecological dilemma of the twenty-first century. There is a radical transformation in the treatment of ecological problems. No ecological problem can be tackled solely without its interaction with the other factors: social, economic, cultural and political.

Ecosocialism in its essence reflects a sense of commitment to society's progress. This is inherent in the ecosocialist advocacy of "moral economy" which "must reintegrate the economic into the ecological, the social and political" (Löwy 8). This moral economy necessitates radical changes in the technological methods of production via non-polluting energy resources. Man's real civilization is determined by his relationship with the ecosystem to sustain life for himself and for the coming generations.

Today's world passes through a transitional stage defined by John Bellamy Foster as "The Great Capitalist Climacteric." This view is also demonstrated by other ecosocialists such as Ian Burton and Robert Wakets who regard the climacteric period as a critical transition of considerable ramifications which "capture[s] the idea of a period that is critical and where serious change for the worse may occur. It is a time of unusual danger" (393). It is a period of abrupt and amazing changes where our planet is dominated by mindless technology that alienates human beings from nature and this in turn endangers sustainability of both (Foster et al 14). Correspondingly, any social strategy to enhance sustainability is illogical without a comprehensive ecological, economic, historical and cultural perspective. This idea is also manifested in Foster's "Marxism in the Anthropocene: Dialectical Rifts on the Left" in which he recommends Marx's ecosocialist approach as a demonstration of nature/society dialectic to encounter the "Great Climacteric" that threatens life on our planet .(393)

Ecosocialism in its core captures the idea of the dialectical dialogue between ecology, economy and Marx's socialism. In his analysis of Marx's contribution to the interpretation of the interchange between ecology and Marxism's socialism, Paul Burkett shows that "Marxism can provide new pre-analytical visions and conceptual tools that further enliven and open up the meta paradigmatic formation that is ecological economics, both theoretically and economically" (3). Brett Clark and Foster regard Marx's ecological approach as a relevant and innovative approach to handle the challenging interdependent ecological and social crises in a historical context .(147)

Marx's contribution to ecology is a debatable matter. Ted Benton and Andre Gorz find in Marx's early works, *Economic and Social Manuscripts*, for example, a denial of the limits of nature (Foster, "The Great Capitalist"). However, ecosocialist writers (Foster, Lowy, Schmidt) appreciate Marx's analysis of the relationship between man and nature or what they regard as Marx's three breakthroughs. These breakthroughs as described by Marx are "the universal metabolism of nature," "the social

metabolism,” and “the metabolic rift” (Karl Marx and Frederic Engels Collected Works 54-66).

Metabolism is a key concept in Marx’s ecological theory of the relationship between human beings and nature. Marx uses the concept of metabolism to demonstrate the socio-ecological interaction through the labour process. Marx maintains that labour is an interaction between man and nature in which man interferes and disrupts the balance of nature. In Marx’s view, the metabolic interaction [Stoffwechsel] is a perpetual and universal phenomenon (Capital, Vol I.283, 290). Marx stresses the interconnections between society and nature through his concept of metabolism [Stoffwechsel]. Broadly speaking, Marx means by metabolism “a system of general social metabolism, of universal relations, of all-around needs and universal capacities formed for the first time” under the specified norms of production (Grundrisse, 158). The concept of metabolism, therefore, underscores the profound socio-ecological exchange between nature and society. Correspondingly, any disruption in the ecosystem is interlinked with the social conditions of production which affect not only the local environment but also the global one.

Marx’s ecological breakthroughs highlight the interdisciplinary nature of environmental problems and Marx’s recognition of the limits of nature. In his attempt to “ecologize Marx,” Foster finds in Marx’s concept of ‘the metabolic rift’ the corner stone of “ecological theory” (Lievens and K. U. Leuven 6). The metabolic rift as defined by Marx is “the irreparable rift in the interdependent process of social metabolism” (Capital Vol. III, 949, Emphasis added). In this way, there is a reciprocal relationship between society and nature as the “environmental crisis is not a crisis of nature, but of society” (Lievens and K. U. Leuven 10). In Foster’s opinion, the theory of the ‘metabolic rift’ is a refutation to those who underestimate Marx’s ecological contribution. He argues that ‘the metabolic rift’ enabled Marx to provide a critique of expected ecological catastrophes and their concomitant disruption in the entire ecosystem (“Marx’s Ecology”142). Foster’s assumption is similar to Peter Dickens’s view as Dickens considers Marx’s metabolic rift an instrumental approach to understand the environmental and social hazards .(80)

According to Marx’s ‘metabolic rift,’ it is capitalism which “had led to an entropic degradation of natural conditions—a metabolic rift between human reproduction and the conditions needed for this production to be healthy and sustainable” (Burkett 204). Capitalists’ avarice and desire for accumulation of products result in depleting the natural resources in a way that disturbs the “metabolic interaction between man and the earth”

(Marx, *Capital* vol. 1, 237). Capitalism, as Marx suggests, causes a rift between man and environment/nature (*Capital* Vol. I, 637) .

The metabolic rift underpins the intrinsic correlation between society and environment/nature. In this way, every ecological problem is embedded in man/nature interaction that is characterized by man's ignorance of the rights and limits of nature. In other words, social, economic and ecological disasters are essentially associated. Foster finds a profound connection between ecological and economic crises ("Marxism in the Anthropocene" 405). The relationship between nature and society is a complex network of interconnected dimensions. The sustainability of environment and the diversity of a balanced system are dictated by man's social attitudes towards nature. Dependently, the ecological strategies should be socially committed. Yuanhang Ling believes that "[E]cological socialism guided by Marxism is able to avoid deterioration of the ecology, for it rethinks profoundly on the traditional socialism in the perspective of ecology" (22). Socialism solely cannot encounter the ecological disaster, but an all-encompassing interdisciplinary approach which endeavours to penetrate the multi-layered dimensions of the ecological disaster can do this integratively.

The second breakthrough in Marx's ecological theory is the 'social metabolism' between nature and society. Marx's 'social metabolism' has its origin in biology. In his speech at the "Ecosocialism or Barbarism" event, Daniel Tanuro remarks that "Marx came to this concept thanks to the work of the agro-chemist Liebig, who had produced evidence that urbanization had broken up the nutrient cycle." Due to the limits of natural resources, any disruption of the ecosystem through mechanized agriculture that prioritizes market demands causes environmental disasters. In his speech, Tanuro makes a correlation between 'social metabolism' and the anticipation of 'sustainable development' .

The 'social metabolism' reflects Marx's dialectical approach to the environmental/natural deterioration as one caused by capitalist industrialization. In Marx's historical materialistic approach, human beings' actions determine their history—their sustainable future. Marx states that

(Humans) make their own history, but they do not make it just as they please; they do not make it under circumstances chosen by themselves, but under circumstances directly encountered, given and transmitted from the past. The tradition of all the dead generations weighs a nightmare on the brain of the living. (*The Eighteenth Brumaire* 103)

Marx's view has its profound implications as it reflects his understanding of sustainability many decades before it has become one of

the persistent hot topics in the twenty-first century. Human beings determine their continuity when they make their history, but they cannot make it as they wish as they are restricted by many factors, among which the environmental ones. Foster painstakingly demonstrates that “human beings transform nature through their production, but they do not do so as they please; rather they do so under conditions inherited from the past (of both natural and social history), remaining dependent on the underlying dynamics of life and material existence” (“Marx and the Rift”). Human beings’ practices determine the sustainability of the ecosystem as their economic and political strategies can damage the ecological balance. Accordingly, Marx’s conception of history asserts the dialectical interrelationship between environmental conditions and the material and social forces of production. Historically, every ecological problem is embedded in man/nature relationship that is characterized by man’s exhaustion of nature’s resources.

Nature as a mirror of society reflects the ways in which society changes and develops. Due to the intricate association between nature and society, David Holmes asserts the role of history in creating universal nature. The social metabolism is central to Marx’s dialectic relationship between humanity and nature. Georg Lukács explores further overtones in the concept of social metabolism which accounts for the application of Marx’s ecological theory in the analysis of literary works. Lukács maintains that “since the metabolism between society and nature is also a social process, it is always possible for concepts from it to react on the class struggle on history” (Conversations 43). Social metabolism encompasses not only the interaction between society and nature, but also how this interaction influences all the global, economic, social, cultural and historical relationships. Subsequently, the ecological disasters reflect the underlying cultural and symbolic implications.

Foster regards Marx’s social metabolism as a “social monist philosophy in his [Marx’s] rejection of the dualist Enlightenment world view, subsuming nature within society” (“Marxism in the Anthropocene” 405). Subsequently, nature and society are in an inextricable interaction. Adopting a similar view, Daniel Bensaid estimates nature to Marx as “irreducible to a social category.” He defines Marx’s monism as a “process of hybridization, resulting in hybrid objects: social and natural” (320-21). Likewise, Jason W. Moore, the world-ecological thinker and sociologist, believes in a “singular metabolism” which refutes the binary opposition of nature/society, and makes a correlation between the ecological and the economic crises, which again asserts Marx’s Ecosocialism .(11)

Dialectically speaking, nature is a coherent whole in which phenomena are “organically connected with, dependent on, and determined by each other” (Stalin). Homo sapiens do not live in isolation, but in a state of interaction concurrent with the motion of nature. It is meaningless to tackle wars, power struggle, class conflict and other topics independent or alien from the ecological disasters. It is believed that any phenomenon can be well clarified if examined in its interlinking relationships with other phenomena surrounding it (Stalin). In Marx’s ecological perspective, the social and the natural conditions are interlinked. It is difficult, therefore, to aspire for a better understanding of the social, historical and cultural crises without “possessing certain degree of objectively correct knowledge about the processes of nature (which exist prior to people) and function independently of them” (Lukács , A Defence 96 ).

According to Marx’s ecological concepts, human beings live in a global nature/environment in which what happens in one area has its world-wide overtones. The universal rift is in tune with Marx’s perception of the association between man and nature. Marx clarifies that “Man lives from Nature, lives nature in his body, and he must maintain a continuing dialogue with it if he is not to die. To say that man’s physical and mental life is linked to nature simply means nature is linked to itself” (Economic 1974, 328). Marx’s view of nature is not idealistic or speculative, but a realistic one. Living away from nature (whether environmental or social) means man’s alienation and consequently the degradation of nature due to man’s failure to put the rights of nature on equal stance with his .

Remarkably, Marx describes his concept of metabolism as a system of interlinked social and universal relations that encompasses “all-round needs and universal capacities ... formed for the first time” (Grundrisse 158). Foster finds in Marx’s later economic works wider implications of the concept of metabolism which make it resonant not only to the relationship of man and nature but also to the different aspects of life. Consequently, Foster speaks of “the socioecological” nature of metabolism (“Marx’s Theory” 381). This makes Marx’s metabolic theory a transdisciplinary theory which can be used to analyze the intricacies of environmental, social, economic and cultural factors .

Marx’s universal metabolism accounts for the complexity of the relationship between nature and society. In his historical materialism, it is the labour/production that “mediates between human existence and this universal metabolism” (Foster, “Marx and the Rift” 3). This universal metabolism is effected by people’s social, economic and political dynamics. The universal metabolism emphasizes the materialist-

historical dialectic perception of the nature-society relation as environmental problems are not confined to certain regions.

Instead of talking about local environment, Marx's universal metabolism advocates the idea of the global environment based on the interaction between nature and human beings. It is the universal rift which threatens the sustainability of humanity. Substantially, Marx's theory of the metabolic rift anticipates the concept of sustainable development. Therefore, the universal metabolism asserts the 'anthropocenic' epoch that "coincides with the rise of the modern environmental movement and corresponds to the age of planetary crisis" (Foster, "Marxism in the Anthropocene" 393). Human beings, accordingly, have become a powerful force affecting the ecological balance through their capitalist method of production. In his analysis of Marx's approach to the relationship between nature and society, Alfred Schmidt maintains that human society is a tremendous force causing tumult in nature (152). This idea refutes the duality of nature and society and demonstrates Bruno Latour's adoption of the "hybridity" of society and nature (Foster, "Marxism in the Anthropocene 396).

Proportionately, Marx's theory of metabolism demonstrates Marx's conception of nature which is neither transcendental nor romantic but rather a realistic one. Nature and society are inextricably connected and they form a coherent whole, thus refuting the dualism of them as separate entities. The metabolic rift, the social metabolism and the universal metabolism of nature embody a new approach to understand the relationship between man and nature and add to Marx's contribution in his exploration of such relationship. Marx's Ecosocialism which is based on his metabolic theory enhances the examination of anthropocenic works that evoke the writer's commitment to the world's contemporary and futuristic disasters.

As defined by William Horosz, commitment is "an awareness, an attitude, a clear and feelingful recognition of being fully present in the moment, making the choice of the moment, and standing by the consciousness of these choices, whether anticipated or not" (248). Generally speaking, commitment, is a debatable issue throughout the literary history. Whether the literary work should entertain or educate is an inspirational topic that elicits divergent critical views.

The classical view approaches the literary work as a means of entertainment and education. This view is obvious in Aristotle's conception of poetry. Moreover, Longinus, "From On Sublimity", focuses on how "sublimity uplifts the spirit of the reader, --- arousing notable thoughts and suggesting more than words can convey" (133). Another approach adopts the aesthetic content of the literary work—that

the writer has the freedom to write what appeals to him. Oscar Wilde advocates, "Know thyself, just so over the portal of the new world, Be thyself, shall be written." Wilde's view endorses aestheticization and the writer's freedom to tackle what fascinates him. On the contrary, from the Marxist perspective, literature is a reflection of reality since the writer "translates social facts into literary ones, and the critic's task is to de-code them back into reality" (Eagleton 41). The social and political turmoils challenge the writer. The writer finds himself/herself obliged to explore them in his/ her works. He/She finds himself committed to the case of his/ her community—to present it realistically and truthfully. In the modern time, the role of literature is accentuated with the development of societies and the dire consequences of technology as well as world struggles. The Marxist critic C. Caudwell adopts the idea of the changing role of literature in the twentieth century. He says, "Art is like magic lantern which projects our real selves onto the Universe and promises us that we, as we desire, can alter the Universe, alter it to the measure of our needs" (262). However, Caudwell's view is criticized as it makes man adapt nature to his needs rather than adapting his needs to the limits of nature, resulting in a rift in the ecological equilibrium. Yet, this shift in the role of literature asserts the conception that the writer is not alienated from society and its changes and challenges. The content of the literary work is in harmony with people's lives and aspirations .

The switch in the role of literature is manifest in its relation with environment/nature which is a very old one, but the technological progress and humans' changing relation to the natural world "gave rise to an array of fictional and non-fictional writings" (Buell, et al 417). These works appeared under ecocriticism which is an eclectic and interdisciplinary field of study concerned with the representation of environmental issues and the human/non-human interaction in the literary works. On the one hand, ecocriticism is an umbrella term which encompasses a number of waves or currents concerned with the representation of ecological problems in literature (Marland 846).(2) On the other hand, Ecosocialism significantly enhances understanding of the eco-degradation and human beings' mindless use of the natural resources due to their capitalist economic strategies which prioritize profit over the rights of nature. Ecosocialism gives an insight into the ecological problems via Marx's socialism and theory of metabolism. In this respect, Ecosocialism can be considered a strand of ecocriticism as both are committed to the manifestation of man's relationship with nature, but they differ in the focal and theoretical perspective. Ecosocialism is connected with the third wave of ecocriticism which focuses on

representing environmental disasters as global issues reflecting humanity's shared destiny. Ecosocialism, properly, is an eclectic approach pertaining to ecology, sociology, politics, economy and culture in its tackling of pressing contemporary disasters. One of these global dilemmas is climate change. Therefore, the writer's role is to make people aware of the fact that nature should not be taken for granted as having inexhaustible treasures. One of the grave environmental issues is climate change/global warming which has given rise to a new literary genre; namely, climate change novel or 'Cli-fi (abbreviated form of climate fiction) .

As well as being a scientific phenomenon, climate change can be considered a fertile source of narrative stories manifesting the interdisciplinary nature of contemporary life. This view is adopted by Serenella Iovino and Serpil Opperman: "[...] the world's material phenomena are knots in a vast network of agencies, which can be 'read' and interpreted as forming narrative stories" (1). Climate change novel ('Cli-fi') is a form of a committed genre. According to Adeline Johns-Putra, climate change novel is "Fiction concerned with anthropogenic climate change or global warming as we now understand it" (267). This type of fiction can be imaginary, taking place in exotic or alien planets or it can be a factual representation of global warming and its effects on homo-sapiens and the non-human ecosystems(3) .

As an emerging genre, climate change fiction demonstrates the interdisciplinary nature of literature and how it responds to the challenges facing humanity. In the contemporary world, it becomes evident that "climate crisis is also a crisis of culture, and thus of the imagination" (Ghosh 12). This view is compatible with the ecosocialist view of the rift in the social metabolism as a crisis of humanity rather than nature. Penetratingly, the climate crisis is aggravated by consumerism, the production of unnecessary commodities and the capitalist strategies which aspire only for profit. Climate change genre is not propaganda, but a form of committed literature dedicated to creating awareness and implementing consciousness of what extreme climates mean to humanity's survival. Climate change fiction is scientifically plotted to create authenticity and credibility .

Barbara Kingsolver (1955- ) is a contemporary biologist, poet, essayist, social activist and a committed novelist. Being grown up in rural Kentucky fosters within Kingsolver a sacred communion with nature and enlightens her of how man's practices endanger the entire ecosystem and simultaneously man's existence. In essence, Kingsolver's novels explore man's relationship with nature. Kingsolver depicts in her novels a particular region—Kentucky, with vivid images which reflect her pride in

the roots of her ancestors and a longing for a simple life style. Being inspired by rural life, Kingsolver now lives in a farm in Virginia.

Kingsolver's novels assert the writer's commitment to the role of fiction in life and her denunciation of the writer's alienation from the issues of his/her community. On the cover of *The Complete Fiction*, She expresses: "A novel can educate to some extent...But first, a novel has to entertain—that's the contract with the reader: you give me ten hours and I'll give you reason to turn every page. I have a commitment to accessibility".

In Kingsolver's belief, literature is not remote from nature and social life. *The Bean Trees* (1989), *Animal Dreams* (1990), *Pigs in Heaven* (1993), *The Poisonwood Bible* (1998), *Prodigal Summer* (2001), *The Lacuna* (2009), *Flight Behavior* (2012), *Animal, Vegetable, Miracle: A Year of Food Life* (2007) — a co-authored non-fiction book; in addition to a collection of poems, illuminate Kingsolver's view of literature's role in tackling the environmental disasters as well as the rights of all species: humans, animals and plants. Notably, Kingsolver's novels pinpoint the strength of family ties in rural areas which are threatened by the fast sweeping technology. She believes that writing is a means of improving people's life; otherwise writers "should put down [their] pencils and go bake bread" (Qtd. org). She believes in the power of literature to enlighten people of the realities of contemporary disasters. Literature, accordingly, is an effective means that empowers people and implements awareness.

Kingsolver is a committed writer who "is dedicated to the advocacy of certain beliefs and programmes especially those which are political or ideological and in aid of social reform" (Cuddon 139). She has dedicated her books to the promotion of social justice, human rights, preservation of nature and climate change issues. She was awarded several prizes for her novels' contribution in humanity's concerns; among these awards are the Orange Prize, the National Book Award of South Africa and the James Beard Award .

Kingsolver, in *Flight Behavior*, exhibits environmental and social commitment in a way that makes her climate change novel have extra-literary and generic characteristics. Kingsolver's *Flight Behavior* is a gripping climate change novel. It has been subject to a number of critical reviews. In the *New York Times*, Dominique Browning recognizably remarks people's hurtling "toward the abyss in these times of epic planetary transformation." Ron Charles in *The Washington Post*, in his turn, regards the novel as the drama of the possible collapse of the ecosystem and "it's just trying to illuminate the mysterious interplay of

the natural world and our own conflicted hearts.” It is the drama of climate change narrated in an authentic and vivid prose. The novel is praised for its intricate commingling of scientific fact in a dramatic story of a female acquiring new perception after being alienated from nature. In *Flight Behavior*, Kingsolver draws upon knowledge of the natural world raising readers’ awareness of climate change through integrating “important issues with engaging narrative that feels organic” (Mcalpin). Hence, the novel has aroused the interest of scientists. In the *Journal of the Lepidoptera*, the novel is described as having “layers of factual and hypothetical data that address the most serious, yet largely avoided, problems of the world” (Mattoni 23). Though a specialized journal, the *Lepidoptera* finds in *Flight Behavior* a notable representation of contemporary world’s persistent global warming disaster and Rudi Mattoni recommends the novel to be read by all biologists and lepidopterists (23). Furthermore, Linda Wagner-Martin finds in *Flight Behavior* fusion of “numerous ecological and political themes.(21) ”

Moreover, *Flight Behavior* has been examined in relation to some of Kingsolver’s novels. Elizabeth Horton-Cook finds in Kingsolver’s fiction a conflict between man and nature because of man’s materialistic approach to nature (55). Therefore, in order to have self-perception and meaningful human communication it is through “discover[ing] and reclaim[ing] one’s natural role” (Horton-Cook 60). *Flight Behavior* has also been discussed from an ecofeminist perspective as the researcher analyzes how the female protagonist gains strength in a male-dominated world through learning the realities of climate change (Hawkins 64-80). In another research, *Flight Behavior* is examined among other climate change novels to explore the implications of place and its contribution to the changing perspectives of characters as well as climate fiction’s response to ecological disasters (David 251-56) .

Unlike the previous reviews and analyses of *Flight Behavior*, the present research attempts a study of the novel through adopting an ecosocialist approach based on Marx’s ecological breakthroughs of metabolic theory. This approach asserts literature’s commitment to the representation of ecological problems and the writer’s inseparable responsibility to the rendition of environmental crises. If ecofeminism attempts to connect the ecological dilemmas to the feminist representation, Ecosocialism epistemologically highlights the interaction between society and ecology; therefore, literature as an interdisciplinary field tries to penetrate this interaction. Ecosocialism can be used as an eclectic integrative critical approach that encompasses ecology, economy, biology, sociology, politics and culture in tackling the drastic climate change dilemma. Since it penetrates the association between environment

and society, it is an appropriate approach to the exploration of the climacteric epoch or anthropocene.

*Flight Behavior* is the dramatization of one female, Dellaboria (Dell) Turnbow, who is in a state of flight from marriage and domestic oppression. She lives and grows up in Feathertown, Tennessee in the southern Appalachian Mountains. Dellaboria has an eventful life. She lost her parents while she was young. She is the mother of two children—the six-year-old Preston and the two-year-old Cordelia, from her shotgun marriage to the simple-minded, passive Cub Turnbow. She is not happy in her life and Kingsolver describes this in fragmented expressions: “Heartbreak, broken family. Broke period” (12). Kingsolver describes Dellaboria’s life in a very exquisite style that foreshadows the analogy between her and nature. Dellaboria is described as “Wild in high school, that’s how it goes with the pretty ones, early to ripe, early to rot” (12 italics in original). Losing interest in Cub because of his passivity, Dellaboria yields to temptations of a young man. On her way to meet the young man at the appointed time, she is astounded by what seems to her as a forest fire. Deeply shaken and dazzled, she returns home obsessed with what she has seen. What she has seen is no more than millions of monarch butterflies migrating from Mexico because of climate change. Having a growing interest in the butterflies, she offers to help a research expedition headed by the scientist, Dr. Ovid Byron. Anticipating to explain the ambiguous changing course of the monarchs’ (mis)migration to Tennessee instead of Mexico, the expedition sets up a trailer in the Turnbow farm. Both Dellaboria and her son, Preston, excitedly want to know the mystery of the monarchs’ migration.

The awesome sight of the butterflies is a turning point in Dellaboria’s life. It comes to her as a vision or revelation or a miracle of “unearthly beauty” which appears to her as a “lake of fire, something far more fierce and wondrous than either of those elements alone. The impossible” (16). It is the impossible as how millions of butterflies swarm on the trees sheltering from wintering zone. Is it a forest fire, a lake of fire or the impossible? The butterflies sight is a stunning experience which presents *Flight Behavior* as a genre of not only climate change but a Bildungsroman of Dellaboria’s understanding of her relationship with nature. It is the turning point in her perception of her role towards nature. It opens her eyes to the role of science and the significance of education in preserving nature and serving humanity.

Unlike Dellaboria’s anxiety and worry, the society is divided in its reception of the monarchs’ situation: some inhabitants consider the butterflies profitable through attracting tourists; while her in-laws insist

on clearing the mountains to pay their loans. Dellaboria worries about the extinction of the butterflies, and she impresses Dr. Ovid with a plan to save the monarchs by transporting them to a warmer region. He admirably expresses: “That is a concern of conscience. Not of biology. Science does not tell us what we should do it only tells us what is” (219). He comments on the diminishing of the coral reefs and the extinction of many insects: “what was the soul of saving the world that has no soul left in” (217). *Flight Behavior* is a factually fictionalized dramatization of contemporary man’s mindless exploitation of nature, which ultimately drifts towards extinction through man’s alienation from nature and his ignorance of its limits/rights.

Climate change is a complicated and foreign concept to the poverty-stricken farmers and the lower classes in rural Feathertown. Those people worry only about their day-to-day sustenance. Accordingly, *Flight Behavior* is “a beautifully written and compelling account of working people responding to the local effects of a global crisis” (Angus “Climate Change”). Setting the novel in Tennessee in the United States is ominous of human beings’ future if they continue on their mindless exploitative attitudes towards nature. They have to understand the limits of nature or fight for their existence. Angus emphasizes this idea in his review of the novel: *Flight Behavior* is “a complex picture of the reality of poverty and class divisions in the world’s richest country, of rapidly changing social values even in the reddest of red states, and above all the impact of climate change on the daily lives of ordinary working people” (“Climate Change”) Angus’s view is a reflection of the discrepancy between the green environmentalists and red capitalists. More significantly, the ones who are greatly affected by climate change are the working classes who are alienated from nature due to poverty which makes their dearest wish is food .

As a climate change or ‘cli-fi’ novel, *Flight Behavior*, highlights the moral as well as the ecological degradation resulting from the avarice of the capitalist system. It notably reflects the role of capitalism in destroying nature. Narrated in persuasive, scientific realistic point of view, *Flight Behavior* “offers a prime example of the symbiosis between science and storytelling” (LeMenager). Cli-fi, in this respect, is not only the representation of scientific data in fiction, but it is a powerful means of creating awareness and changing attitudes towards ecological and social problems. ‘Cli-fic’ is a postmodernist genre that posits the threat of extremes in climate in a factual representation that contributes to the survival not only of the monarch butterflies but the entire ecosystem. *Flight Behavior* creates an interplay between fantasy and reality through deconstructing climate change issue. Climate change is not a regional

disaster, but a global one since ecological problems have no geographical boundaries. Dellaboria wonders what brings the butterflies to Appalachian: “Are you seeing they used to be down there (98) ”?

On her way to ashamedly meet her guy, Dellaboria sees “trees aflame on the mountain. For some reason that knowledge was her alone. What had she been thinking? The full proposition now flooded her with panic, shutting her into a tight place. “They can’t log that mountain,” she said (34). The sight of the butterflies is a moment of epiphany in Dellaboria’s life as well as the narrative as it renders the novel not as a prosaic sophisticated scientific account of climate change, but a touching factual representation of an ecological phenomenon. It interweaves imagination and reality in a sense that *Flight Behavior* is a dystopian novel which explores the contemporary disaster of climate change and its world-wide consequences. The Turnbow region is called “a fantasy land” which makes the migration of butterflies something magical and unbelievable to some of the population of Feathertown.(21)

With the introduction of the butterflies, the novel comes to have two narratives intricately connected and develop on parallel lines: the migration of butterflies and the prospect of Dellaboria’s escape from domestic oppression. Dellaboria wonders if the migration of the monarch butterflies is fight or flight—they have no third choice (161). The roosting of the butterflies on the Turnbow farm in Feathertown, Tennessee is a manifestation of the rift in the metabolism of nature as well as the social metabolism. Climate change alters the course of the butterflies and forces them to migrate to other destinations where they can find favourable conditions. The dedicated entomologist and ecologist Dr. Ovid tries to examine the flight of the monarchs and how this disrupts the balance of the ecosystem and threatens the existence of many species. He tries to find out “why a major portion of the monarch as popular that has overwintered in Mexico since God set it loose... would instead aggregate in the Southern Appalachians, for the first time in recorded history” (87). Ovid is an example of the scientist who dedicates his time to uproot people’s denials and skepticism of climate change. Being obsessed with climate change and the disintegration of the ecosystem, “[h]is life was now at the whim of a livid ecosystem” (264). When Dr. Ovid explains to Dellaboria that the migration of butterflies is due to the climate change, this echoes in her interior monologue, “devastation.... that one she got, devastation” (103). It is ironic to fly from undesirable conditions to another environment where they have to fight for their survival or – extinction .

The metabolic rift is caused by man's desire for excessive materialistic profits. Dellaboria considers man's senseless interference in nature a recurrent theme in "Honors English, the great theme: man against man, man against himself" (95). This idea is echoed in I. C. Boyle's novel, *A Friend of the Earth* (2001) where the aging farmer confesses that "to be a friend of the earth, you have to be an enemy of the people" (56). This confession demonstrates the eternal conflict between man's desires and the rights of the ecosystem. Bear Turnbow, Cub's father, is alienated from nature and because of the pressing economic situation of loans, he signs a contract to log the Turnbow farm. Logging or cutting trees means deforestation and threat to the butterflies which roost in trees as well as it is "homicide," as Dellaboria perceives (36). Dellaboria tries to convince her husband and her mother-in-law, Hester, to dissuade Bear from his contract of logging the trees, but Cub says: "Are we speaking of Bear Turnbow's moral? Oh, just a minute. Let me wave some money in the air and say which way his moral turn" (115). Materialistically dictated in his relationship with nature, it does not matter to Bear that he is threatening the entire ecosystem which can sustain his survival and prosperity. He is ignorant of what he is doing; even the concept of climate change is alien to him.

The monarch butterflies also mirror the rift in the social metabolism. This is manifested in the characters' different attitudes towards the butterflies phenomenon, and how these attitudes reflect their culture. Whereas Cub considers Dellaboria's experience of the butterflies as a miracle and a new vision, his father criticizes Dellaboria and calls her "a meddling wife" (41). Hester, Dellaboria's mother-in-law, justifies the butterflies' migration from a religious perspective. She confesses that "The butterflies knew God was looking after things here, and that's why they came to Feathertown" (207). The butterflies phenomenon shakes Feathertown's deeply-rooted religious beliefs as they believe that climate change is controlled by God and can only be reversed by people's prayers and supplications; they reject the notion of human beings as culprits disrupting the ecosystem balance. Bobby Ogle, the priest at the Fellowship Church, regards the butterflies migration as a warning from God to people to purify their hearts from envy, enmity, obduracy and lust (50). The priest and the Feathertown people are skeptical about science's role in tackling climate change phenomenon. They deny that science can reduce the gravity of climate change through people's respect to the limits of nature. In stressing the rift in the social metabolism, Kingsolver deconstructs climate change as a disaster that has wider implications: environmentally, socially, politically as well as regionally and globally.

Dellaboria's butterfly experience and her growing perception widen the gulf between her and Cub regarding clearing the mountain side. The following dialogue illuminates their contrasting views:

"You tell me. If you want them to have a computer and stuff. We need the logging money. Or"—he spread his hands—"We can keep our trees. And be hicks".

"Right. We cut down the trees and get ourselves buried in mud like a bunch of hillbillies, because we're afraid of raising our kids to be dumb hillbillies. Really you're saying we just do it because that's who we are," she said, too loudly. "Who are we(120) "?

This dialogue is revelatory of Dellaboria's growing perception of the significance of the balance between man and nature. It is harmony which dictates man's actions. What is the benefit of accumulating money in an environment threatened by man's materialistic mindset? This is again an assertion of the capitalist policy which values profit and alienates man from nature, and consequently creates a rift in the entire ecosystem. Having consciousness of her relationship with nature and the seriousness of clear-cutting the mountain, Dell gives one of the illuminating comments which epitomizes contemporary man's dilemma and his materialistic mentality. She maintains that her in-laws and the townspeople's attitude towards the butterflies is "all centered around what they want. They need things to be a certain way, financially, so they think nature will organize itself around what suits them" (178). Foolishly and avariciously, these people exhaust nature, ignoring the interlinking relationship between man and nature. They overlook the fact that nature, too, has its rights and limits. Therefore, their irrational consumption of the natural resources causes a rift in the metabolism of nature, and consequently man's extinction. To survive man has to reconsider his relationship with nature and this necessitates new paradigmatic approaches that encompass the environmental, political, social economic and cultural factors; Ecosocialism can be one of these approaches.

The rift in the metabolism parallels the social metabolism of the social fabric as manifested in the relationship between Dellaboria and her in-laws on the one hand, and Dellaboria and her husband on the other hand. The Turnbow family can be considered an extended microcosmic family representative of the macrocosmic human family. Dellaboria lives next to her in-laws. She has a tumultuous relationship with her husband due to his naivety and submission to his parents. As a consequence of her husband's ineffectuality, she meditates running away from marriage and she yields to heterosexual temptations. In addition, the gulf between Dellaboria and her in-laws is deepened by their decision to clear-cut the

mountain, which posits a real challenge to the survival of the butterflies. The Turnbows refuse to accept Dellaboria's advice to abandon the idea of logging the mountain as she becomes aware of the universal implications of this action .

The rift in the social metabolism is best represented in the image the Turnbow-laws have for Cub and Dellaboria. They consider them "like kids in the backseat of a car, bickering over the merits of some unknown destination" (32). This means that Dellaboria and Cub have no say in family affairs. While Cub accepts this image, Dellaboria defies the authoritative patriarchal domination and meditates a way to desert this family.

The story of the butterflies and Dellaboria's narrative run in parallel lines, demonstrating the metabolic and social rifts. The migration of the butterflies and Dellaboria's intended flight from her family are triggered by man. Whereas the migration of the butterflies is caused by man's disruption to the ecosystem, Dellaboria's flight is prompted by domestic and patriarchal oppression.

The social rift is reflected not only in the different attitudes towards the monarch butterflies and Dellaboria's relationship with her in-laws, but also in other issues which make *Flight Behavior* a drama of climate change as well as an epic of modern man's struggles with himself and the world around him. Dellaboria's new experience as an assistant to Dr. Ovid widens her eyes to the reality of the exploitative capitalist economy which values profit more than social relationships and the stability of the ecosystem. There is a quarrel between her-in-laws and their neighbours, the Cooks. Dellaboria's in-laws' use of chemicals has created dire consequences to the Cooks as they lose their tomatoes crop, the peach orchard and their son gets down with cancer, too. Dellaboria comments on her in-laws' attitude saying, "I think my in-laws resent the healthy-and- organic business because it makes sound like what we're doing must be unhealthy and unorganic" (141). Dellaboria's enlightening perception reflects her recognition of herself as "as a principal actor in the worldwide crisis of our Sixth Extinction through the particular instance of the collapse of the North American monarch butterfly" (LeMenager).

Kingsolver exposes throughout the novel the uncontrolled use of fertilizers and the consequent disruption that they cause to the ecosystem as well as the rift these fertilizers cause in social relationships through widening the gap between the rich and the poor and economy in this case turns to be immoral—profit is the ultimate desire. Dellaboria finds herself unable to tell Dr. Ovid that Bear decides to cut down the trees in the mountain "for cash, and that they really need the money" (144). Bear's situation is a complex one—he threatens the environment because of his

need for money. It is a perplexing formula which engulfs the rift in metabolism in nature and society. The appetency for more profit blinds Bear Turnbow and consequently alienates him from both nature and society .

The story of the butterflies comes to the foreground of the narrative asserting the anthropocenic nature of *Flight Behavior* as it highlights how man's excessive pressing on nature can create irreversible schism, ecologically and socially. The more man's carbon footprint increases, the more damage he causes to nature and to humanity's survival. The social rift is represented through a number of scenarios which reflect some of the social factors which characterize contemporary world. One of these scenarios is the expected role of mass media in propagating awareness of environmental catastrophes. The newspapers manipulate the story of the butterflies to achieve financial profit through publicity and wide circulation. After an interview with a newspaper reporter, Dellaboria is astonished to find herself portrayed naked as the Venus girl "standing on the open wings of a huge monarch." Dovey, Dellaboria's friend, comments on that picture: "This image which was not real and had never happened was flying around the world" (147). What kind of propaganda which can implement environmental consciousness through defaming people's reputation as well as violating social and ethical norms. Being circulated via the internet means the moral degradation of Dellaboria. Accordingly, the natural degradation resulting from exploitative capitalism is parallel to this moral corruption. This underlines the ecosocialist premise that "environmental degradation and social injustice stem from the same source: a world where profit is the highest goal" ("What is Ecosocialism?"). With this understanding, Ecosocialism which is rooted in science and political economy is a relevant critical approach to the issues connected with nature/humanity, especially the anthropocenic themes that tackle global warming and climate change.

The image of Dellaboria naked as the Venus girl, who is the Roman goddess of love, sex, beauty and fertility, reveals how mass media divert from their mission of spreading awareness to make profit from climate change. Pete, Dr. Ovid's assistant, comments: "So every environmental story has to be made into something else. Sex, it up if possible, that's what your news people drove out here for. It's what sells" (160 *Emphasis added*). The capitalist policy condones all moral, social and environmental obligations for the sake of profit. This is what Marx stresses in his theory of the rift in the social metabolism which causes climate change.

Another social behavior which effects climate change is smoking. Smoking is tackled in the novel with depth not only as a symbol of health deterioration. Preston addresses his mother: “Mama,” he said, “smoking gives you cancer and makes you die” (133). Smoking is not only a harmful habit, but it also contributes to increase global warming or climate change. This is why Dellaboria thinks of this matter and quits smoking by the end of the novel. Smoking is connected with the theme of pollution which badly turns on nature, as Dellaboria maintains .(231)

In discussing the problems which affect contemporary man, Dellaboria and Dr. Ovid reflect on a number of issues which stress how literature can serve humanity in incorporating science, philosophy, sociology and other disciplines to tackle the pressing environmental issues. Whereas Dr. Ovid considers “dust” as the enemy of everything, Dellaboria’s view is that “The number one enemy of everything [ranges] from Osama bin Laden to pre-marital sex” (152). This view asserts two significant points. Firstly, literature/ fiction is committed to reflect society’s dilemmas, whether social or environmental as society and nature are in a dialectic relationship. Secondly, whatever social or environmental, the disasters in our life are caused by man. Therefore, the rift in the metabolism is universal as human beings’ pressing on the environment is perpetual .

Another social problem highlighted in the conversations between Dellaboria and Dr. Ovid is the issue of education. They criticize contemporary education as it does not enhance people’s awareness of the interlinking relationship between themselves and nature/ environment. It does not provide them appropriate education to encounter the disastrous change around them. Dellaboria wonders how her science teacher was the basketball coach. She mediates the future of the young generation within an ineffectual educational system: “What kind of world will they really be able to make?” (154). Dellaboria holds that education empowers people (90). The issue of education is intrinsically connected with the role of science. In instructing Dellaboria in climate change, Dr. Ovid makes her aware of contemporary world’s disasters. This demonstrates the role of fiction in raising awareness of the interaction between nature and society. Dr. Ovid’s view that science tells people what it is not what they should do is analogous to the role of fiction in raising awareness and making people conscious of their predicament.(219)

The topic of education is inextricably associated with the cultural structure of the population of Feathertown. They are rural people. Bobby Ogle preaches that the Old Testament and the New Testament have many passages dedicated to the respect of nature (116). In the light of this perspective, climate change is a complicated topic as it is influenced by the culture of the people. Dr. Ovid explains that “climate change denial

functioned as folk art for some people, a way of defining survival in their own terms” (264). Climate change disaster is not only an environmental disaster, but a cultural one. Society and nature are in a dialectic relationship. As a consequence, science has a long battle to instruct people in the culture of climate change that is mainly caused by their mindless exploitation of nature. Marx’s ecosocialist approach, thus, probes into the cultural, ecological, social, economic and political factors that constitute the fabric of society and prompt disasters, such as climate change. Climate Change as Timothy Clark advocates is the deconstruction of multiple frames and disciplines.(132)

Consumerism is another important issue tackled in Flight Behavior. It illuminates the rift in the social metabolism. It is instigated by capitalist strategies which make shopping modern man’s new religion. Dellaboria goes shopping, from last-chance shops, with her husband and her friend, Dovey. They buy low-priced items that expired (116). Consumerism is widespread phenomenon that characterizes contemporary society. In the present materialistic world, man worships one God--profit. It is a world that has succumbed to consumerism to the extent that a TV set, as Cub reveals, has become a “modern God .(145) ”

The rift in the universal metabolism is globally represented. In Flight Behavior, the rift which happens in Mexico due to the floods and mudslide causes the migration of the butterflies and the calamitously decrease of the population in the “Neovolcanics” (157). Dr. Ovid comments on the butterflies altering their migration destination as “[A] continental ecosystem breaking down. Most likely, this is due to climate change” (158). The flight of butterflies goes hand in hand with the migration of Mexican people because of floods and mudslides. Dellaboria meets Josefina, Preston’s classmate, who is a Mexican girl moved to Tennessee. The displacement of Josefina’s family and the migration of the butterflies is prompted by the same reasons as floods destroyed “The houses. The school. The people,” as Josefina reveals (73). Josefina’s view asserts the implications of climate change, locally and globally since “there is only one planet!” (225). Dr. Ovid pinpoints the interaction between human beings and butterflies as the population is one entity and any rift in the integrity of its wholeness is a threat to the entire ecosystem and humanity (217). He reveals that the system of “local and universal genetics makes a kind of super-insect .(218) ”

The rift in the universal metabolism is a stunning warning to the sustainability of “the whole gamut of permanent conditions of life required by the chain of human generations” (Marx, Capital, Vol. III,

754). Interviewed by Diane Rehm, Kingsolver explains how climate change causes disruption in the ecosystem:

Blooming that's right. And so what is the problem here? Well, species, let's say, of insects or a hummingbird that was dependent on this flower when it came back from migration is going to get an empty grocery store. There are thousands, millions of interactions in which species depend on each other in terms of timing, in terms of climatic cues that are going awry. It's a bigger mess than almost anyone can really explain, because we're only beginning to get a handle in studying it .

Notably, Kingsolver here stresses the intricate interaction among all species in the ecosystem, thus demonstrating the universal rift in the environment. Kingsolver, therefore, foregrounds the role of the writer in implementing awareness among people of how their foolish use of the natural resources is not limited to their district, but affects the entire globe, putting humanity's survival in danger. Accordingly climate fiction [cli-fic] is "to enter a commitment to shared imagination, to the social action of claiming a point of view" (LeMenager) .

Apparently, the three rifts are implicated in the structure of the novel and the development of its two narrative stories. The novel is divided into fourteen titled chapters, narrated in the third person limited point of view as the narrative focuses on the exploration and development of Dellarobia's understanding of climate change. The chapters begin with "the Measure of Man" and end with "A Perfect Female". The titles of the chapters echo Dellaboria's growing perception as well as asserting the relationship between man and nature. The titles of the other chapters reflect important points: the significance of strong family ties, shared ecological crises, the community's ecological commitment and the destructive capitalist strategies which regard nature [environment] as "an atomic mechanistic system devoid of innate value, purpose and spirit—its value being controlled by the laws of exchange" (Parsons 3-4). The chapters' titles illuminate the reaction of the local as well as the global community to climate change. They highlight the three rifts of Marx's metabolic theory. The chapters begin with individual consciousness represented in Dellaboria's growing understanding of her relationship with nature. Then she tries to impart this understanding to her in-laws through her efforts to dissuade them from the logging contract. Whereas she fails to convince her father-in law of the danger of the logging of the mountain, she manages to make her mother in-law aware of climate change disaster. Hester confesses to Dellaboria her worries about the logging project. Dellaboria senses that Hester is "weighing the moral choices, swallowing her vast and considerable pride" (93). Hester's perception of the disaster of climate change alters as she starts to consider

the ethical pact between man and nature. This is revealed when she tells Cub: "If you can't live by the laws the Lord God made for this world, they will go into effect regardless" (269). These words by Hester reflect not only her changing perspective, but also man's role in causing the rift in the metabolism of nature through acting against the ethical code of conduct inherent in the balanced ecosystem.

Kingsolver widens the scope of the butterflies dilemma and draws a parallel between the butterflies and people in chapters entitled "Global Exchange" and "Continental Ecosystem." Moreover, Kingsolver asserts the interconnectedness and interdependence of human beings and nature in the chapter "Kinship System." Accordingly, human beings are a powerful geologic force influencing the entire global nature as they live in kinship in a world that has no geographical borders to control climate change .

Nature is a measure of man's moral, spiritual and ecological awareness. Lack of awareness means alienation from nature. Marx's concept of alienation, therefore, can expand to imply not only the worker's alienation from the means of production and workplace, but generally man's detachment from nature. The radical change in Dellaboria's life is precipitated by the butterflies and her recognition of her role in preserving nature. This idea is advocated by Adeline Johns-Putra who correlates "global meteorological dysfunctioning" and Dellaboria's growing perception of climate change. As John-Putra holds, Flight Behavior is the "trajectory" of Dellaboria's new awareness of climate change ("Borrowing the World" 13). Dellaboria becomes a perfect female through acquiring experience and understanding of what it means to cause a rift in the metabolism of nature and how this results in irreversible universal metabolism .

When Dellarobia tries to make Cub convince his father that dragging down the mountain is an unthinkable enterprise, Cub tells her that he cannot do that as he is not "perfect" like her (109). The idea of being perfect is a recurrent motif in the novel. From Dr. Ovid and Dellarobia's perspective, to be perfect is to be strong. To be perfect is to understand one's place in nature and his role towards it; otherwise, as Dellarobia addresses Cub to be kept in the "pumpkin shell" (150). To be kept in a 'pumpkin shell' is to live in alienation from nature as if living in exile. A perfect female as defined by Dr. Ovid as "a lady that can go out and start a new colony by herself" (265). The perfect female is the one who has perception of herself as powerful one and can resist patriarchal and domestic oppression. She becomes an autonomous character who has agency and appreciates the role of education and science in serving

humanity. Flight Behavior closes with the death of butterflies. Yet, not all butterflies die but a few survive in a “bud colony” or as Dell views them: “Not just a few, but throngs, an airborne zootic force flying out in formation, as if to war” (289). In the final scene of the novel, heavy rains fall and drift many houses away. Dellaboria and her children are safe. She looks at the gathering of the butterflies as “the exodus” (295). The survival of some butterflies and their gathering to depart to another area or “new earth” parallels Dellaboria’s new awareness of her place in nature (289). Acquiring perception of her relationship with nature, she deserts her husband and determines to educate her son to be a scientist like Dr. Ovid. Both the migration of the butterflies and the flight of Dell are messages of hope which assert the interlinking relationship between man and nature. Significantly, ecological and social plights are interlinked regionally and globally, so new critical approaches are needed to delve deep into these dilemmas that are mainly triggered by man’s policies.

The motif of perfect female posits a circular question of the relationship between Dellaboria and the butterflies or in other words, why the butterflies? Both the butterflies and Dellaboria struggle to survive through their migratory behavior. Because of their migration searching for suitable climate for reproduction, the butterflies have iconic symbol of “nature; environmental health; safe migrations across national borders; spiritual metamorphosis and renewal” (Gustafsson 219). Scientifically, the butterflies serve the environment as pollinators helping in the ecosystem balance. Symbolically, the butterflies have a prominent place in native American culture as signifiers of “the end of one way of life and the beginning of another. It’s an essential part of indigenous folklore and rituals in large areas of Mexico; a natural time clock for the changing of the seasons” (Hawkes). The butterflies as depicted in Mexican legends are symbols of spiritual resurgence. Most importantly, butterflies are a Christian symbol for resurrection as “[T [he butterfly can be seen as the insect who “dies” as a caterpillar, is buried in the cocoon for a length of time, and emerges in a new life” (Handlon). The butterflies represent the soul and this is manifested in Josefina’s view. Josefina reveals that the Mexican people believe in butterflies as “the soul of a baby that’s died?” (245). As a soul, the butterfly is a symbol of rebirth and spiritual revival. Therefore, there is an analogy between Dellaboria’s flight and the butterflies’ migration as both are searching for survival and revivification. This analogy asserts the proximity of human beings and the non-human creatures as they share one nature/environment. This proximity is a manifestation of the ecosocialist perspective of the interlinking relationship between man and nature. The analogy between the butterflies

is a complex one and it is connected with Dellaboria's assumption of man being kept in the pumpkin if he detaches himself from nature. The butterfly starts from a caterpillar and transforms into a butterfly. If it remains in its cocoon, it may die. Likewise, man's alienation from nature equals his death. Accordingly, the butterflies' migration and Dellaboria's flight are journeys of transformation and fight for survival.

*Flight Behavior*, is a multi-layered novel narrated in exquisite style that exhibits the three rifts through its scientific aura and vivid imagery. The novel teems with many Biblical images which are not highlighted in this research as the research is confined to the exploration of the novel through an ecosocialist perspective.

To sum up, Ecosocialism considers the capitalist strategies and policies as catalysts of planetary imbalance and the rift in the social as well as the universal metabolism. This is reflected in the butterflies' migratory behaviour and the divergent attitudes towards this phenomenon. The Turnbows become a symbolic family representing human beings' disparate approaches to nature. Alienation and apathy are characteristic features of not only man's relationship with nature but human beings' relationship with each other as the whole social structure is deeply shaken.

Ecosocialism can be considered a new approach to study the interdisciplinary nature of fiction, highlighting its role in exploring the disasters of climate change and global warming as well as their social and global implications. It is a strand of Ecocriticism. So Ecosocialism can be estimated as an eclectic deconstructionist penetrating approach which epistemologically highlights the interaction between ecology and society as well as literature/fiction's commitment to the representation of such interaction.

Marx's ecosocialist approach exemplified in his metabolism theory can be considered an innovative method in tackling anthropogenic topics and analyzing climate change novels. This approach adds contribution to Marx in general and Marxist criticism in particular as it integrates science and different disciplines to provide a critical analysis relevant to the contemporary emerging climate change genre. Marx's metabolism theory is a real breakthrough in the field of ecology as it refutes the dualism of nature/society and adopts the monism of them, putting society and nature in a dialectic relationship. Marx, in this way, is progressive in his ideas and in his anticipation of sustainable development which does not exhaust nature and at the same time secure it for the coming generations. Hence, Ecosocialism renders a rereading of Marx's ecological ideas. If Marxist criticism focuses on the rift between the

worker and labour, Ecosocialism penetrates the rift in nature as global environment determines the sustainability of humanity.

Barbara Kingsolver's *Flight Behavior* is the drama of climate change in a realistically fictionalized depiction which makes the novel not a mere cautionary tale, but an epic of the dialectic relationship between nature and society. Kingsolver combines fantasy and science, creating a parable of people marching towards the abyss. She aspires for a new civilization based on the balanced relationship between man and nature on the one hand, and man and man on the other hand. Dedicated to her mission and the role of science in encountering environmental crises and spreading awareness, Kingsolver does not give solutions to climate change, but alters attitudes, widens horizons and empowers characters through structuring their relationships with nature. As a perfect female, Dellaboria realizes her role in society in raising children who can increase their blueprint not their footprint through education and recognition of the limits of nature .

In a nutshell, fiction is not separable from ecological disasters. The ecological problems cannot be studied in isolation from the social fabric which consequently influences and reshapes the ecosystem. *Flight Behavior* is a novel which exhibits climate change crisis and its implications on a large scale. It is a hybrid of the interaction between man and nature. Kingsolver demonstrates climate change as an entangled issue reflecting the complexity of contemporary life. Accordingly, new critical approaches have to be adopted to explore the interdisciplinary nature of climate change. More researches can be presented through an ecosocialist perspective; therefore, a profound analysis of the representation of the rift in the ecosystem, disintegration of social interaction and world conflict will be clarified. Further research can be conducted on the exquisite language of *Flight Behavior* and the implications of intermingling scientific truth and Biblical allusions in the representation of climate change .

## Notes

.1Anthropocene is heralded as a term exhibiting a new geological era shaped by human beings' activities which alter the ecosystem and endanger man's aspiration for sustainable life. It is a term used in science and introduced to literature under the umbrella of environmental studies and more specifically climate change literary works.

.2Pippa Marland (2013), in her article "Ecocriticism", distinguishes four waves of Ecocriticism. The four waves demonstrate literature's different approaches to nature/ environment. The first wave approaches nature as sublime and sacred through showing a disparity between the country and the town as a consequence of industrial expansion. The second wave is a controversial one as critics are divided between giving priority to environmental issues and then mend social problems or handle social injustices and then turn to the environmental problems. The third wave is the global perspective to the sustainability of both environment and nature through the shared destiny of human beings and the belief that environmental disasters do not have boundaries. The fourth wave focuses on the environment's impact on human body.(868–846)

.3One category of climate change novels takes place in present time exhibiting contemporary catastrophes like *Flight Behavior*. T.C. Boyle's *A Friend of the Earth*, which presents a world destroyed by floods and drought, is another example of climate change novel taking place in present time. Another category of climate change novels takes place in the future or near future. These are dystopian representations of catastrophic climate change and other environmental disasters. *The Bone Clocks* (2015) by David Mitchell presents an account of the ethics that govern human beings' relationship with their planet, and the novel is set in 2043. Paolo Bacigalupi's *The Windup Girl* (2010) is another example which renders a futuristic vision of Bangkok under the effects of climate change (See Johns-Putra)

**Works Cited**

- Angus, Ian. "Climate Change, Poverty, and Butterflies." Review of Flight Behavior. *Climateandcapitalism.com*. 3 Dec. 2012. Accessed. 22 Nov. 2017.
- " . ---Marx and Metabolism: Lost in Translation?" *Climateandcapitalism.com*. 1 May. 2018. Accessed 10 Oct. 2018.
- " . ---When Did the Anthropocene Begin...and Why Does It Matter?" *Monthly Review*. vol. 67, no 4, 2015, pp. 6-7, DOI: 10.14452/MR-067-04-2015-08\_ 1. Accessed 3 May, 2018.
- Bensaid, Daniel. *Marx for Our Times: Adventures and Misadventures of a Critique*. Verso, 2002 .
- Boyle, T. C. *A Friend of the Earth*. Penguin Books, 2001 .
- Browning, Dominique. "The Butterfly Effect 'Flight Behavior,' by Barbara Kingsolver." *The New York Times*. 9. NOV. 2012. [www.nytimes.com](http://www.nytimes.com). Accessed 18 Jan. 2018.
- Buell, Lawrence, et al. "Literature and Environment." *The Annual Review of Environment and Resources*. 1. Aug. 2011. pp. 417- 440, doi: /10.1146 annurev-environ-111109-144855. Accessed 16 Aug. 2017.
- Burkett, Paul. *Marxism and Ecological Economics: Towards a Red and Green Political Economy*. Brill Academic Publishers, 2006 .
- Burton, Ian and Robert W. Kates, "The Great Climacteric, 1798–2048: The Transition to a Just and Sustainable Human Environment." *Geography, Resources and Environment*, vol. 2, edited by Robert W. Kates and Ian Burton. U C P, 1986, pp. 339-361.
- Caudwell, C. *Illusion and Reality*. Lawrence and Wishart, 1966.
- Charles, Ron. "Book World: Barbara Kingsolver's Novel Approach in 'Flight Behavior.'" *The Washington Post*. October 30, 2012. [Www.washingtonpost.com](http://Www.washingtonpost.com). Accessed 17 May 2017.
- Clark, Brett and John Bellamy Foster. "Marx's Ecology in the 21st Century." *World Review of Political Economy*. vol. 1, no. 1 Mar. 2010. JSTOR: 41931871. pp. 142-56. Accessed 15 May 2017.
- Clark, Timothy. "Some Climate Change Ironies: Deconstruction, Environmental Politics and the Closure of Ecocriticism." *The Oxford Literary Review*. 32.1 (2010) pp. 131-149.
- Cuddon, J. A. *A Dictionary of Literary Terms and Literary Theory*. Andre Deutch Ltd, 2013 .
- David, Sophia. *Eco-Fiction: Bringing Climate Change into the Imagination*. June 2016. Exeter, PhD dissertation. [ore.exeter.ac.uk/repository/handle/10871/24331](http://ore.exeter.ac.uk/repository/handle/10871/24331).
- Dickens, Peter. *Society and Nature: Changing our Environment, Changing Ourselves*. Polity Press, 2004 .
- Eagleton, Terry. *Marxism and Literary Criticism*. Routledge, 1976.

Foster, John Bellamy. "The Great Capitalist Climacteric: Marxism and "System Change Not Climate Change." *Monthly Review*. vol. 67, no. 6 Nov. 2015 .

" .---Marx and the Rift in the Universal Metabolism of Nature." *Monthly Review*. vol. 65, Issue 07. Dec. 2013. [monthlyreview.org/2013/12/01/marx-rift-universal-metabolism-nature/](http://monthlyreview.org/2013/12/01/marx-rift-universal-metabolism-nature/)

" . ---Marxism in the Anthropocene: Dialectical Rifts on the Left." *International Critical Thought*. 2016, vol. 6, no. 3, PP. 393–421.

" . ---Marx's Ecology" *Materialism and Nature*." *Monthly Review Press*, 2000. PP. 141-289

" . --- Marx's Theory of Metabolic Rift: Classical Foundations for Environmental Sociology." *The American Journal of Sociology*, 1999. 105 (2) pp. 366-405 .

Foster, et al. *The Ecological Rift: Capitalism's War on the Earth*. *Monthly Review Press*, 2010 .

Ghosh, Amitav. *The Great Derangement: Climate Change and the Unthinkable*. *Penguin Books*, 2016 .

Gustafsson, Karin M. et al. "The Monarch Butterfly through Time and Space: The Social Construction of an Icon." *Bioscience*. June 2015. vol. 65, No. 6. PP 612-622.

Handlon, Denise. "Butterflies: Symbols of Life and Hope." [owlcation.com/social-sciences/Butterflies-Symbols-of-Life-and-Hope](http://owlcation.com/social-sciences/Butterflies-Symbols-of-Life-and-Hope). January 11, 2018. Accessed 20 Nov, 2018.

Hawkes, Logan. "Flight of the Butterflies: The Annual Adventure." [mexicolesstraveled.com/monarch.html](http://mexicolesstraveled.com/monarch.html). Accessed 22 Nov, 2018.

Hawkins, Berndant T. "Charged With Resistance": An Ecocritical Reading of Barbara Kingsolver's *Prodigal Son* and *Flight Behavior*. 2015. Appalachian State U, MA thesis. [libres.uncg.edu/ir/asu/f/HawkinsTHESIS.pdf](http://libres.uncg.edu/ir/asu/f/HawkinsTHESIS.pdf). Accessed 19 July, 2017

Holmes, David. "Karl Marx and Climate Change." *The Conversation*. March 27, 2014. Accessed 13 Oct. 2017.

Horton-Cook, Elizabeth. "Interdependence and Interconnectedness in Barbara Kingsolver's Fiction: Self-Revelations and Thriving Relationships Contingent Upon Connection to Nature in *The Bean Trees*, *The Poisoned Bible*, *Prodigal Summer*, and *Flight Behavior*." pp. 55-69. [www.lagrange.edu/resources/pdf/citations/2014/08\\_Horton-Cook\\_English.pdf](http://www.lagrange.edu/resources/pdf/citations/2014/08_Horton-Cook_English.pdf). Accessed 15 July, 2017 .

Horsosoz, William. *The Crisis of Responsibility: Man as the Source of Accountability*. *University of Oklahoma Press*, 1975.

Iovino, Serenella and Serpil Oppermann. Eds. "Introduction: Stories Come to Matter." In *Material Ecocriticism*. *Indiana University Press*, 2014 .

Johns-Putra, Adeline. "Borrowing the World: Climate Change Fiction and the Problem of Posterity." [www.researchgate.net/publication/322851010](http://www.researchgate.net/publication/322851010). 1 Feb. 2018. Accessed 21 Nov. 2018.

“ . ---Climate Change in Literature and Literary Studies: From Cli-Fi, Climate Change Theater and Ecopoetry to Ecocriticism and Climate Change Criticism.” Wiley Interdisciplinary Reviews: Climate Change 7 (2), 2016. pp. 266-282. Accessed 17 May, 2017

Kingsolver, Barbara. *The Complete Fiction: The Bean/Homeland and Other: The Bean Trees / Homeland and Other Stories / Animal Dreams / Pigs in Beans*. Harper Perennial, 1995 .

. ---Flight Behavior. Harper Collins Publishers, 2012 .

. --- . ---Interview with Diane Rehm. “Barbara Kingsolver: Flight Behavior.” [dianerehm.org/shows/2012-11-08/barbara-kingsolver-flight-behavior](http://dianerehm.org/shows/2012-11-08/barbara-kingsolver-flight-behavior). Accessed 5 May. 2018.

LeMenager, Stepaine. [theconversation.com/cli-fi-literary-genre-rises-to-prominence-in-the-shadow-of-climate-change-25686](http://theconversation.com/cli-fi-literary-genre-rises-to-prominence-in-the-shadow-of-climate-change-25686). 18 Sept . 2014 10.50am SAST. Accessed 16 July, 2017.

Lievens, Matthias and K.U.Leuven. “Towards an Eco-Marxism.” [www.academia.edu/1865642/Towards\\_an\\_Eco-Marxism](http://www.academia.edu/1865642/Towards_an_Eco-Marxism). pp. 1-25 .

Lin, Yuanhong. “Multidimensional Analysis on Forming of Pepper’s Eco-socialism.” *International Journal of Arts and Commerce*. vol. 5. no. (3. April 2016) pp. 20-25.

Longinus. “From On Sublimity.” *The Norton Anthology of Theory and Criticism*, 2nd ed. Ed. Vincent B. Leitch. W.W. Norton &Company, 2010. pp. 133-154 .

Löwy, Michael. *Ecosocialism: A Radical Alternative to Capitalist Disaster*. Haymarket Books, 2015.

Lukács, Georg. *Conversations with Lukács*. MIT Press, 1974 .

. ---A Defence of “History and Class Consciousness”: “Tailism and the Dialectic. Translated by, Esther Leslie. Verso 2000.

Marx, Karl. *Capital, Vol. I*. Edited by Frederick Engels. Translated by Ben Fowkes. Penguin Books, 1976.

. ---Capital, Vol. III. Translated by David Ferbach. Penguin Books, 1991.

. ---The Eighteenth Brumaire of Louis Bonparte, Karl Marx/Friderich Engels, *Collected Works*. Vol. II. International Publisher, 1979.

. ---Grundrisse: Foundations Of the Critique of Political Economy. Translated by Martin Nicolus. Vintage Books, 1973 .

Marx, Karl and Frederick Engels, *Collected Works*, Vol. 30. International Publishers, 1975

Marland, Pippa. “Ecocriticism.” *Institute of Humanities and Creative Arts, University of Worcester, UK*. [wiley.com/doi/pdf/10.1111/lic3.12105](http://wiley.com/doi/pdf/10.1111/lic3.12105). pp. 846 - 868. Accessed 3 Nov. 2018.

Mattoni, Rudi. “Flight Behavior by Barbara Kingsolver.” *The Journal of Research on the Lepidoptera*. vol. 46: 23. [archive.org/stream/journalofresear462013lepi/journalofresear462013lepi\\_djvu.txt](http://archive.org/stream/journalofresear462013lepi/journalofresear462013lepi_djvu.txt). Accessed 6 Apr., 2018 .

- Mcalpin, Heller. "Flight Behavior' Weds Issues To A Butterfly Narrative." 6 Nov. 2012. [www.npr.org/2012/11/06/164102081/flight-behavior-weds-issues-to-a-butterfly-narrative](http://www.npr.org/2012/11/06/164102081/flight-behavior-weds-issues-to-a-butterfly-narrative) . Accessed 10 Apr., 2018 .
- Moore, Jason. W. "Toward a Singular Metabolism." In *Grounding Metabolism*, eds. D. Ibanez and N. Katiskis. Harvard University Press, 2014, pp. 10-19.
- Parsons, H.L. *Marx and Engels on Ecology*. London: Greenwood, 1977.
- Qotd.org.<http://www.qotd.org/search/search.html?aid=588?src=BT&page=5> : 4 Apr. 2017. accessed 9 Aug. 2017
- Savi, Melina Pereirs. "The Anthropocene (and) (in) the Humanities Possibilities for Literary Studies." *Estudos Femenistas*, vol.25. No. 2 , 2017. PP. 945-959. [www.jstor.org](http://www.jstor.org)/accessed 2 Aug. 2017 .
- Schmidt, Alfred. *The Concept of Nature in Marx*. London: New Left Books, 1971.
- Stalin, J.V. "Dialectical and Historical Materialism." Sept. 1938. [www.marxists.org/reference/archive/stalin/works/1938/0.htm](http://www.marxists.org/reference/archive/stalin/works/1938/0.htm). Accessed 17 Oct. 2017.
- Steffen, Will, et al. "The Anthropocene: Conceptual and Historical Perspectives." *Philosophical Transactions of the Royal Society A* 369 (2011): 842-67.
- Tanuro, Daniel. "Marx's concept of social metabolism and Ecosocialist Responses to Climate Change." 2 Dec. 2006. [www.europe-solidaire.org/spip.php?article4508](http://www.europe-solidaire.org/spip.php?article4508). Accessed 15 June 2017.
- . ---Interview with Alexandre Araujo Costa. *International Viewpoint - Online Socialist Magazine*, 13 Mar. 2017. Accessed 19 Dec. 2017.
- Wagner-Martin, Linda. *Barbara Kingsolver's World: Nature, Art, and the Twenty-First Century*. Bloomsbury Publishing Inc., 2014 .
- "What is Ecosocialism?" [systemchangenotclimatechange.org](http://systemchangenotclimatechange.org). Accessed. 10 Aug. 2017.
- Wilde, Oscar. "The Soul of Man Under Socialism 1891." [www.marxists.org/reference/archive/wilde-oscar/soul-man/](http://www.marxists.org/reference/archive/wilde-oscar/soul-man/) Accessed 12 Oct. 2017 .