ADDIS ABABA UNIVERSITY

COLLEGE OF SOCIAL SCIENCE

DEPARTMENT OF PHILOSOPHY

ALDO LEOPOLD'S LAND ETHIC AND ITS IMPLICATIONS FOR ENVIRONMENTAL CONSERVATION

A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES OF ADDIS ABABA UNIVERSITY IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS IN PHILOSOPHY

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Abstract

In this thesis I employed a conceptual exploration and analysis of Aldo Leopold's land ethic (LE) to reveal my major assumption that the LE has practical and all inclusive implications to conserve the natural environment across the world by reducing destructive human-made interventions. The main objective is to reduce destructions of endangered species by promoting land conservation. I also investigated that the LE has positive contributions to create nature-friendly attitude among humans. Accordingly, this thesis is designed to critically explore and analyze the LE's implications for the peaceful human-nature relationships by ecologically considering human species as plain members of nature without giving any privilege to humans. I argue that the LE is a key to raise awareness about the operation of nature by employing holistic ethical investigations that presuppose ecologically and ethically grounded land conservation. The land ethical conservation is significantly rooted in humans "enlightened self-interest" to the land that is essentially realized by the "ecological conscience", the conscience to incorporate nature in ethical discussion. I also found that the LE has constructive and practical contributions for land conservation. Specially, based on the African idea of communal view of nature, I identified some common points between LE's community concept and that of African communal view of nature. Accordingly, in Africa, nature is identified from "eco-bio-communitarian" point of view, which entails a peaceful interaction between all members of nature. Thus, I recognized that the fusion of LE and the African view of nature could imply constructive elements for a peaceful human-nature relationship. The thesis also specified basic lessons that environmental policy makers can learn from Leopold's LE. Accordingly, to address my objectives, I basically employed ecological and philosophical concepts such as the community concept, land health, the land pyramid, evolutionary development of ethics and society, holistic valuation of nature and proper conservation education. These conceptual elements are critically reviewed and analyzed from relevant literatures in line with the formulated problem of the study. Thus, in this thesis I used critical analysis, conceptual descriptions and synthesis.

***Key words**: ecological conscience, land community, land conservation, land ethic, land health, land pyramid, Leopold, nature.*

Acronyms

LE	Land Ethic
LH	Land Health
LP	Land Pyramid
NLEs	None Living Entities
SOP	Second Order Principle
SOP-1	Second Order Principle One
SOP-2	Second Order Principle Two

Definitions of Important Terms

The following terms are important terms that are used in the context of the thesis:

Conservation: means the protection and care of natural resources.

Conservation biology: means the biology that preserves genetic variation in plants and animals.

Ecology: means the study of organisms and the study of the relationships between living organisms and their interactions with their natural and developed environment.

Environmental Fascism: means the sense that individual rights are subordinated to the interests of the greater wholes of which they are an integral part (Keulartz, J. 1995, p.8).

Ethical Holism: in refers the ethical consideration of the whole ecosystem, or land community (Desjardins, J. 1999, p. 217).

Evolution: the theory of gradual development process from earlier forms by which all species develop from earlier forms.

Natural selection: means the Darwinian concept that indicates process of adapting the environment to survival in which organisms best suited to survive in their environment and achieve greater reproductive success, there by passing advantageous genetic characteristics on to future generations.

Metabolism: refers to the series of processes by which food is changed into the energy and products needed to sustain life.

Extinction: refers to the gradual process by which a group of related organisms dies out.

Note: The above definitions of terms with the exclusion of the definitions of 'environmental fascism' and 'ethical holism' are adapted from: Encarta Dictionaries English Dictionaries 2008[DVD] Redmond, WA: Microsoft Corporation.

CHAPTER ONE

INTRODUCTION

1.1. Statement of the Problem

Philosophical theories and discourses on environment have enabled us to perceive their legacies and implications for various environmental problems. Environmental problems nowadays are harming and threatening all species on the earth. For instance, the percentages of threatened species in the world in 2004 include "birds 12%; plants 3%; mammals 20%; insects 0.06%; amphibians 4%; reptiles 4%; crust oceans 1% and fishes 3%" (Beder 2006, p. 24). Furthermore, human generated environmental problems have been causing "warmer" climate in the environment that humans have ever experienced; it has aggravated extermination of the varieties of life forms (Jamieson 2008, p. 6). Hence, the dangers of such species extinctions and other environmental damages are critical and need urgent way out.

Accordingly, intellectuals, and "practitioners" should explicate and reclaim Aldo Leopold's legacies in various environmental inquiries (Bradley & Huffaker 2002, p.xii). It is true that Leopold (1887- 1948) is one of the greatest and thought provoking environmental thinkers of the twentieth century who contributed foundational concepts for different fields of environment. Although Leopold is not a philosopher, through his multifaceted work titled as "The Land Ethic", he supplies essential ethical concepts and perspectives to the land. Leopold's land ethic (LE) claims the moral valuation of the entire land so that there would be harmonious relationship between humans and the land. Accordingly, the LE recognizes the ethic of proper human-land relations as one indication of proper land conservation.

Nonetheless, dealing with environmental problems is not a new one, since there are other handling mechanisms of environmental crises and ruins. In this regard, the world communities

have already designed different policies and management systems to alleviate environmental problems. I claim that any effective and efficient conservation systems need to consult the LE. However, I reveal that the LE has not been adequately examined in terms of its practical implications and contribution for the conservation of natural environment. In this thesis, I decided to examine the practical connotations of the LE for conservation of natural environment all over the earth, since I concede that humans' practical moral concern for nature is not a matter of choice, rather it is a compulsory requirement. As John O'Neill articulates, "the best human life is one that includes an awareness of and practical concern with the goods of entities in the non human world" (2001, p.170). Accordingly, the natural environment highly requests practically oriented thoughts such as the LE to be rescued from human-made challenges.

Furthermore, as Andrew Light argues, complete and responsible form of environmental philosophy should take into account public elements and should emphasize on clear policies (2005, p.647). I believe that such policies importantly demand environmental conservation as a significant element. Thus, I claim that the ethical inquiries of natural environment such as Leopold's LE would significantly supply important and practical elements for environmental conservation. Since environmental decision-makers and managers need to know about how individuals, local groups and governments react to environmental challenges and opportunities (Barrow 2003, p.2), then the LE could be one possible way to view and assess such reactions and design appropriate responses.

In short, it is remarkable that the realization of harmonious human-land relationship can be examined from the well-being of the land. In this respect, I strongly believe that the conceptual perspectives of the LE could extensively contribute for environmental conservation, which in effect implies land friendly approaches to reduce land harms. Accordingly, exploring and analyzing the land ethical implications for land conservation is a central problem area of my thesis.

1.2. Objectives of the Study

1.2.1. General Objective

The general objective of the thesis is to examine and analyze the practical implications and possible contributions of Leopold's LE for the conservation of natural environment. Thus, the study attempts to build philosophical connection between the LE and the conservation of nature.

1.2.2. Specific Objectives

The study has the following specific objectives:

- to analyze Leopold's LE and its contributions for land conservation;
- to explore Leopold's LE as a philosophical alternative to mainstream Western conservation theory;
- to show the land ethical dimensions of the land health (LH);
- to uncover the essentiality of the LE to generate and adapt nature friendly values in human society;
- to critically examine conceptual pros and cons of Leopold's LE;
- to explore the similarity between the LE and African conception of nature and
- to analyze the implications of Leopold's LE to the contemporary conservation trends of Ethiopia.

1.3. Research Questions

The study is mainly philosophical. Accordingly, I have framed the thesis by raising critical research questions in order to achieve the proposed objectives. Some of the major research questions include:

1. How does the LE contribute to land conservation?
2. How does the LE develop holistic land conservation?
3. What factors make the LE special in relation to other non-anthropocentric environmental thoughts?
4. Who influenced Leopold's LE?
5. What are the fundamental challenges of the LE?
6. What are the conceptual similarities of the LE and African view of nature?
7. What lessons can the current Ethiopian environmental policy makers learn from the LE?

1.4. Conceptual Framework

In this thesis, I give due attention to the theoretical structures that align with Leopold's LE and holistic land conservation. Accordingly, Darwinian evolutionary account of ethics is a major part of these theories. When it comes to the LE, evolutionary principles start to bond the whole land system. Hence, it advances the gradual interactive progress that obligates humans to morally consider the entire land. Ultimately, evolution is a foundational edge for the LE and land ethical perspective of conservation.

In addition, I use basic ecological theories and concepts in order to show, for instance, Leopold's ideas of land pyramid (LP), land health (LH), and energy flow of the LP. In this respect, for Leopold, ecologically normal flow of energy in the land implies the health of the land and humans have moral obligation to foster LH. Hence, LE's idea of conservation strongly involves ecological theories and principles.

In fact, there are different views on the LE. Thinkers such as John Baird Callicott (1999) and Julianne Lutz Newton (2006) advocate the LE as holistic ethic while thinkers such as Bryan Norton (2004) consider the LE as human-centered ethic. Nonetheless, I develop my thesis in line with the ideas of supporters of the LE so that I will address the proposed objectives.

1.5. Methodology of the Study

The thesis has used qualitative study approaches in line with the research questions that require "explanation or understanding of social phenomena and their contexts" (Richie & Lewis 2000, p. 4). The study also applied interpretive and descriptive approaches for the analysis of information since the study's information is solely tied with textual ideas, concepts and theories. Accordingly, various documents, books and reports were used to obtain ideas and concepts to develop the thesis. Therefore, the study mainly utilized qualitative data in order to answer the research questions through analysis, description, synthesis, and evaluation of ideas, concepts and theories. In other words, the study used different conceptual categorical themes that are manageable in line with the research questions to address the proposed objectives.

1.6. Significance of the Study

The study would have the following significance:

- It can raise awareness about the practical importance of the LE.
- Environmental policy makers can benefit from it and design environmentally friendly policies.
- It contributes to reduce the number of endangered species.
- It can help to engender nature-friendly attitudes.
- It can promote all inclusive environmental conservation.
- It can serve as a source of information for further researches in environmental issues.

1.7. Scope and Limitations of the Study

The scope of the thesis covers the discussion on fundamental theoretical foundations of the LE and some reactions of environmental philosophers for the LE. In this respect, chapter two

examines the analysis of the entire original version of Leopold's "The Land Ethic." In chapter three the thesis examines the theories of some environmental philosophers who reacted on the LE in reference to the idea of land conservation. In this regard, the views of John Baird Callicott, Julianne Lutz Newton, Bryan Norton and Maine Curt are examined. In this chapter, the thesis also discusses basic challenges and quandaries of the LE, and suggests some areas for further investigations.

In addition, the thesis briefly discusses the conceptual similarities between African view of nature and the LE. It also briefly derives some lessons of the LE for environmental policy makers and managers by focusing on the Ethiopian case. The last chapter concludes the thesis.

Lack of original sources and literature and financial problems are the main limitations that the study faced.

CHAPTER TWO

ALDO LEOPOLD'S LAND ETHIC

> *The analysis of the cultural attitudes and values ultimately responsible for environmental crises, and the formulation of cogent alternative attitudes and values that would ground a more harmonious relationship between human beings and their natural environment was a task for philosophers. And, so, environmental ethics was born (Callicott and Nelson 2004, p.3).*

2.1. Introduction

Aldo Leopold's "The Land Ethic" is a short but conceptually dense, systematic and holistic work. The LE has a central place in his major work titled *A Sand County Almanac: A Sketch Here and There* that was published in 1949. The LE as presented in this masterpiece explores holistic moral consideration of the land. As one account of ethical holism, the LE extends moral value from individuals to the whole. This reveals a holistic account of environmental ethics that partly contributes to environmental policies (DesJardins 1999, p. 217 and Callicott 2001, pp. 208 & 217). Accordingly, I believe that land conservation chiefly appeals to the conceptual basics of Leopold's LE.

Leopold (1949) classifies the LE into eight dense subsections that are sequentially titled as "The Ethical Sequence"; "The Community Concept"; "The Ecological Conscience"; "Substitutes for a Land Ethic"; "The Land Pyramid"; "Land Health and the A-B Cleavage" and "The Outlook" respectively. In this chapter, I primarily analyze the whole conceptual structure of the LE in line with their important for the conservation of natural environment. In doing so, I also state my critical reflections. In short, this chapter focuses on the implications and conceptual derivations of the original version of the LE.

2.2. Conceptual Exposition of "The Land Ethic"

2.2.1. The Ethical Sequence

In this section Leopold underscores the essentiality of ecological evolution for the understanding of ethical extension. Leopold believes that moral value does not merely designate ethical relations among humans. Rather, he regards ethical extension as an evolutionary process that is described both ecologically and philosophically. So, the ethical sequence describes evolutionary extension of ethics from relations between human individuals to human-nature relationships. In this respect, Leopold notes two definitions of ethic that have alike functions. The definitions are: "An ethic ecologically is the limitation of freedom of action in the struggle for existence… and a separation of the social from anti-social conduct" (1999, p. 219). Based on these definitions, Leopold claims to reduce human's position of domination on nature since he believes that "the thing [including human species] has its origin in the tendency of interdependent individuals or groups to evolve modes of co-operation" (1999, p. 219).

I detect some basic issues from both definitions. In the first definition Leopold conceptually reduces human's dominance on nature and other species of the land. In other words, this definition entails the need of restriction on human's free competition for existence. However, the degree of reduction is debatable since humans are endowed with some distinctive potential compared to other species on the land. The complicated and systematic nature of humans enables them to make changes and dominate nature through various forces. Here, I am not claiming this position as an appropriate. Rather, I intend to show the fact that humans dominate nature by virtue of their genuine features compared the remaining species. Furthermore, how and in what way the first definition does reconcile human being's unlimited interest on nature with the interest of other species?

I think in the second definition, Leopold could not adequately explicate and distinguish what conduct is socially acceptable and what is not. Accordingly, I believe that the conceptual connotation of the definition cannot efficiently address a potential challenges from relativists. This is to indicate that moral judgments of conducts and actions vary from society to society.

Some actions are morally justifiable in one society and unjustifiable in another. In addition, I would like to raise the following critical questions: what kind of human-nature relationship is socially acceptable regardless of the variations in moral values of societies? What type of social–antisocial distinctions grant holistic and universalistic land conservation system? Is it even plausible to seek for holistic environmental conservation? I think Leopold's conception of ethics in his "The Land Ethic" could not easily deal with these challenges. Hence, I concede that the universal enclosure of Leopold's conception of ethics is questionable.

According to Leopold, humans do not have a right to dominate nature since they are equal members of the inter-reliant individuals and groups. Thus, ethic ought to be projected in accordance with the inter-reliant mechanisms that develop some form of co-operations between members of the community. The complexity of such co-operative mechanisms may increase in line with "population density" and "efficiency of tools" (1999, p. 219). I agree with this view, although I believe that the extent of interdependence cannot exhaustively reduce the place of human species to the status of simple member in nature.

According to Leopold, there are three ethical sequential relationships. The first signifies the relation between individuals; the second connotes relations between individuals and society democracy blends them; and thirdly, the relationship between humans and the land. Leopold as an environmental ethicist emphasizes on the third sequence, which was only identified during his time as a mere economic relationship. The economic relation regards humans as "privileged" but not "obligated" to the land. This perspective considers land as a "property" of humans like any other properties and humans should consider it likewise (1999, p.219).

I think Leopold's intention is to show how the conception of land as a "property" reduces the sense of human's obligation toward the land because the economic human-land relationship merely considers human's economic benefit but not the well-being of the land. Nevertheless, Leopold did not hold to continue the economic human-land relationship. Rather, he looks land from different point of views, which I discussed in the later parts of this chapter. Now I raise some questions for the advocates of economic human-land relationships. Would it be possible to have human-land relationship without obligations? Is it not the economic conception of land that impairs the well-being of other species of the land? Is it not logically contradictory to claim

economic benefit from land for the well-being of human and to seek the well-being of the land given that the economic benefit itself depends on the goodness of the land? Is it not the case that the more one assumes land as economic property the more she/he is responsible for the reduction of land's welfare? I think that these questions partially demote the contention of the mere economic human-land relationship.

Actually, Leopold concedes that human-environment relationship is "evolutionary possibility and ecologically necessary" (1999, p. 219). From this viewpoint, Leopold believes that societies of his time were unable to recognize the wrongness of their conviction towards nature, although some individuals opposed the damaging features of their beliefs to nature. In other words, societies behave wrongly in their relation to land. Nonetheless, Leopold conceives the conservation movement of his time as an important turning point to end the negative convictions toward the environment and to care for the land (1999, p. 219).

Furthermore, Leopold concedes that the ethics he projected perhaps serve as a way to meet the ecological situations. In fact, Leopold refers to these situations as new and complex and so, the reaction on these situations was a delayed task. Because of such delay the course of social convenience would not be visible for the "average individuals." His idea is that average individuals of his time were not aware the way of social convenience due to the complications in the ecological situations. Nonetheless, Leopold points out that the way to meet such ecological situations for an individual could be possible by using "animal instincts" as a guideline so that an ethic connotes the "community instinct" (1999, p. 219). From this viewpoint, I infer that the collection of individual animal instincts can signify the base of ethics that Leopold proposed in the LE.

2.2.2. The Community Concept

On the section that deals with the community concept, Leopold claims that the individual is a component of a 'community' as inter-reliant element. In the community, human instincts enable human species to claim their competitive place in the community. On the contrary, Leopold claims that the ethic enables humans to co-operate with other members in order to uncover

whether there is a place for them to compete in the community. The inference is that "human instincts" claims to secure human's place in the community while ethics maintains humans to find out whether there is a place in the community to compete. Nonetheless, Leopold confirms that in evolutionary terms, Homo sapiens struggle for the realization of their place on the land in particular and in nature general.

Accordingly, from instinct based ethics of Leopold, I can derive two claims. On the one hand, humans with instincts endeavor to secure their place in the community before realizing whether there is a place to "struggle" or not. On the other hand, human's ethics primarily helpful to show whether there exist a competing place for humans alone in nature. Thus, I believe ethics is prior and essential for the recognition of human's proper place in nature and for the extension of moral value to the entire nature. That is why Leopold designs the LE to extend the limit of the land community. In this regard, he conceptualizes land broadly to comprise "soil, plants, animals" and even "landscapes" (1999, p.219). Thus, Leopold's contention is to identify ethical position of humans in the land community, which is essential to comprehend how the whole land community functions and what duties humans would have to conserve the naturally complicated function of the land community.

Leopold not only extends the boundary of the land but also offers the right to continual existence of all species of the land, although he confirms the inevitability of changes, management and exploitation of the land. Accordingly, he counters the view that human species are "conquerors" or subjugator of land and other species. Leopold believes that this view is "self-defeating." Because, it does not answer to whom and what is "valuable" and "worthless" in the community. Indeed, the LE changes the position of *Homo sapiens* from subjugators of the land-community to "plain member and citizen" of it (1999, p. 219). Accordingly, ecologically, he argues that humans are merely members of the biotic group in which the biotic people-land relationship incites the understanding of human endeavored historical events (1999, p.220). For Leopold, human interaction with nature is important for the derivation and comprehension of human historical events.

Leopold also rejects the common view that only "scientists" could know what makes the land community worthwhile. For him, scientists could not have adequate knowledge of the land community and its function because the biotic community is a complex and multifaceted

concept. Thus, for him, the capability of science and scientists in dealing with land community is limited and he adds ethics to efficiently inquire about the "biotic community" (1999, p. 220). In addition, ethics can serve as a means for an integrative mechanism of all members of the biotic community that reveals the conservation of the entire natural land system. The implication is that promoting land conservation is not only the task of science but also it requires various integrative conceptual forces including ethics.

2.2.3. The Ecological Conscience

In this subsection Leopold mainly explains conservation as a peaceful situation of the relationship between humans and the land, although he believes that the pace of conservation during his time was not fast enough. In fact, for him, "pieties" and conventional rhetoric are possible mechanisms to enhance the rapidity of the then conservation. This implies that Leopold also promotes emotional forces for the ecological conservation of nature. In addition, Leopold believes that before his time these emotional mechanisms could not bring significant practical progress in meeting conservation objectives. To resolve such difficulties he like that of most other thinkers suggested the need of intensification and increase in efficiency of "conservation education" (1999, p. 220).

However, the content of conservation education is hard to situate briefly, although Leopold tried his best to spell out. Accordingly, he states that "the content is substantially this: obey the law, vote right, join some organizations, and practice what conservation is profitable on your own land; the government will do the rest" (1999, p. 220). In fact, according to Leopold, this kind of content easily reinforces valuable objectives of conservation since "it defines no right or wrong, assigns no obligation, calls for no sacrifice, implies no change in the current philosophy of values…it urges only enlightened self-interest"(1999, p. 220). Hence, for Leopold, all these factors make this kind of conservation education easy to solve conservation problems and project valuable convictions towards the land.

Leopold takes the 1930's trends of Southwestern Wisconsin in the USA as a model of conservation education. In this respect, he claims that effective conservation system and the

creation of nature friendly attitudes requires educating farmers before forcing them to make rules. Accordingly, he draws analytic case study on farmers of the "county" in Southwestern Wisconsin. He observes farmers of the county at the start supported curative practices to what benefit themselves and disregard what benefit the community. Incentives were given to farmers, although this failed to force them to make rules for their land utilization since there was the lack of education. Hence, the community could not support farmers to formulate rules for land use (1999, p. 221).

In the model community of Leopold, neither "education progress" nor "self-interest" grounded obligations did terminate natural resource deprivations. In other words, he believes that in 1937 the community was not free from "less soil, less healthy wood, and many floods" (1999, p. 221). Therefore, although education in the community prevailed, degradation of resources from land was not reduced and significant conservation improvements were not achieved. Thus, conservation obligations to land were not flourished in that sample community. Education and "self-interest" orientations merely enabled the community to develop better infrastructures such as school, churches and road in the community rather than developing obligation to land conservation (1999, p. 221). Accordingly, Leopold's idea is that the prevalence of such infrastructures was possible at the expense of the well-being of the land. Thus, Leopold's land conservation demands obligations that transcend the "economic self-interest."

Moreover, Leopold realizes that "land use ethics" of his time is analogous with "social ethics" of the previous century since both are principally shaped by "economic self-interest" rather than the "enlightened self-interest" (1999, p. 221). In other words, farmers were utilizing land merely in terms of economic benefits that contrasts the enlightened self-interest view of the land. Hence, farmers considered land instrumentally and valued as long as it contributes for human's economic return. In contrast, Leopold counters such conception of land by claiming that the owners of the land need to develop obligations that are originated from the enlightened self-interest. Accordingly, he argues that obligation towards land and "ecological consciences" are intimately allied. In this regard, Leopold states "obligations have no meaning without conscience, and the problem we face is the extension of the social conscience from people to land" (1999, p. 221). This point explicitly indicates Leopold's extension of value from human

community to the land community, although he confirms that such extension of "social conscience" is a challenging task.

Leopold believes that intellectual prominence is a necessary condition to make significant change in ethics. Accordingly, he articulates, "no important change in ethics was accomplished without an internal change in our intellectual emphasis such as loyalties, affections, and convictions" (1999, p. 221). However, Leopold remarks that during his time conservation was not well-suited with intellectual foundations of conducts. Here, he thinks that *philosophy* and *religion* are the best situations of intellectual elements in which effective and ethical conservation system should rely on. In short, the application and reinforcement of intellectual elements significantly determine the ethical human-nature relationship and proper land conservation. Therefore, conservation should meet intellectual requirements (1999, p. 221).

2.2.4. Substitutes for a Land Ethic

In this part Leopold describes historical mechanisms that function in the place of the LE. Leopold's idea is to portray the extent of substitutes to the LE resemble the LE itself to address historical conservation problems. Accordingly, Leopold's intention is to examine the level and relevance of alternatives for LE by analyzing the level that economic valuation of the land "substitute" the LE. In other words, Leopold attempts to discover appropriate measures for land conservation. Leopold speaks metaphorically that giving "stone" for a problem that demands "bread" is wrong approach. Likewise, proper alternatives should be explored to develop the conservation of the natural environment.

Accordingly, Leopold confers that an entire reliance of conservation system on human economic benefit is implausible perspective of conservation since there are some members of land community that have no economic value. For him, economic value refers to the capability "to be sold, feed, eaten, or situate to economic use" (1999, p. 221). Thus, conservation that merely centers on economic evaluation of biotic members would exclude members that have no economic value. Nonetheless, Leopold mentions some native species in Wisconsin such as "wildflowers" and "songbirds" were protected from harms not because they had economic value

but they were essential to protect humans from insects. Indeed, for Leopold, all members of the community including those with no economic value should have the right to persist because ecologically, they are also important components of the natural environment. Besides, they are means of "stability" and "integrity" of the biotic community. The implication is that Leopold disregards anthropocentric and instrumental valuation of the land. Thus, the subsistence and valuation of the non-economic biotic members of the land is indispensable apart from their economic advantage or disadvantages to human species. Therefore, these members continue to exist as a matter of sustaining the "biotic right" of all members (1999, p. 221).

Accordingly, Leopold believes that "predators" have no special right over the other members of the biotic community. No species in a community has the right to displace others from their equal right to survive in the land. Leopold maintains that an equal status for entire members is an "enlightened" and rational view, although during his time this view was not transformed into practice and it was on "talk stage" (1999, p. 222). Therefore, Leopold's intention is to bring the LE to practically relevant stages.

Leopold also describes that the economic valuation of resources of the land claims species of trees which are not time consuming to grow and have "high sale value." On the contrary, he mentions some trees such as "white cedar, tamarack, cypress, beech, and hemlock" (1999, p. 222) were expelled from the economic valuation. Nonetheless, Leopold believes that in Europe the ecological development brought chances for the preservation of non-economic trees like "native forest community."As a result, native species reasonably but not economically became the subject matter of preservation (1999, p. 222).

However, I logically derive that such conception of native trees is a short-term possibility, which does not avoid the economic valuation of the land. Because, it is logically inevitable that ecological decline would reduce the status of non-commercial trees from being native existence. In other words, as an ecological advancement lead to preserve non-native trees as native ones, in the same way ecological decline would lead to the reverse. Therefore, simple ecological advancement could not assure the long-term conservation of trees as native members of the forest.

I advocate that effective conservation system is possible when both economic and native conceptions of land are undertaken. However, as I stated in the later part of this chapter, Leopold does not claim the interpretation of native tree species merely from ecological encroachment of the forest. Rather, his intention is simply to describe the then situation in Europe. In fact, Leopold regards native trees as ecologically crucial. For instance, some native species develop the soil fertility that preserve the fauna and flora of the land (1999, p. 222). Therefore, for Leopold, native species conservation also significantly realizes to the ecological roles of the remaining species of the land community.

Furthermore, for Leopold, sometimes like particular members, the whole biotic community may lack economic value. In other words, the absence of economic valuation could exist both in species and community levels, which he mentions "marshes, bogs, dunes, and 'deserts' " (1999, p. 222) as samples of uneconomic members of the community. Actually, he notes that conservation is also applicable for these communities though their preservation could have different forms compared to the economically valuable members. Accordingly, the non-economic constituents can be preserved in the form of "refuge, gravestone or parks" (1999, p. 222).

Nonetheless, Leopold thinks that governmental task of conservation to the non-economic land communities is difficult since usually they are mixed with more economically valuable private lands. Here, the idea is that it is difficult for the government to manage such mixed lands for the reason that these lands need to be demoted. Leopold prefers conservation of the larger lands than smaller and "scattered" lands. Therefore, according to Leopold, private land holders need to be "ecologically minded" with the intention of protecting species and enriching the diversity and beauty of the community (1999, p. 222).

Leopold also confirms that governmental ways of conservation are appropriate and "logical." In view of that, Leopold grants the normality of "government ownership, operation subsidy, or regulation…soil and watershed management, park and wilderness conservation, fisheries management, and migratory bird management" (1999, p. 222). He raises some critical questions regarding the development of governmental conservation by claiming to know the ultimate extent of conservation development.

In addition, Leopold wants to recognize the effects of government's "tax base" on conservation, and to grasp whether the "tax base" holds its own consequences that are related to land conservation. Here, Leopold's objective is to look at the conditions under which the "tax base" of the government could properly direct its consequences that potentially bring to the conservation of land resources. Additionally, Leopold insists on reaching the point at which conservation measures themselves could negatively affect the objectives of conservation. In other words, Leopold tends to identify the point at which "self-challenging" measures could happen from the planned conservation procedures which in effect influences land conservation. Leopold believes that the answers of these questions found in the LE or in any other motives that give more "obligations to private landowners" (1999, p. 222). Therefore, Leopold concedes that the realization of land "obligation" is essential to cultivate proper conservation principles.

Leopold also compares trends of conservation between the government and industrial landowners. Accordingly, industrial landowners could not present better and different options for land conservation apart from governmental measures and possession of the land. Meaning, the industrial landowners would consult government's values of land conservation. Nonetheless, Leopold does not deny the industrial landowners' small role in promoting conservation for their own lands, although it is economically self-oriented unlike that of governmental view of conservation. In other words, since the private industrial landowner is mainly economically molded, then she/he devises conservation procedures in terms of economic benefits.

Moreover, Leopold amusingly claims that the private landowner contributes for the good of the community as long as the action costs her/him money than intellectual efforts. To elucidate this point, for Leopold, the private landowners' good action to the community is more difficult when it needs intellectual efforts such as "forethought, open-mindedness, or time" than economic efforts (1999, p. 222). For, the industrial landowner, intellectual measures are more contentious than economic measures. Accordingly, Leopold claims the need of increasing financial support for governmental conservation organizations so as to promote proper land utilization by enforcing obligation to the landowners through education. Nonetheless, Leopold believes that these organizations were not able to cultivate the desired obligations, and that is why he articulates that "no ethical obligation toward land is taught in these institutions" (1999, p. 222).

I also agree with Leopold's idea of economic self-interest orientation of conservation as disturbed conservational view. Leopold counters such system because it discounts the right of the biotic constituents of land that have no economic value. However, these constituents are vital for the proper operation of the land community. The economic part of the community would not function without noncommercial elements. In short, the survival of the economically valuable biotic members solely depends on those without economic value (1999, p. 222). Thus, one can infer that the complete ecological activities of land community could be derived from the integration of all elements of the land community.

I agree with this view of Leopold, although I admit that such integrative recognition is not an easy task. In this regard, I think short-term view of environment has dominated the long-sighted conception of land. I counter the usual position that immediate reaction of land utilization involves *economic* direction rather than *rational* orientation of land conservation. Thus, profound education is important to engender integrative and comprehensive land conservation.

2.2.5. The Land Pyramid

In this section Leopold expresses that conceptual effect of ecological science on the "economic relationship to the land." To elucidate such relationships he is dictated by some mental picture of the land. Nonetheless, he believes that the economic link between species of the land community should be transformed to ethical integration that is entailed by what human "can see, understand, love, of otherwise have faiths in" (Leopold 1999, p. 223). Accordingly, conservation education should be molded in line with the land picture that claims the 'balance of nature.' Leopold believes that the "truer image" of the land mechanism is significantly found in ecology and he recognizes this image as the "Land Pyramid." The following figure summarizes his essential concept of the LP that is endowed with food chains and energy circulation system.

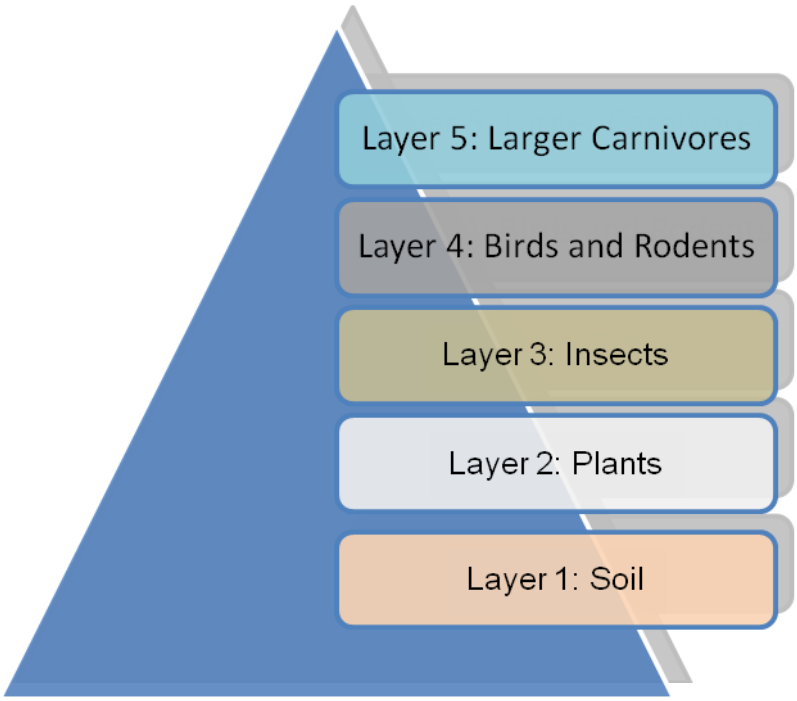

Figure 1. Ecologically molded Land Pyramid in which each successive layer depends on below it for food (Source: adapted from Leopold 1999, pp.223-224).

Leopold confers that as we proceed from the top to down of the LP the "numerical abundance" and size in the respective layers increases, as just the size of the above figure illustrates. The ecological layer that human species found is between those who eat meat and vegetables, and possibly various animal collections can be placed between layer four and layer five. The LP in accordance with the LE signifies the "food chain" that goes for example, like "soil-corn-cow-farmer" (1999, p. 223). Accordingly, the LE is identified with a complexly intertwined food chains and *stability* of such complexity determines the "organized structure" of the land. Hence, the cooperative and competitive mechanisms in various parts determine the proper functioning of the LP. In addition, Leopold points out that in ecological science that the "trend of evolution is to elaborate and diversify the biota" of the land (1999, pp. 223 & 234).

Furthermore, Leopold reflects that land is not understood merely as a soil, rather "land is a fountain of energy flowing through the circuit of soils, plants and animals" (1999, p. 223). Food chains are living mediums that conduct energy uphill from the bottom layer to the upper ones. The implication is that energy in the LP is altered into soil when animals and plants are decomposed after death. In the other expression, the stored energy of soil in layer one is

ultimately derived from the above layers through various systems such as decrease of energy and decomposition. Here, unnatural decrease of energy and death of members are aggravated by human-made factors. Nonetheless, the energy route is open since "the energy is dissolved in decay, or absorbed in plants, peats, and long-lived forests" (1999, p. 223). This route continues to sustain and balance the energy of the land as long as artificial interventions are avoided.

Moreover, Leopold is concerned with the down wash of energy, which is caused by the decomposing the rocks and "geologically" discarded in the ocean. This in turn results in the formation of new lands and pyramids. Thus, the "complex structure" of plant and animal community could determine the pace and nature of uphill flow of energy. Meaning, the speed of energy flow from soil to the higher layers of the LP is solely determined by the structural complication of the land. Hence, structurally complex LP implies normal circulation of energy (1999, pp. 223 & 233).

In brief, the pyramid's complex structure reinforces normal energy flow that would balance an entire biotic community. The structural complexity of the pyramid conceptually implies the need of diverse plants, animals, insects and other members of the LP, which contribute for the well-being of the entire biotic community. Because, Leopold believes that numerical abundance of members extends the ecological possibility that strengthens the balance of energy circuit in LP.

Nonetheless, Leopold observes that because of different forces changes may occur in the route of the LP. Members need to adjust themselves in accordance with such changes. Indeed, relying on Darwinian concept of evolution, Leopold identifies evolution as an elongated series of "self-induced" changes in which humans gradually invent tools that tremendously influence the energy route of the land. Such changes could be violent, speedy and have large extents that partly degrade the composition of plants and animals of the land. Because, tools may serve to cut plant and animal species that in turn disturbs the food chains of the pyramid. It appears that "food chain" happens to be short. This idea connotes that human's unlimited involvement in nature would result in the decline of the natural quality of the land. Because, unnatural interruption would include diseases, damages or extinctions of species, which ultimately affect the food chain of the pyramid. In view of this, for instance, human-made replacement of the domesticated animals with the wild animals would displace the wild to a new habitat (Leopold 1999, pp. 223-

224, Callicott 2000, pp. 205 & 214). This trend conceptually cuts the tip of the pyramid and the level of energy flow, which entail the destruction of the LP. In short, Leopold considers that historically human species shorten the top layer of the LP, which in turn severely disturbs the normal flow of energy in the pyramid. Therefore, humans need to hold back from such interventions.

As I have shown in figure one, the broader and ecologically basic layer of the LP contains soil, which highly determines the accuracy of the land function. In such determination the fertility of soil has a paramount contribution that signifies "the ability to receive, store, and release energy" (1999, p. 224). Nonetheless, historically, the development of agriculture influenced the quality of soil primarily by raising soil erosion. Agriculture reduces the quality of soil by replacing and displacing native species from their original environment. Here, Leopold's claim is that the farmer's domesticated species are assumed to be more agriculturally beneficial than native species, although it is not true. In fact, not only soil but also water is the medium of energy that reveals its pollution and blocking would impede the ecological role of vital animals and plants of the LP. Therefore, it is accurate to infer that for Leopold, both agricultural and industrial practices are ultimately anthropocentric and anthropogenic factors, which disturb the soil fertility and energy storage.

Moreover, Leopold takes the movement of plants and animals from one area to the other would also disturb the natural flow of energy in the LP. Originally, the process of changing nature for the purpose of human's living releases the stored energy which, increases the wrong understanding of both wild or domestic plant and animal lives (1999, p. 224). On the basis of this view of Leopold, I infer that human centered use of land needs re-examination and things must be inspected based on the multi beneficial perspectives for the whole members of the land.

Eventually, Leopold's "energy circuit" expresses land in terms of three fundamental ideas. First, land is not only a soil. Second, land holds "native" plants and animals that maintain the energy path unlock while non natives perhaps could not keep the energy. Open circuit may refer to the route that efficiently keeps energy for long time. Thirdly, land suffers from the widespread of artificial changes, which harms land more than evolutionary changes. Human-made changes are higher than evolutionary changes. The idea is that the former highly alters nature while the later

is minimally and gradually makes changes on nature. For Leopold, therefore, the integration of these three formulations forces to raise the following two fundamental issues. On the one hand, whether the land regulates itself to the new orders or not, and on the other hand, whether the expected changes of land achieved with minimum level of trouble.

Nonetheless, for Leopold, "biotas" vary in their potential of resisting "violent conversion" or "disorganizations", although LP already develops life system that protects the "habitat" for humans, and for most "natives" of the pyramid (1999, p. 224). In fact, the civilized and hardly civilized regions of the world have different levels of land failures that Leopold compares them with sign of animal diseases. In addition, he concedes that disturbance of the land as an indication of "biotic land failure" (1999, p. 224). However, he differentiates the two by noting that unlike animal diseases, failure of the land does not lead to the entire loss of land since land cannot die wholly. The reason behind this contention is that land possibly recovers, although the level of its recovery is reduced and would lead to the reduction of the complexity and carrying capacity of the land (1999, p. 224).

Leopold thinks that it is both historically and ecologically evident that "the less violent human-made changes, the greater the probability of successful readjustment in the pyramid" (1999, p.224). In other words, the lesser human-made violent change entails the better and successful regulations on the land. He also states that the disparity of violent alteration partly depends on the population concentration of the land. In this respect, the stability of densely populated area is unwarranted compared to the less populated area, which I also agree. Nonetheless, Leopold counters the philosophical view of the direct link between population density and the betterment of human life. In fact, this view was common during his time. On the contrary, ecologically, population density entails negative returns (1999, pp. 224-225). Meaning, the increase in population density on the land would lead to the decline of quality of life. Thus, Leopold argues against the increasing of human population density.

Leopold also makes a comparison between the uphill and downhill course of energy in the LP. He believes that uphill energy course determines various discoveries during his time. In this respect, Leopold mentions "minerals and vitamins nutrition" as main detections that show the reliance on the uphill course. The logic behind this contention is that the evolutionary

decompositions of members of the pyramid could both "geologically" and "ecologically" form minerals and vitamins in the base layer of the LP. Ultimately, such decays are necessary conditions for the survival of all living things on the land and generally for the welfare of the entire land. Such findings certainly unveil the reliance on the respective upper layers of the LP (see figure one). Therefore, small amount of certain substances could decide the value of layer one (soil) to layer two (plant), and layer two to layer three (insects), and so on (1999, p. 225).

However, I believe that the trend of layer interdependence exists both in the upward and downward routes because similar to the higher circuit, I perceive that the composition of the bottom layer also essentially depends on the dead forms of the upper members of the pyramid. Likewise, substances proceed not only to the upwards of the pyramid but also returns to the bottom layers that determine the value of the upper layers to their respective bottom layers. Hence, the ecological determination among parts of the pyramid is circular in its structure and both the upward and downward circulations are necessarily pursued

2.2.6. Land Health and the A-B Cleavage

In this section Leopold chiefly indicates the manifestations of the health of the land. Leopold argues that the conviction of individual responsibility emanates from "ecological conscience." He characterizes the health of the land as the capacity for "self-renewal" along with the preservation and understanding of this capacity through conservation. However, conservationists differ on their conception of land and the role of conservation in maintaining the LH. Leopold scrutinizes this disparity by drawing a single "cleavage plane" which he identifies as "A-B cleavage." Accordingly, Leopold attempts to apply the cleavage on different fields, although he conceives the field of forestry as a representative form of analysis to examine the notion of LH. Accordingly, in fields that are associated with the land there are two functional views of land and its resources, which Leopold indentifies them as the two sides of a plane cleavage, i.e. group A and group B (1999, p. 225).

Group (A) conceives land as "a soil, and its function as commodity-production", and Group (B) views land as "a biota, and its function as something broader" than commodity production (1999,

p. 225). To elucidate, the contention of group (A) appears to be “agronomic” that uses soil merely to produce trees and considers forest as a commodity that produced from the soil. This view signifies land and its resources as a way to meet human commodity needs. On the other hand, Group (B) uses “natural species” and proposes to manage the natural environment rather than merely producing non-natural commodities. Thus, Group (B) prefers natural replication than making human-made commodities. This group also associates the loss of species with “economic” and ‘biotic” reasons. Leopold, for instance, mentions “chestnut and the threatened loss of the white pines” as samples of the loss species (1999, p. 225). In addition, this group also recognizes the second order forest functions such as “wildlife, recreation, watersheds, and wilderness” and the like (1999, p. 225). Therefore, Leopold identifies that Group (B) as if it conveys the idea of ecological conscience.

Besides, he notes that in Group (A) crucial commodities of wildlife include things like, meat and sport, which are conceived as beneficial commodities from “agronomic” point of view. In Group (A), the non-natural spread of commodities could be permanent and momentary options as long as the cost of the product permits. On the contrary, Group (B) stresses on the entire biotic dimension than referring specific commodities. Accordingly, the following issues force Leopold to see further A-B split in wild life like that of the forestry case.

I briefly state the issues of this cleavage. First, the required cost to produce the “game crops" separates the two groups. Group (A) economically prefers fewer costs while Group (B) favors the natural productions than artificial ones. Secondly, the influence of the need to further option to alien in the community; the way management reinstate the decreasing, the endangered species, and the case when management principles extend to the uneconomic species. The idea is that, in all of these concerns one can detect the form of cleavage (1999, p. 225). I believe in all of the indicated wings of the “cleavage.” It is true that the guiding principles of Group (B) are essential to realize proper land conservation system.

Leopold thinks that in agricultural fields like that of the cases of forestry and wildlife, “cleavage” exists. To draw the divide Leopold compares the chronological precedence of scientific agriculture than ecological development. Since ecology is paramount for agricultural development, then slower ecological concepts need to engrain in scientific agriculture.

According to Leopold, such contention enables the farmer to modify the biota more radically than the forester and wildlife manager do. However, in the course of such ecological influences there are several dissatisfactions that may lead to new image of the "biotic farming." Meaning, discontents that arise from such ecological involvements in agriculture force to add up image of "biotic farming" (1999, p. 225). Thus, ecological diffusion in scientific agriculture leads to new image of land farming.

Leopold also discusses some of new ideas of biotic framings that are backed up by ecological elements. One of such idea of farming prefers the output from "fertile soil" than measuring the value of food based on mere "poundage." In other words, he asserts that fertile soil enables farmers to produce both "quantitatively and qualitatively" better food value of crops (1999, p. 225). Furthermore, he concedes that bringing in the fertile soil would possibly lead to a new image, which increases the quantity of the crop from the already used up soil, although the food worth of the crop cannot be necessarily improved. Leopold does not discuss this idea deeply since the ultimate implications are enormous. Hence, he leaves the idea for further investigation by other dealers of the subject matter (1999, p. 225).

Leopold also specifically discusses about the form of "organic farming*"*, which he identified as a kind of farming that arises from dissatisfaction of scientific agriculture. He conceives organic kind of farming as "biotic farming", since such kind of farming directs the attention to the importance of soil "flora and fauna" (1999, p. 225), which structurally plays a vital role for the normal functioning of the entire biotic land.

I have attempted to discuss cleavages that emphasize on crucial and similar "paradoxes." Leopold identifies them as "man the conqueror versus man the biotic citizen; science the sharpener of his sword versus science the search-light on his universe; land the slave and servant versus land the collective organism" (1999, p. 226). The implication is that in these quandaries human species are central players in both land conservation and land destruction. Thus, what places science and land on these paradoxes is that both are conceived as life factors for human survival and they can be utilized both positively and negatively to understand the land. However, it is true that humans' lack of knowing their limited capacity in nature is a fundamental challenge that reduces the health of the land (1999, p. 226). The inference is that social sentiments,

intuitions, known facts and reason should function together in order to achieve the well-being of nature.

2.2.7. The Outlook

Leopold starts this section by claiming that ethical human-land relationship necessarily requires "love, respect, admiration" for valuation of the land. In fact, he conceives value "philosophically" not only "economically." I believe that such view of land value demonstrates the philosophical dimensions of the LE, which is developed through evolutionary process and expects "intense consciousness" (1999, p. 226) about the land from all rationally conscious life forms. For Leopold, however, "educational and economic systems" (1999, p. 226) of his time were not shaped in accordance with deep consciousness and insights, which he regards it as the main obstacle that holds the LE back (1999, p. 226).

Moreover, many intermediaries and "physical" tools split modern human's way of life from the well-being of land. Meaning, various modern human life forms could detach humans from the well-being of land. Additionally, because of these factors the humans' conception of land becomes frail in a way that assuming land as artificial entity that exist for the mere assurance of human's "crop" needs. The worst thing is that for the modern humans land is safe as long as it stands even for "sport" and recreation purposes. In this respect, humans may presume proper land formation and utilization when artificial products replace natural products of the land and take "hydroponic" way of growing plants as a normal and acceptable scientific technique, although such system disorganizes the land system. In brief, modern way of life endorses the replacement of "natural" and "original" constituents of land by artificial formations. Therefore, for modern human, land is taken as something what she/he "outgrows." Nonetheless, based on Leopold's conception, land is not something conceptually possessed by humans. Rather, the land itself determines the destiny of humans' life regardless of time and place (1999, p. 226). So, for him, land should be treated accordingly.

The attitude of the farmers is also another barrier that hampers the proper function of the LE. In this regard, Leopold claims the need for proper attitude toward the land by the farmers who lack

land friendly attitudes. In fact, the attitude of the farmer becomes unfriendly to the land when the farmer regards the land as "adversary or a taskmaster that keeps him in slavery" (1999, p. 226). The connotation is that the farmers' unconstructive attitudes towards land are mainly originated from the consideration of land as an "adversary" for the reason that they assume that what forces them live exploitatively is the land itself. Thus, the farmers believe that what releases her/him from the chains of such slavery has to be a mechanized form of farming, although for Leopold, such freedom is implausible (1999, p. 226). In any case, such attitudinal limitations to the land slow the conceptual formulation and function of the LE.

Accordingly, for Leopold, understanding ecology is a precondition for ecological comprehension of the land. However, Leopold states that ecologically branded educational fields such as "geography, botany, agronomy, history, or economics" (1999, p. 226) have no adequate ecological ideas of the land, since such fields intentionally ignored ecological concepts. Similarly, from such inadequacy he draws that the ecological understanding of land and educations were not "co-extensive" and had no corresponding relationship (1999, p. 226). The implication is that education did not sufficiently contribute for the endorsement of ecological course to the land. Thus, Leopold remarks that those who oppose modern inference of ecological insights to the land might regard the LE's track of understanding of the land as fruitless. However, for Leopold, such position is doubtful.

The LE's ecological dimension of the land requires evolutionary aspect of ethic. The intention of such ethic is to endorse proper and decent land utilization, which mainly stands on the conceptual pillar that "quit thinking about decent land-use as solely an economic problem" (1999, p. 226). The idea is that it is unjustifiable to reduce all ethical concerns of land use to an economic problem since land has not merely economic aspect but also ethical and aesthetical appearance. Thus, according to Leopold, the contention that economics determines all land utilization is implausible. Accordingly, he claims the essentiality to "examine each question in terms of what is ethically and esthetically right, as well as what is economically expedient. A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise" (1999, p. 226).

The connotation is that preferences and tastes determine the land user's actions and attitudes in relation to the land, rather than the mere economic performance of the user. Thus, Leopold argues that human-land relationship centrally depends on "investment of time, forethought, skill and faith rather than on investment of cash" (1999, p. 226). This notion opposes the economic determinists' contention that the economy determines all aspects of human-land relationship. In opposition to economic determination, Leopold purposefully and significantly designs the LE as an outcome of "social evolution" and evolution is always continual. So, the LE's evolution has both "intellectual" and "emotional" processes, which their combination underpins the track of conservation.

Here, Leopold claims that conservation requires "good intention", although these intentions are dangerous if they lack critical understanding about land or economic land utilization. Leopold thinks that the intellectual dimension of land user increases as the ethical border extends from the "individual to the community" (1999, p. 226). In other words, the ethical extension of moral value from individual to the whole land community is foundational to foster the intellectual aspect of the LE. Accordingly, moral worth of the action on human-land relationship is essentially determined by social consent on the action, without undermining the role of individual members. However, Leopold underlines that unethical human-land relationship is prevalent and humans need to be attitudinally nature friendly and active in the implementation of nature responsive procedures.

To sum up, in this chapter I attempted to examine the LE as it was presented by Leopold. Firstly, I discussed the essentiality of ecological evolution to understand ethical extensionism of the LE that can be expressed both in terms of ecology and philosophy. I also explicated Leopold's rejection of economic orientation of human-land relationship. He claimed equal status of humans in nature. In his community concept we discussed the idea of land as an enlarged whole which encompasses soil, plant, water and even landscapes. Then, I explicated his notion of ecological conscience that claims the need of ecological knowledge and conservation education in order to foster harmonious human-land relationships. I also revealed his intention to know the historical resemblance of substitutes to a LE. In this regard, he opposes economic motives and predator intervention in the land because they hold back the practicality of land conservation.

I also stated Leopold's systematic conception of the LP, where he mainly disclosed the LH in terms of the level of organizational and structural complexity of the land community. It is also true that in this part he explicitly opposes the human-made intervention in the LP, since such intrusion disorganizes the LP and causes land sickness by affecting the balanced circulatory system of the LP. Moreover, I also disclosed Leopold's discussion of the LH that he drew cleavages to elucidate the importance of ecological conscience to engrain land friendly responsibilities. In this chapter, we have witnessed that humans' ignorance to know about their place in nature is a basic factor that reduce the LH. Lastly, we have seen his famous moral maxims that strongly request the ethical, aesthetical and economical treatment of the land community. In short, the LE strongly advised us to foster the integrity, stability and beauty of the biotic community.

CHAPTER THREE

REACTIONS OF ENVIRONMENTAL PHILOSOPHERS TO LEOPOLD'S LAND ETHIC AND CONSERVATION

> *Aldo Leopold's intellectual development mirrors the history of ecological and evolutionary thought, while his professional career spanned the first half century of the movement for conservation and resource management… His enduring achievement was to integrate the two strands-the scientific basis and the conservation imperative- in a compelling ethic for our time (Flader 1974, p.5).*

3.1. Introduction

In the current world land conservation is recognized as a fundamental measure for the preservation of natural environment. Today conservation system radically varies throughout the world although the contemporary world has commonly utilized different technological mechanisms to conserve nature. However, as I discussed in the earlier chapter, the LE argues against human-made interventions and impacts in nature. The LE appears to cultivate fundamental conservational system that does not significantly appeal to human artificial interventions. Accordingly, several environmental philosophers have conceived the LE as a farsighted work for land conservation through fusing ecological principles with ethical ideas.

In this chapter I critically scrutinized relevant theoretical response to criticisms, pros and cons of the LE in line with the potentially full-fledged criterion of environmental conservation ethic. I undertook this conceptual examination broadly depending on John Baird Callicott's (1999) foundational perspectives of the LE, since Callicott is the one who effectively and convincingly scrutinizes the LE. Also, as Ernest Partridge (2002) noted, Callicott is the one who brings the LE to the philosophical discussion inquiries and studies. In addition, this chapter incorporates philosophical perspectives of other relevant thinkers in relation with the problem at hand. In fact, I also briefly examined the critical essay of Leopold titled as 'Thinking like a Mountain' in line with basic concepts of the LE.

3.2. John Baird Callicott's Perspectives on the LE and Conservation

Callicott is the principal supporter and defender of Leopold's LE. He has employed several conceptual analyses and modifications to the LE. In the course of his philosophical works, Callicott essentially develops new visions on the LE by interpreting the LE in terms of both its "theoretical" and "substantial" relevance to land conservation. Additionally, Callicott believes that LE is capable of resulting in radical change in moral theory of the environment. Meaning, the conceptually longsighted insights of the LE can touch the foundations of any moral theory of the natural environment. Callicott claims that many conservationists regard the LE as an emotively charged stance that may lead to severe confusions and unsuitable consequences, and one of his interests is to disprove such negative standpoints. Thus, in his foundational dealings with the LE, Callicott attempted to objectively defend the LE from different challenges (1999, p. 227).

I assume that Callicott's inspection on the LE should be grounded on extensively and philosophically recognized conditions that foster land conservation. To deal with such grounds, I briefly look at the conceptual link between Leopold's LE and Callicott's analysis. Accordingly, in the course of the next discussion, I examine similarities and differences between the two thinkers. Thus, I mainly address the following questions. What new conceptual elements did Callicott add to the LE? Are there any basic modifications on the LE made by Callicott? What are the fundamental criticisms Callicott forwarded to the original account of the LE? What conservational implications did Callicott derive from the LE?

Callicott confers that the LE theoretically helps to grasp the "moral consciousness", "moral sentiment" and "reason" (1999, p. 228). These concepts are developed evolutionarily and imply the centrality of evolution in the LE, because moral consciousness extends through gradual process. Besides, the conceptual extension of moral consciousness directly associated with the increase of problems in any society. From LE's perspective, such problems include vicious human-land relationships. Hence, evolution leads to the extension of moral consciousness both in "individual and institutional" levels (1999, p. 227).

The implication is that doing morality conceptually depends on moral awareness. In other words, practical application of morality presumes the moral consciousness of the moral agent. Thus, it is true that the claim to situate the land on the stage of morality requires moral consciousness about the land in which the notion of moral extension is very critical.

However, the view of extension of ethics is not adequately investigated. Because, it is only studied by moral philosophers, Callicott concedes. In fact, Callicott agrees with Leopold in referring ethical extension as a process in "ecological evolution", since this process interprets ethics from both biological and evolutionary accounts. Accordingly, Callicott argues that the conceptual fusion between ecology and evolution is a necessary frame of the LE that fosters the whole land community to be both morally and ecologically conceived. In fact, the evolutionary account is mainly derived from Darwinian evolutionary point of view. Accordingly, in the LE, ethics is contextual in which an evolutionary development considers various historical contexts. From this view I deduce that ethical inquiries are not one-night investigations. Rather, ethics requires critical and gradual examinations. The implication is that the LE's insights of ethics to the land should correspond to such cautious investigations (1999, p. 228).

Callicott raises some questions to the LE. The first "puzzling" question is that, since Leopold's first definition of ethics in the LE connotes the restriction of action in the "struggle" for survival, then how could it be possible to actualize freedom of action preserved and distributed to human species or their ancestors? The idea is that it is difficult to formulate freedom of action from an ethic that ecologically advocates limitation of action because the struggle for the existence presumes competition. Thus, for Callicott, the attempt of reconciliation between limitations on an action and competitive struggle lead to a paradox (1999, p. 228).

On the contrary, Callicott also believes that ethics as restriction of "freedom of action in the struggle" for survival conceptually upholds "mutual security" and protect "economic interdependency" among members of human society (1999, p. 230). Thus, the LE discloses the structural similarity between the ecological biotic community and human society, which implies that such definition of ethics, limits humans intervention in natural land community.
Moreover, Callicott examines fundamental question of how "altruism" or selflessness could evolve from Darwinian theory of natural selection (1999, p. 228). The presence of competition is

also common in the theory but competition conceptually weakens the altruistic attitudes of *others*, since those who compete in the life initially follow their self-interest. Accordingly, ethical extension in LE partly requires a selfless valuation to the land community, but I think such valuation should not be considered as exhaustive alternative, because the level of selflessness contradicts with the view of free competition in the natural selection. Hence, the claim of intrinsic land conservation in the LE ought to be founded on multifaceted approaches rather than confined in self-oriented perspective of Darwinian theory of natural selection.

In fact, Callicott believes that the advance of ethics originates from theoretical processes. For him, the conceptions that ethics is "God's imposition" and ethics is guided by human reason are unsatisfactory theories to explain the origin and advancement of ethics. Because, he thinks that "supernatural" view of ethics is discounted and human "reason" could not supersede "morality." Callicott claims that the above two conceptions of ethics are rejected by the advocates of the "natural" and "evolutionary" account of ethics that also aligns with Leopold's first definition of ethics. As I already discussed, this definition recognizes the restriction on freedom of action, which conceptually leads to the condition that humans to become social beings and extend moral value to the community (1999, p. 228). Here, to speak land ethically, the community refers to the land community.

It is also true that ethics does not only have intellectual feature but it also has emotional aspect. In this respect, Callicott thinks that philosophers such as David Hume and Adam Smith regard "feelings" and 'sentiments' as essential elements of ethics for evolutionary perspective of ethics. 1999, p. 229). However, based on the sentimental view of ethic, it is plausible to deduce that life forms which are capable to sense could serve as a point of benchmark for moral consideration. Hence, the evolutionary aspect of the LE starts from animals' empire. In other words, the LE's evolutionary morality situates all sentient animals in the paradigm of ethics (1999, p. 229). This idea implies that ethical land conservation at least begins from the sentient animals in the land community. However, I believe that this particular point of analysis excludes ethical position of lower layers of the LP which have no capacity to sense Because, the moral determination of the land essentially requires normal energy flow that fundamentally originate from all layers of the LP without exception (see figure one).

Callicott and Darwin concur on the idea that the creation of "small social group" begins from the "parental and filial love" (2001, p. 206). Sympathies bond members of animals, especially that of mammals. Therefore, Callicott speaks through Darwin's evolutionary account that social interaction is not restricted to immediate fellow members, rather social relations gradually extend to include the less intimate members. Yet, the process is evolutionary which needs powerful and competent conditions. This extension is applicable both to the members of the human societies and the constituents of the land community.

Accordingly, the evolutionary account of the LE entails that human species are endowed with both egoistic and altruistic aspects, although the struggle in life makes the former to precede the latter, although the level of egoism historically differs. Thus, Callicott draws that "an ethic is a set of behavioral rules or set of principles or percepts for governing behavior" (2001, p. 206). The implication is that there is similar evolutionary progress between "natural" and "sexual selection", and the gradual development of ethics. The evolutionary conception of ethical rules obligates humans to give moral concern not only to fellow humans but also to the entire natural environment. In short, for Callicott, ethics is progressively an evolutionarily advancement from small to large social levels that is similar to the development of human societal interaction (2001, pp. 205-206).

The following figure briefly shows Darwinian evolutionary development of ethics and society in line with the hierarchical social impulse and instincts that ultimately led to the development of the Leopoldian LE:

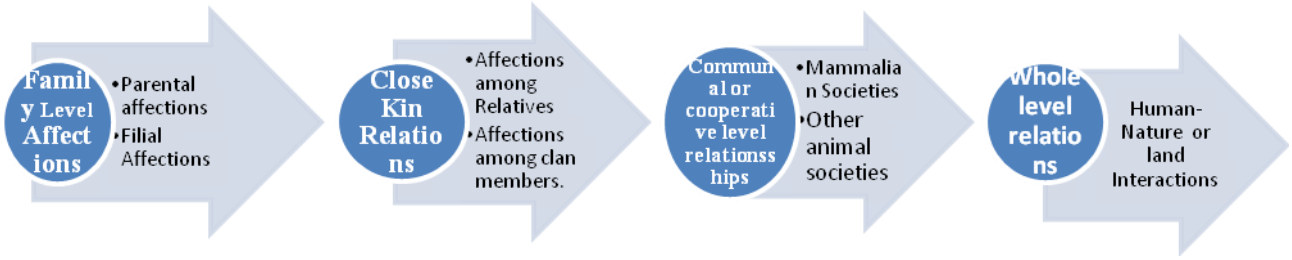

Figure2. Darwinian evolutionary development of ethics (Adapted from Callicott, 2001, pp. 205-206).

The above figure illustrates that as new social level develops and emerges, new social characters come to appear in each level. The idea is that the social impulses in each level differ, but they are reflectively and consecutively supported by the other stage. Hence, the gradual social level change brings moral system for the respective social group. The large level interaction would represent the interaction between the extended land and human beings.

Darwinian morality also considers "intellectual" and "linguistic" capacities as an essential element of ethic, although at the end it situates accurate ethic in moral feelings and sentiments since moral feelings are naturally selected. Thus, the morally considered society claims for the "natural selection" in line with the advantages and success of replications. Ones again this indicates that ethics begins in the "interdependent individuals or groups" (Callicott 1999, p.229) where an individual is a member of an inter-reliant community. Therefore, Callicott states that ethics (including the LE) and community are mutually related, and such conception of ethics is important to investigate "natural moral history" and to devise ethical principles that govern ethics such as the LE or any other environmental ethics (1999, p.229).

In evolutionary terms, experiences gradually determine and adjust the manner in which humans interact with fellow creatures particularly and with nature at large. In fact, the forms of

experiences between Darwin and Callicott are different. In this respect, the extended tendencies of experience such as "principles of narrative descriptions, rational expositions, abstractive generalizations, and occasional preachment" (1999, p. 230) force us to comprehend land as a community, which anticipates a professionally shaped ecological understanding of the land (1999, p. 230). This view reveals that the land conservation could be in effect through ecologically realized experiential actions.

Nonetheless, I believe that Darwinian "social sentiment' approach of the LE is conceptually different compared to the LH orientated LE of Leopold. Because, as I discussed in the earlier chapter, the LP is healthy when there is a sustainable and fair energy flow in the entire land community. From this idea I infer that moral agent's ethical extension and ethical considerability to the land begins from the ecologically grounded flow of energy. Therefore, the whole land is *intrinsically valuable* and consists ecologically multi variant energy routes that facilitate the flow of energy throughout the whole land system. I concede that this view of valuation of land is dissimilar compared to the idea that merely applies social sentiment for moral extension. Nonetheless, I do not deny the vitality of social intimacy in gluing humans with the land community, although I claim that social interaction alone could not necessarily obligate all sentient life forms to value the non-living natural entities.

In fact, Callicott discloses that in the last sections of the LE the discussion of fellow members of the biotic community is gradually neglected. Professional conservationists including Leopold are concerned themselves with types of "ecological" and "biological" totality than worrying about individual components of the whole. In addition, the pillar of the LE is conservation that may designate the protection of the endangered plants and animals even by killing their enemies, and/ or by reducing the component species, be they are natives or non-native species. Besides, the LE primarily conceives ecology as "superorganismic" form that concentrates on the communities or ecosystems than particular elements. In short, according to Callicott, the concealment of individuals in the LE originates from the magnification of its holistic account (2001, p. 209). In the last section of this chapter, I will explain the conceptual magnification of holism in the LE that concurrently would not underestimate the biotic status of individual members.

To achieve the objectives of land conservation and protection, foundational principles are inevitably required. In this respect, Callicott derives principles from the ecology's "social account of nature" (1999, p. 230), which is basically articulated by Darwin. Accordingly, Callicott remarks that "social sympathies", "sentiments" and "instincts" are basics to formulate such principles (1999, p. 230). These principles employ holistic ethical extension to the biotic community so that moral obligation and moral consideration to the whole land community could be realized. Therefore, ecological habituations are essential to determine the appearance of the LE (1999, p. 230).

Accordingly, holistic moral extension presupposes moral equitability of all constituents of the land. In this regard, Callicott concurs with Leopold's LE that the role of humans in the land should be considered in similar way with that of other biotic species. The implication is that the moral consideration and valuation should not be confined in human species; rather it should also cover the entire biotic communities (2001, pp. 208 & 214).

Therefore, Callicott explicates basic features, procedures and structure of Leopold's basics of conservation that is designed to morally cover the land community. Actually, in his later works, Leopold examines the basics of conservation by focusing on the case of Southeast Wisconsin. Here, I insist that Leopold's model of conservation can represent any land in the world. Accordingly, Callicott states that Leopold conceives earth as a "super organism" that can resemble human characters. The next figure shows Leopold's basics of conservation of the land in particular and the earth at large.

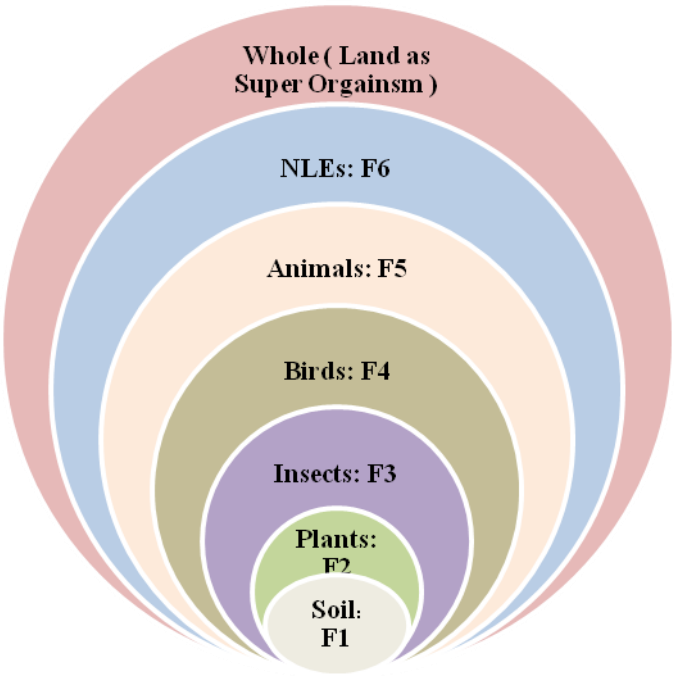

Figure 3. Land as Super Organism and Integrated Entity (Adapted from Callicott 1999, pp.232-233)

In the above figure, each element of the land has peculiar and specific functions labeled by letter 'F.' For Callicott, the tenets of Leopold's conservation imply the essentiality of each function for the harmonious relations between the constituents of the land. Thus, the proper function of the land solely depends on naturally definite functions of its parts. In fact, Leopold refers to the "superorganismic model" to show as if Earth has some level of life features such as "consciousness" and "soul." This entails that the Earth cannot be completely destroyed by human's destructive interventions, although it might be less alive than humans. In fact, the Earth overrides humans in terms of space and time (1999, p. 233).

To articulate strictly, human's consciousness enables us to control not only the visible parts of the land but also to notice the biological process of "consumption" and "replacement" that is called "metabolism*"* (1999, p. 233). Since all attributes of living things are gradual and too big, then humans cannot easily comprehend the process. Accordingly, it is "intuitive perception", but not science primarily cultivates humans to understand the inseparability between Earth and its organs. In brief, the "superorganismic" form of earth shows that the conservation principles are primarily originated from the "psychological" characteristics of Earth that is correspondingly attributed to reason and sentiency (1999, p. 233). Hence, Callicott claims that a general criterion

of moral consideration and intrinsic valuations of the land are possibly driven from the superorganismic form of the land, and the connotation of conservation in the LE is essentially associated with the incorporation of humanistic attributes to the land.

Accordingly, for Callicott, evolution is "self-induced" process that elaborates LP's energy routes without making ecological changes. However, humans' tool inventions and interventions cause gradual change in nature where hostile species contest between "speciation" and evolution lead to natural species extinction because of a competitive exclusion or evolution of species. In this respect, extinction surpasses speciation. Furthermore, ecological dislocations of the fauna and flora are mainly caused by humans. For Callicott, the LE recognizes inequalities and unjust nutritional distribution in the biotic members since the economy of nature is prearranged in this way. Besides, Callicott believes that no common "social ethics" is needed to adjust such economic distribution because it is not similar with those inequalities between humans (1999, p. 234). This difference between the two forms of communities conceptually implies the LE's ecological and holistic aspects. Callicott explains this distinction that as follows: "the disparity between the land ethic and its more familiar social precedents contributes to the apparent devaluation of individual members of the biotic community and augments and reinforces the tendency of the land ethic, driven by the systematic vision of ecology, toward a more holistic or community per-se orientation" (1999, p.234).

The two forms of interactive processes are important for civilization, which in turn helps to realize human's stance as a subjugator of biotic membership is a "self-deceptive" contention. This realization is contrary to *anthropocentric* and *anthropomorphic* stances of the land. In fact, the human civilizations such as technology is not entirely free from biotic elements (1999, p. 235).

Actually, for Callicott, not only evolution and biological ecology conceptually makeup the LE but Copernican Astronomy also has a conceptual finger print on the LE, although Leopold does not explicitly indicate it. In brief, Callicott believes that Copernican Astronomy considers Earth as a small planet that exists in "huge" and "hostile universe." This conception forces humans to advance their interaction with fellow residents of their planet Earth, since earth is the most proximate and friendly planet. The logical inference is that humans tend to be anxious for the

well-being of Earth that ultimately encloses biotic communities including human species. Accordingly, the attachment between Earth and human species becomes strong and conceptually corresponds with the trend of the land and human species. Therefore, for Callicott, Copernican Astronomy is potentially one of the conceptual contributors to the LE (1999, p. 230).

Callicott also maintains that "biophysiological" and "cognitive" conditions are necessary for the explanation of the LE as he writes.

> The natural selection has endowed human beings with an affective moral response to perceived bonds of kinship and community membership and identity; that today the natural environment and the land is represented as a community, the biotic community; and that, therefore, an environmental or land ethic is both possible - the biophysiological and cognitive conditions are in place-necessary, since human beings collectively have acquired the power to destroy the integrity, diversity and stability of the environing and supporting economy of nature (1999, p. 231).

The above quote entails that the possibility of LE is basically rooted in human's sentimental response to the socially recognized interdependence, and such moral response is peculiar to humans. Meaning, other species on the land could not have a capability of reacting morally about the "social group" they live in, but humans do. I believe that, human's reaction to the natural environment might be constructive or destructive. I argue that such twofold appearance and responses of humans to nature should be equally considered. Thus, although I agree with the constructive direction of human capability, I also claim that in the above conception, Callicott does not provide ultimate criterion to avoid the destructive version of humans' reaction to nature.

Callicott confers that there are opposite relationship /between the classical Western science and ecological orientation. Here, Callicott defines ecology as "a study of relationships of organisms to one another and to the elemental environment" (1999, p. 231). Accordingly, the traditional Western science gives "ontological" priority to objects and subordinates the relationships among them. This situation is reversed when it comes to ecology in a way that ecological relationships primarily determine the nature of organism than making it subordinate to the *ontology* of the object. Therefore, ecologically, the relationship between organisms shows the bond of all

constituents of the land that realizes the nature of whole itself (1999, p. 232). In short, the notion of preservation in the ecosystem is granted by the nature of entire land system.

In general, I believe that the whole biotic system reveals basic features, procedures and structure to Leopold's conception of conservation that is mainly designed in the LE. As I previously discussed, the land ethical system is ultimately driven from the evolutionary and ecological concepts. The fusion of the two concepts fosters the integrated whole that regards land as an organism, although Leopold explicitly examined such systematic land conservation in his later works focusing on the case of Southeast Wisconsin.

3.2.1. Holistic and Individualistic Facet of the LE

Theoretical foundations of the LE intellectually provoke different environmental thinkers. Here, I examine Callicottian view of the holistic and individualistic dimensions of the LE. The central questions are; is the LE fully holistic? Is there any individualistic version of the LE? If the LE involves both holistic and individualistic dimensions, which aspect is prior? How does Callicott reconcile them?

Callicott articulates that the LE could have "holistic" and "individualistic" versions, although the holistic account prevails. For him the holistic consideration is "revengeful" in its character because it radically opposes the individualistic ethical theories of human-land relationships. Callicott repeatedly remarks that the LE stands for ecological and moral well-being of species on the land that encloses the entire members of biotic communities. Nonetheless, his holistic view simultaneously recognizes the biotic right of individual members. It implies that the individualistic side is not ruled out in the LE. Similarly, Callicott articulates that "the land ethic, thus, has a holistic as well as an individualistic cast" (1999, p. 231). Callicott believes that LE's holistic account conceals its individualistic face, although as one goes through the top LP, the explicit reference to individual members is ignored (2001, p. 209).

Nonetheless, Callicott does not deny that the holistic preservation of the biotic community overrides the preservation of individual members, although this does not mean that individuals

are subjected to subordination. In other words, individuals themselves have ecologically irreplaceable roles in the land community that makes them to have determinant function. This claim partly stands to tackle the "environmental fascists" criticism that conveys the mere holistic version of the LE disregards individual rights. Yet, Callicott's view maintains that the prior recognition of the holistic aspect of the LE cannot undermine individual species of the community. Hence, based on the view of moral extensionism of the LE, individual entities of the land have equitable status in the community that needs to be equally preserved.

Callicott also refers to Peter Fritzell (1987) to identify LE's critical paradox with regard to human's status in the biotic community of the land. Callicott states the fundamental notion of the paradox as follows:

> Either we are plain members and citizens of the biotic community, on a par with other creatures, or we are not. *If we are, then we have no moral obligations to our fellow members or to the community* per se because, as understood from the modern scientific perspective, nature *and natural phenomena are amoral*. If human beings are natural beings, then human behavior, however, destructive, is natural behavior and is as blameless, from a natural point of view, as any behavioral phenomenon exhibited by other natural beings. On the other hand, *we are moral beings*, the implication seem clear, precisely to the extent that we are civilized, that we have removed ourselves from nature. We are more than natural beings; we are metanatural - not to say, "supernatural" - beings. But then our moral community is limited to only those beings who share our transcendence of nature, i.e., to human beings…and to human community. Hence, have it either way-we are members of biotic community or we are not – a land or environmental ethic is aborted by either choice (1999, p. 235, emphasis added).

To elucidate, for Callicott, nature is *not* amoral. Also, the dilemma arises from the implicit consideration that humans are purposefully "choice-making" ethical beings only to the extent that we are "metanatural", and refined beings. The point is that the dilemma is generated from human's "metanatural" attribute and civilization directs them to consider themselves as "choice-making" ethical beings. Based on Callicottian point of view, since nature is not amoral and human species are part of nature, then humans "intelligent or civilized moral behaviors are also natural behaviors" (1999, p. 235). The idea is that human beings are moral beings not regardless of nature rather in accordance with nature. *Homo sapiens* are ethical species that nature produced and nature is not amoral. Human's conduct relation with nature could not be amoral; rather it should be guided by human's morality (1999, p. 235). Callicott concludes the land ethical trends for the conservation and preservation of land is concurrently supported by human's moral behavior and natural behavior in a way that nature instills moral qualities to humans.

In what follows, I examine the implication of Callicott's Second Order Principles (SOPs) for conservation of the land community. But, first I briefly state the notion of SOPs that is developed by Callicott from the community oriented view of Leopold's LE.

According to Callicott, SOPs are primarily designed to deal with the moral destiny of the moral agent who is member in a multitude moral society. SOPs are regarded as keys to the determination of moral agent's prior moral duties in different moral communities and social organizations. The SOPs have moral principles and moral maxims. Thus, in relation with the LE, SOPs tend to show the conditions in which "holistic and individualistic principles" of LE ought to be identified (2001, pp. 211-212).

Accordingly, Callicott formulates two SOPs to give priority to moral duties from responsibilities that emanate from various moral community memberships. The first (SOP-1) chooses obligation that originates from the more "venerability" and "intimacy" than obligations that arise from "recent" and "impersonal" obligations (2001, pp. 212). Experientially, most moral agents give priorities to their proximate members. For instance, duties to family precede duties to the civil service. The second (SOP-2) states that ethical quandary of the LE should give priority for obligations that arise from "stronger interest." Therefore, SOP-2 is needed to address the dilemma that SOP-1 could not address (2001, pp. 211-212).

However, I think that Callicott leaves the selection procedure of strong and weak interest to moral agent, for the reason that he failed to explicitly state standards for strong and weak obligations. In addition, the combination of the two SOPs could not exhaustively solve ethical dilemmas that possibly arise from multiple memberships of the moral agent, although it is undeniable that they significantly ease the selection procedure of moral duties. In this respect, the intimacy and the strength of interest could differ from one society to the other. Thus, Callicott's SOPs could not give universally applicable criterion for selecting moral duties, although he tried to give "temporal" and "spatial" scales for selection procedure of moral duties.

For instance, some endangered species in one part of the world expects strict moral duty from moral agents but experience tells us that the level of strictness to preserve the endangered species

may vary from one part of the world to the other. So, some questions that challenge the conceptual applications of SOPs include: which moral agent is more responsible for the endangered species? Is proximity of the moral agent to the endangered species grant preservation of the species regardless of the level of interest? Does strong interest alone determine the moral duty toward the endangered species? Nonetheless, I partly agree that the combination the two principles might importantly and effectively help us to preserve "older forests" and other resources of the land regardless of the place in question (2001, pp. 213-214). Accordingly, I believe that the old species of the land community can be preserved from artificial changes by carefully implementing Callicott's SOPs, since the old age of the species could entail strong interest. My point is to stress that in different contexts SOPs could facilitate the LE's holistic conservation of the land.

In addition, Callicott identifies "conservation" and "preservation" in accordance with the concepts of integrity and stability in the LE is a puzzling task and it expects the notion of "rate" and "scope" to judge the scale of the moral duty to the land. Callicott conceptualizes scale as broad ecological idea that holds both "range as well as rates," and "temporality" and "spatiality" (2001, p. 214). According to Callicott, scale is "normative" in its nature. Accordingly, it measures any ecological changes and fluctuations in terms of evolutionary dynamics like the rates of "extinction, hybridization and speciation" (1999, p. 230). Thus, "scale" is essential for the preservation and conservation of the land community. Actually, humans' change on nature is a natural change, because it is ultimately governed by human's gradual natural process. Nonetheless, the LE assesses such changes in terms of the norm of appropriate scales. In this regard, the scale of human caused "extinctions" exceeds the scale of "speciation" in natural diversity (1999, p. 230). Thus, Callicott argues that the scale shows that the extent of human-made changes are more than naturally caused disasters (2001, pp. 214-215).

This comparison concentrates on magnitudes and frequencies of human caused extinctions and human-made speciation. The former's rate is rapid than the later one. Hence, humans' ecological role in nature should be reduced to mere member and humans have no any "privilege" in nature. This point lowers the human-made extinctions. In other words, the combinations of both "time" and "space" oriented scales can serve as a means of measurement and evaluation for the level of human generated problems of nature. Yet, I see that Callicott failed to state the normal and

ethical scale clearly. I think the challenge is that only humans could be active in making decisions about the degree of depth and shallowness of the scale. So, their decision is likely be affected by prejudices, consents, willingness, criticalities or intellectual applications. Hence, I partly think that Callicottian idea of scale could not exhaustively bind the functioning of LE's basic moral dictum.

Nonetheless, Callicott slightly modifies central moral idea of Leopold's LE by providing "temporal" and "spatial" conditions that is articulated as "anything is right when it tends to disturb the biotic community only at temporal and spatial scales. It is wrong when it tends otherwise" (2001, p. 216). I think there are new perspectives in this modification. The first is that Callicott like Leopold admits the naturalness of changes whether human generated or not, but the level of toleration of these changes is determined by proper norm of scales that are shaped by "rate" and "scope." Callicott, however, points out that Leopold also considers changes in nature have slow evolutionary temporal scale. Therefore, Callicott's adjustment on the pillar moral dictum of the LE does not essentially changed the conceptual formation of Leopold's version. Rather, it attempted to offer specific time and space consideration in accordance with the modern day ecological insights (2001, p. 216).

3.3. Reflections on Leopold's Land Conservation

Leopold's view of conservation is not something confined to particular work. I believe that throughout his philosophical and scientific inquiries of nature, he projects conservation as a process that conceptually evolves from one thought to the other. Besides, Leopold's notion of conservation is not merely restricted to the theoretical grounds but it also has practical contributions for policy and practices that appeal to the "heart" and the "minds" of the people (Maine & Knight 1999, pp. xiv & xv). Nonetheless, I concede that the LE is conceptually intense in which Leopold's conservational idea is ultimately manifested and foundationally materialized. In fact, Leopold's conservation perspective conceptually differs from that of the traditional conservation systems. In the later section of this chapter I briefly scrutinized their basic distinctions. Hereafter I briefly deal with Leopold's notion of land conservation in relation with

the fundamental concepts of the LE. In doing so, I solely rely on the contemporary analysis of Julianne Lutz Newton (2006) and Bryan Norton (2004).

Newton's scrutiny on Leopoldian conservation is ultimately associated with the idea of LH which Leopold derives from the premise that the accuracy of energy flow through "food chains' normalizes the LP. The entire parts (including landscapes) of the land are equitably conceived in Leopoldian conservation. Accordingly, for Newton similar to Callicott, Leopold's conservation is founded on the ecological knowledge which is in line with Darwinian evolution in a way that many routes of energy are interrelated and the ecological path indicates evolutionary courses. Thus, conservational practice could not cultivate one part of nature at the expense of the other. Rather, it considers the land structure and land conservation as all inclusive and a binding condition. Additionally, Leopoldian conservation claims the need of the integrated natural whole that also involve humans. Cooperative performance and organization are also important elements in the development of the interconnected natural whole. Therefore, Leopold's conservation system has both collective and individual aspects (Newton 2006, pp. 316-319). This particular point is also shared by Callicott's view, since for both the community oriented thinking of the land entails Leopold's organismic idea of land.

However, the economic interpretation of collective resources of the land could not indicate the ethical relationship. Rather, the ecological perspective of land could entail the complete aspects of the LP, although the damage of parts of the pyramid may lead the pyramid to perform as a "machine" that loses its part(s) and functioning capacity. Such "machine" lacks the moral concern, because it does not represent full land structure and it loses its parts. Thus, the outlook of humans to the imperfect land happens to be "prudential" but "not moral." Nonetheless, for the land as a community needs a moral concern, because in the community there are "self-directed" moral implications that provide a living character to the land. Accordingly, the living character of the land like "health" and "sickness" could be ecologically applied for both the individual members and the whole community. In this way proper land conservation is conceived as a diagnosis mechanism to cure the land. Therefore, such interpretation of land is appropriate for Leopoldian idea of conservation by endorsing and carrying on the richness and ecological harmony among humans and the entire life community. Besides, Newton concedes that this condition helps us to identify the effect of conservation on forests (2006, pp. 320-321).

Moreover, the LH corresponds to a strong ecological conscience, in order to determine the health of the land ecologically. Thus, Newton also contends that the normal land is a healthy land that has a "self-healing" or "regenerative capacity" (2006, pp. 321) from damages especially made by humans. However, this capacity is highly linked with the "native" members of the land and their cooperative performance could maintain the whole land as an "organism" and manifest a morally oriented holistic conservation. For Newton, especially after 1941, Leopold considered freedom of the "wildlife" from human's interference and "regenerative" capability of the human controlled land as an indication of LH (2006, pp. 321-322).

Here, the basic point is that Leopold considers land as a "circulatory system" that usually designates the tension between "pull of gravity" and "nutrient sucking capacity" (2006, p. 224) of plants and animals from the lower layer of the LP. The former refers to a continuous downhill flow and its speed increases because of gravity. However, this speed becomes slow as the "complexity" of land increases and evolution develops such complexity. Additionally, the complexity of land composition increases the quality of soil and decreases the speed of downhill flow by keeping nutrients for longer time in the system. The other side of this assertion is that the downhill speed becomes slower than the speed of uphill flow nutrient. The uphill flow begins from the suck of the energy from the decomposed rocks. This ultimately strengthens the land continuity and fosters the LH that is shown by the "normal energy circulation" (2006, p. 323). In short, acceptable form of flow of nutrient is when the speed of the downhill is slower than the uphill flow.

However, Newton maintains that in Leopold's contentions there are several factors that disturb the normal nutrient flow by increasing the downhill speed. Among such factors modern humans and their interventions through different forms of modern practices are major factors. For instance, scientific agriculture and industry are dominant reasons in destructing the LP, which entails land sickness because of the reduction of the "food web." Generally, the downward flow gets speedy and aggravated by human's intervention that would lead to the "lost of the nutrient in the land community" (2006, pp. 324). This critically hampers the "self-renewal" capability of the land. In other words, due to such factors the "nutrient" would be rapidly washed before it is sucked from rocks. On the contrary, in the conditions of "organic farming" nutrients are

compensated, because plants and animals are found in various levels and in effect, there would be a “strong” relations and competition in the land. Therefore, the main objective of conservation is to keep up the continuity of the land community, and to advance the LH (2006, pp. 323-324). I believe that ethical performance is compulsory and the first step is to achieve proper conservation. I agree with Newton’s idea that keeping LH is a complicated task and requests strong endeavors.

Newton refers to Leopold’s view of conservation as if it strongly requires food chains to keep nutrition within ecological system and protect it from being washed. Furthermore, Leopold’s conservation conceives “soil erosion”, “soil infertility”, “hydrologic system changes”, “flashflood”, “abnormal floods” and “water shortage” (2006, pp. 325-327) as major signs of nutrient loss and land sickness. These signs are basically caused by “soil infertility” that obstructs land’s “regenerative” power by reducing the diversity of the land. Thus, healthy land is comprehended through dynamic flow of nutrient in the land community (2006, pp. 325-327).

Newton and Norton (2004) concur on Leopold’s concern for the need of scientific investigation to heal the land sickness. However, science is in progress and new conservation should be molded in accordance with the whole biotic stream and land mechanism even before scientific measures. Accordingly, Newton concedes that new form of conservation should draw attention to the collective functioning of all parts of the land, rather than centering on the “deficit in natural resources.” In fact, species extinctions could be reduced through the application of scientific inquiry to preserve the “habitat” from decline. These kinds of measures contribute to proper operation of land which is endowed with nutrient in “movement” that maintains the land’s system. To undertake land sickness, ecological science during Leopold’s time was not developed enough and it was in need of further progress. Hence, for Leopold, recent ecological knowledge development is mandatory for proper land adjustments (Newton 2006, pp. 228-229; see also Norton 2004, p. 24).

It is undeniable that Leopoldian conservational approaches could make modifications on the land without disturbing its function. This partly implies that land area with the move of plants and animals could resist “disorganization” and shift without disintegration. Hence, lands vary in terms their competence to resist changes. For instance, Newton concedes that during her time

Leopold compared Mexico and the southwestern Wisconsin's land in which the former had manifested relatively perfect LH than the latter. In addition, Newton thinks that Leopold proposes that conservation "programs" and "principles" should be adopted although the ecological science was not developed adequately. The implication is that conservation programs should not wait for the maturity science for their enactment (2006, pp. 335-337).

Newton also believes that new form of conservation should focus on the prevention of problems and demanding remedy if problems occur. Accordingly, she explains that Leopold raised two basic assumptions to forecast about the way of proper land conservation and land use. On one hand, he notes that land is not entirely dominated by humans and this designates the stability of the land and it connotes basic idea that peaceful communities make changes on their land composition in accordance with "geological" time frameworks but not because of human impacts. On the other hand, various species composition of plants and animals increase diversity and strengthens the structure of the land system (2006, pp. 335-337).

The continuity of the organized "circulatory system" by "food chains" flow the same food for indefinite times. This condition is identified as "stability." The preservation of LP is a vital for the continuity and self-renewal of the land that is mainly kept by native species. Thus, stability is measured in line with competent capacity of nutrient cycling (2006, p. 347).

Newton also concedes that Leopold's notion of "diversity" is grasped in his idea of "integrity" which reflects the integration of all organs of the land. Integrity is essential for the continuity of stability and LH. Thus, all parts need to be preserved regardless of human's ignorance. From the view of Leopold, Newton draws dual connotations of integrity. On one hand, it refers to the species needed to keep stability of the land. On the other hand, it refers to a complete variety of native plants and animals that inhabited the land before human-made interventions occurred. Similarly, all species are essential and have "biotic right" to continue to survive. Thus, Newton draws that integrity of native communities is a determinant for the "self-healing" capability of the land (2006, pp. 339-340).

Accordingly, Newton reveals that Leopold's thought of conservation rejects the traditional conservation that centers on "protecting resource-use practices" (2006, p. 340). Because,

Leopold considers this conservation approach as deceptive contention, since it regards plants and animals as individually found in the land than collectively integrated. Additionally, this approach appeals to technological results to deal with the signs of land misuse and this sharply contrasts with Leopold's conservational vision that discourages human-made interventions in the land. The inference is that traditional conservation, unlike Leopold's approach, does not realize that land as "organismic" entity. Therefore, Leopold's conservation concentrates on the functional integrity of the land and the endorsement of LH. Accordingly, healthy land is identified with a smooth performance of land as a "normal energy unit" (2006, pp. 340- 342).

Smooth and collective functioning reflects Leopold's idea of "beauty" that is closely associated with "utility" or usefulness. Newton also notes that Leopold's conservation aligns with land's native "integrity" that endures the ecological functioning and productivity of the land. This also manifests human civilization. However, for economically oriented private owners of land, only those parts of land that contribute for economic benefit are essential in the biota. Thus, for the private owner the LH is a permanently gainful land. This implies that there are resources of the land that are not economically profitable. Therefore, ecological conservation cannot be justified by mere economic grounds (2006, pp. 340-343). In other terms, "economic determinism" is insufficient reasoning to understand land conservation scientifically that in turn gradually declines the productive land system and compromises the right of future generation (Norton 2004, pp. 27-28).

Thus, from the idea of LH, one can figure out that "integrity", "stability" and "beauty" are critical components of Leopold's conservational approach that I regard as systematically dealt with the LE. Accordingly, "integrity" refers to the interrelation between organs of the land while "stability" indicates the efficient and long-lasting nutrient flow and "beauty" connotes land's tendency to be pleasant characteristics for every species (Newton 2006, p. 347). But, sometimes various commentators and ecologists are being confused by these conceptual pillars of the LE, since they provide diverse connotations and interpretations for their respective inquiries. Nonetheless, at least from Leopoldian viewpoint, these conceptual bodies deal with LH by conveying ecological, moral and evolutionary interpretation to the land. Similarly, these conceptual fundamentals develop various conservational thoughts in which Leopold's LE is a leading one (2006, pp. 246-247).

Newton also identifies that Leopold's conservation explains the "biological" possibility of ethical behavioral extension to the land. The interaction and preservation of humans with natural environment that is shaped by humans would increase the intuitive cooperative interaction with the land community. Nonetheless, she claims that during Leopold's time "education" and "economics" were not directed to the "intense consciousness" of the land. This condition was one obstacle that hampers the LE. The other challenge was the opponent attitude of the farmers who did not perceive the land ecologically. Hence, these two factors were problems in the LE. The implication is that ecological comprehension of the land is an imperative to tackle these kinds of problems, since ecology ultimately regards land as an "integrated whole" than as a mere economic resource. Therefore, ecological knowledge and strong social conducts are paramount to cultivate the ethics of "land community life" that conceptually moves down human species from "conqueror" position to simple fellow member of the land (2006, pp. 347-348).

For the promotion of land community oriented ethic, the convergent thinker Norton states that gradual and practical form of experience would guide to meet an ecologically insightful idea of the nature that reveals the degree of human's mutual interrelation because Leopold structurally links ethic to "community instinct" through ending human's governing position in nature. However, for Norton, mainly instinctive "wisdom" and humans ancestors are essential for the ecological idea of land and for the understanding of human's proper place in nature. It appears that Leopold's LE adjusts humans' performance in line with "nature's force." Thus, ecological and ethical principles are crucial to arrive at the stage of peaceful human-land relationships and claims to reduce factors that trouble "conservation causes" (Norton 2004, pp. 22).

Indeed, I also concede that the conceptual design of Leopold's LE to conserve the natural environment is supposed to apply for all lands although actions vary from one land to the other. In fact, we should bear in mind that Leopold' LE was founded on the conditions in Southwestern Wisconsin. Apparently, the LE focuses on upholding the preservation of "public interest" than "private interests" (Newton 2006, pp. 349), although land could be possessed by private landholder. Based on this view point, it is evident that the LE is against individualist form of land utilization. Rather, as Newton concedes the LE claims to systematically bind the interests of the community with the private interests. Also, the LE is associated with the moral value that

naturally infuses the natural world with both the species and the community's life as long as evolutionary forces allowed (2006 pp. 349-350).

In general, the Newtonian conception on Leopold's conservation is boldly rooted in the idea of LH, which is essentially grounded on the conservational concepts of the LE. Accordingly, the accuracy of land related action is assessed in terms of health and sickness. Actually, the courses of the LE proceeds from the lower landscapes to the community level by explaining how land entirely operates. In this respect, Newton notes that Leopold's functional amalgamation of integrity, stability and beauty as bodies of land system is essentially manifest in the LE. Therefore, the more energy rotation is kept in the land the more it reveals a stable or sustainable health of the land.

3.4. Leopold's Land Conservation as a Moral Duty to the LH

Newton also claims that the mere ecological interpretation of land is not an exhaustive intention of Leopoldian conservation. Rather, it requires moral duties and responsibilities to foster the LH. Accordingly, all moral beings both individually and as a member of society have to extend their moral duties to the entire land organization. In this respect, ecological sense of right or wrong is a basic principle to extend moral duty to the land. The rightness of individual's action in relation with the land must be evaluated in terms of "ethically" and "aesthetically" appropriate and economically suitable measures. Accordingly, Newton agrees with Leopold that the LE does not promote any form of human oriented resource flow and resource need. Thus, the LE is all inclusive form of ethic that wholly considers the entire communities of life and people (2006, pp. 246-247).

Norton conceives Leopold's LE as a "revolutionary" account, since it is grasped as considerably forcing Leopold to protect predator in the LP. However, Norton concedes that Leopold's conceptual shift from "predator eradication" to "predator protection" (2004, p.14) is provoked *not* from philosophical change. Rather, it is resulted from the "inadequacy" of scientific knowledge to govern and treat the entire ecosystem and "pessimistic view" of the future environmental directors. To elucidate, for Norton, the limitation of scientific knowledge to

control the land ecosystem is the main factor that led Leopold to promote predator preservation unlike his earlier attitudes to the predators. From this view point, Leopold draws that "intuitive perceptions" are truer and understandable than science in realizing the "indivisibility" of the earth (2004, p.16). Generally, Norton agrees with Leopold's claim of moral status for organismic or indivisible earth (2004, pp. 13-14 & 16-17).

Nonetheless, according to Norton, although Leopold conceives earth as an organism by itself, it is ultimately managed by humans and modern attitudes. The human society gives priority for the goodness of humans than other species. This implies that Leopold's conception of land would also have anthropocentric aspect. But, for Norton, such anthropocentric view of Leopold is merely raised for the purpose of managerial investigation. Yet, it is remarkable that the organismic view of land is a reasonably non-anthropocentric aspect that fosters a deeper moral value and reaction to the land that is advanced by the progress of "human cultures" and the creation of proper "public perception" (2004, p. 27). The idea is that cultural evolution and the creation of the public interest fosters the level of human's interdependent with the life community. Therefore, human managerial system of the land mainly needs to take into account both the survival of human beings and the preservation of entire species (Norton 2004, p. 27).

In general, Norton believes that Leopold's notion of conservation implicitly approves what Norton calls "convergence hypothesis", because, for Norton, the LE has both anthropocentric and non-anthropocentric interpretation of the land. This hypothesis confirms that in short-run there is a difference between human interest and the interest of nature, although in the long-run human interest will correspond with the interests of nature as long as humans comprehend themselves as a mere part of the land community. It is inferred that the endurance of the ecosystem and human culture are achieved in the long-run, although temporarily they seem to diverge. Besides, for Norton, "to protect the fullness of life is to protect the far-distant future of the human species and its evolutionary successors and vice versa" (2004, p. 28). The connotation is that all inclusive life form preservation will sustain and grant the right to life of the future generation. Therefore, the LE has both the anthropocentric and non-anthropocentric accounts that seem departed today but will converge in the future.

3.5. Sahorta Sarkar's Adequate Conservation Ethic and Leopold's Theory

In this section I briefly compare and contrast Leopold's conservational perspective with potentially accredited sufficient conditions of conservation ethic which are originally proposed by a systematic conservationist Sahotra Sarkar. In this respect, I solely depend on Sarkar's six conditions of conservation ethic by critically examining each of them from the viewpoints of LE.

Sarkar (2005) proposed six potentially adequate conditions for the conservation ethic. The first entails that biodiversity should be valued in general including its complexities in different levels so that endangered natural phenomenon is preserved. The second condition maintains the need of "moral force" by claiming human obligations to conserve biodiversity. The third focuses on the need to give priority to "group" than "particulars." Fourthly, all species in the biodiversity should be conserved in line with their level of endanger, "rarity" and "rapidity." The fifth condition requests "prioritizing*"* way of valuation from ethical point of view. Finally, Sarkar also devises non-human centered conditions in order to develop satisfactory conservation ethic (2005, pp. 48-50).

In each of the above adequacy conditions of conservation ethic, I do have some concerns and hereafter I present them in relation with the conceptual tradition of the LE. Accordingly, I concede that the first condition is similar with the basic notion of the LE that claims philosophical valuation of the entire land system. It is noteworthy that the conservational focus of the LE is expressed in terms of stability, integrity and beauty of the entire land.

With regard to the second condition, I concede that the kind of ethical obligation and the justification procedures are not clearly stated. Although I agree that moral obligations are essential for the valuation of the entire biodiversity, this condition could not be specific and comprehensive enough to address possible ethical issues. In case of the LE, morality is associated with the well-being of the whole land community that humans approve by considering themselves as mere members of the land. Thus, at least in the LE there is a standard of moral justification for humans' action towards the land so far as it corresponds with the LH.

As regards the third condition, I draw that it begs a question. Although I do not have suspicion on the need of the condition, it could not adequately address the question: why the main goal of conservation does appear to preserve the collective diversity? I also concede that this condition entails one directional view since it merely considers collectives and discounts individual species. However, I think individuals' autonomous position in the biodiversity should also systematically be guaranteed. But when it comes to the LE I notice that the structure of the balanced LP could implicitly preserve individual species, although in principle the LE gives priority to conserve the whole land community. Hence, I think unlike the LE, Sarkar's third condition can easily challenged by idea of "environmental fascism", which contends that "fancied" interest of the larger whole "subordinates" the rights of individual "integral" members of the whole land community (Keularatz 1995, p. 8). Because, I believe that the LE thoroughly recognizes the biotic role of individual species while Sarkar's third condition could not realize the ecological role of individual members of the land community.

In relation to the fourth condition, it is undeniable that hierarchical classification of species is essential to give priority for the endangered species. But it is also imperative to seek comprehensive criteria to assume a species whether it is endangered or not. My claim is that the fourth condition needs to provide specific standards to address problems what I call *rarity dilemma* of species, which mainly asks the question of how to ethically select an endangered species when two or more endangered species concurrently exist in the land, given that the resource of conservation is limited. Perhaps one can present the fifth condition to answer this question. However, condition five partially addresses the question, because "prioritizing" condition could not bypass challenges from radical relativists. For instance, to mention one challenge, how is it possible to have valid "prioritizing" procedures to a rare species in different societies? Hence, the fourth condition that Sarkar calls an "all taxa" condition and conditions of sufficient conservation ethic should provide well-defined and specific principles.

Concerning the sixth condition, I agree that non human centered conservation is vital, although I also strongly doubt its effective applicability to the conservation ethic since it needs a lot of efforts to reverse the human grounded conservation. Apparently, I also believe that humans are the one who devise moral values and ultimately allow the moral consideration of the non human natural entities. So, it is difficult to hold back human's interests from nature. I believe that is why

we have been experiencing human generated dangers of nature, which can be reasonably reduced if the mere non anthropocentric grounded conservation is broken. Hence, condition six needs further endeavor, but in any case it is important for the promotion of conservation ethic. In this respect, I believe that the LE's conception of human species as fellow and equitable member of the biodiversity would essentially contribute to realize Sarkar's fifth condition of conservation ethic.

In general, these six conditions and the LE have similarity in their presumption of the need for strong admiration and affection to nature for the enactment of conservation and its ethic. Furthermore, both of them are mainly concerned with the collectives over particulars, although as I stated earlier, the LE implicitly considers the biotic position of individual members of species while Sarkar failed to do so explicitly. Thus, I argue that the injection of land ethical conceptions in Sarkar's sufficient conditions of conservation ethic would provide strong foundation for land conservation.

Hereafter I briefly examine these two thinkers' notion of conservation in relation with Sarkar's dual view of "intrinsic value" and way of assessing nature intrinsically. Sarkar regards this value on one hand, as if it refers to the valuation of things that possess intrinsic quality. For instance, "knowledge" or "pleasure" has intrinsic value. This contention differs from the idea that intrinsic value of individuals or "nonhuman species" or the "ecosystem." On the other hand, the idea of intrinsic value identifies the positivity or negativity of the thing (2005, p. 54).

To elucidate, from Sarkar's viewpoint the above two aspects of intrinsic value reveals two senses. The first is related to the identification of intrinsic value based on the inherent "qualities" that the components of the thing possessed. This sense refers to the non-relational approach of intrinsic value, since it does not depend on other external entities. The second sense conceives intrinsic value as a kind of value that the thing has apart from of it may have as a "means" to other "ends" of other entities (2005, p. 54). By implication, for instance, humans have intrinsic value in the matter of conservation, since they have value regardless of their concern to biodiversity conservation. Besides, Sarkar classified Leopold's idea of intrinsic value in the LE in the second sense, although for Sarkar Leopold considers the "biotic community" as an end in itself without providing strong argument (2005, p. 54).

With regard to the first sense, I detect similarity between the two thinkers. In the LE as I believe, Leopold considers the biotic community as an end and inherently valuable, but at the same time a "balanced" but complicated energy flow have a decisive role for the well-being of the whole land. This implies that each and every species of the biotic community has its own ecological role that promotes the normality of the land. The LE considers each elements of the land as characterized by the first sense of "intrinsic value" since individual entities of the land could possess non-relational worth.

On the contrary, I argue that particular species could also have relational and instrumental expression of value. Because, in one direction it is considered that species in the LP are relationally worthwhile for the purpose of LH. Thus, standing on the operation of the LE, although communal operation is the ultimate end, it is also noteworthy that individual species are endowed with both senses of "intrinsic value", i.e. relational and non-relational value. The bottom line is that from LE's viewpoint it is unsafe to exhaustively conclude in terms of either senses of intrinsic value.

Sarkar also doubts that the moral dictum of Leopold' LE could not precisely entail intrinsic value of the land. For Sarkar, this dictum identifies the rightness of a thing corresponds with the instrumental ecological goodness of the land. In other words, for Sarkar, the LE implies that the goodness of the whole land entails the goodness of the parts and hence, at least in this sense the whole could have instrumental value. Similarly, the whole land would be normal when the parts act in ecologically normal to balance the entire energy flow of the land. Thus, once again, in some extent parts also have instrumental value to the whole, since the goodness of the whole mechanism of the land solely depends on its parts. Nonetheless, Sarkar thinks that Leopold's LE conceives land community as an end by in itself without providing plausible argument (2005, pp. 54-55).

3.6. Thinking like a Mountain and the LE

'Thinking Like a Mountain' is another essential essay in Leopold's *A sand county Almanac: A Sketches Here and There.* In this section, I examine this essay associating it with the grand concepts of 'The Land Ethic.' The rationale of this examination is to see how the conceptual integration of the two essays contributes to the conservation of nature.

Leopold begins this piece by stressing that instabilities could exist in natural world and it is important to hear such scream and echoes of animals carefully. He illustrates this condition by taking wolfs of the mountain as an example. From this viewpoint, he considers the nature world as the home of members of all living things. The point is that, as people can strike and revolt against unjust and problematic political government, similarly living things strike to end the distraction against the members of the members of mountain. Based on this viewpoint, I can say that all living things of the mountain react naturally and the mountains listens while humans do not. Hence, all other livings things of the mountain and the mountain itself "think" about the instabilities of the mountain. In Leopold's word, they "heed to that call" (1949, p. 129).

Accordingly, Leopold contends that such calls and disturbances of the mountain have deeper meaning that humans fail to understand. But the mountain deeply understands and interprets the meaning of the calls of the mountain because it is the only mountain that survived for a very long time unlike other living things (1949, p. 129). Only the mountain would listen and understand the "howl of wolfs". Thus, Leopold identifies the mountain as if it has the strong capacity of thinking that reveals the mountain worries about things that live on it.

Nonetheless, Leopold does not deny that living things other than the mountain itself are also capable to feel the calls of the wolf, although they could not interpret it. The idea is that the call of the wolf exists in the mountain, although no one knows the existence if the call. But, the mountain could understand its meaning. All living things of the mountain could feel and sense the disturbance that happens in the mountain. Only the uneducable could fail to sense such

hurting feelings, although it is only the mountain that has a "secret opinion" about the problem of wolves (1949, p.129).

To convict the covert view of the mountain, Leopold discusses about his experience of the tragic death of wolf that he mistakenly considered as a deer. After that experience, Leopold had decided not to kill wolfs, because that day he saw something new in the "eyes" of the dying wolf. He thinks that the situation of the wolf was disliked by both the "wolf" itself and the mountain. Then, he refused to accept what he previously accepted view that the decrease of the wolf increases the number of the deer, because wolfs eat deer and the numerical increase of deer makes the deer hunter happier. However, even after what he experienced, Leopold had witnessed the continual damages and destruction of the mountains because of different factors. For instance, states continued to destroy wolfs and various plants and animals of the mountain were hazardously extinguished (1949, p.130). In short, Leopold was highly discontented by the distractions of the fauna and flora of the mountain.

He also thinks that humans or any other artificial practices on mountains could not replace the natural actions of parts of the mountain. For instance, "the cowman who cleans his range of wolves does not realize that he is taking over the wolf's job of trimming the herd to fit the range and he has not learned to think like a mountain" (1949, p.132). The implication is that human practices and changes in nature are not compatible with nature's reaction to nature itself. In this case, metaphorically speaking, the mountain thinks for the good of its animals and plants, but human-made interventions could not replace the mountain's natural reaction to the welfare of its constituencies. Broadly speaking, in this essay like the LE, Leopold argues against the destructive human-made intervention in nature.

Moreover, Leopold implicitly concedes that all things that live on the mountain endeavor to attain "safety, prosperity, comfort, long life and safety and dullness" (1949, p. 133). To attain these objectives they employ different mechanisms. For instance, he states that "the deer strikes with his supple legs, the cowman with trap and position, the statesman with pen, the most of us with machines, votes and dollars, but all come to the same thing: peace in our time" (1949, p. 130). According to Leopold, although these struggles are considered as key of success and objective thinking, in the long run they lead to dangers. Therefore, Leopold considers that the

sound of wilderness as a rescuer of the world. Hence, according to Leopold, the scream of the wolf is a sound of rescuer of the world that is known by the mountains but not recognized by humans (1949, p. 133).

In general, the two works of Leopold have similar concepts. Both of them systematically identify the ignorance of humans about how nature operates. In this respect, lack of knowledge about natural environment and its function makes humans to interfere and imbalance the operation of nature. As I already stated, the LE recognizes human ignorance, and largely reinforces ecological conscience to nature. Therefore, the land ethical perspectives and contention of a Mountain as a thinking thing imply the need of conserving the natural environment as it is, since sometimes nature is a savior of the world.

3.7. Some Critical Quandaries and Challenges of the LE

There are some debates on the application implications of the LE. In this section I critically discuss the fundamental problems and debates on the LE that has been conducted by different environmental philosophers, and I also state my critical observations.

First, Eric Freyfogle states that Norton's conception of the LE is principally on anthropocentric enterprise. Accordingly, Norton's view also endeavors to show the mechanism by which human beings could live and struggle in the competitive natural world. The LE is likely designated to promote the welfare of humans both at present and in the future. In addition, Nortonian view regards the LE as "deontological" endeavor. Thus, community by itself has no moral value. In addition, Norton thinks that "ethics" and "expediency" of Leopold are essential for the long-term goodness of human beings and LE is taken as a chief practical expression of conservation to flourish human's life (Freyfogle 2009, p. 23). Moreover, Norton believes that Leopold conceives "pragmatism as a justification for a longsighted anthropocentrism to support his conservation ethic" (Norton 2004, p.17). Hence, for Norton, land is something pragmatically "outgrown" by human beings for the welfare of human species.

In contrast to Norton's view, Callicott considers the LE as fundamentally "non-anthropocentric", "holistic" and "deontological" project (2004, p.17). Callicott like Leopold extends morality to include all the biotic members of the land, rather than restricting it to humans. Thus, for Callicott, the community is intrinsically valuable and the land functions ecologically. As I explained in the earlier chapter, the idea of enlightened self-interest is a guiding principle of the LE. Callicott also accredits this kind of interest and conceives the LE as a deontological than prudential ethic unlike Norton's view (Freyfogle 2009, p. 23).

Nonetheless, as it is indicated earlier, the LE is the product of social evolution that requires an ecological understanding from all human species. The articulation of the LE necessarily requires human development and extension of moral values to the land. Thus, at least I am convinced that the land ethical value is articulated by human species and it is anthropogenic, although I do not agree with the view that moral consideration is restricted to human species. Because, I believe that the ultimate objective of the LE should correspond with the moral valuation of the land in particular and nature at large.

I also believe that Callicott's assignment of additive posture to the LE is another critical point. The additive view of Callicott is mainly identified in his book titled *In Defense of the Land Ethic* and the book classifies the LE as additive kind of ethics but not a "substitutive" ethics to "interpersonal ethics." This implies that the LE could not substitute the existing "interpersonal" or "human ethics" (2001, pp. 212), although it significantly adds essential ecological and moral concepts to the "interpersonal" ethics. Accordingly, additive form of the LE fosters harmonious and friendly ethical obligations to the land. In other words, the LE is added to the evolutionary development of ethics and to the gradual development of ethic but it does not substitute the "social ethics". In addition, additive view stands to integrate the LE with the human social ethics through prioritizing duties. As we have seen in the previous section, such prioritizing factors are SOPs that are driven for the communitarian foundation of the LE, and prioritize duties originated from multiple moral memberships. Hence, the additive view claims to incorporate the LE to the interpersonal ethics (2001, pp. 212). The following quote briefly elucidates Callicott's additive interpretation of the LE:

> The land ethic is an accretion- that is an addition-to our several accumulated social ethics, not something that is supposed to replace them. If, as I here explain, Leopold is building the land ethic on theoretical foundations that he finds in Darwin, then it is obvious that with the advent of each new stages in the accrediting developments of ethics, the old stages are *not erased or replaced*, but *added to* (2002, p. 211, emphasis added).

Nonetheless, from the additive viewpoint, I derive to two implications. On one hand, additive approach purposefully situates the LE to fill the potential gaps of the interpersonal ethics. Hence, the LE would have instrumental value. On the other hand, additive interpretation of the LE lead to regard the LE as it is not a full-fledged ethic. It follows that, the LE fails to be an autonomously recognized ethic.

The other challenge of the LE comes from those who request its applicability in modern world. It is remarked that in modern times ecological science and thoughts have been changing. For instance, Freyfogle contends that the idea of *stability* in the LE as static expression of nature is rejected by modern ecologists. Because, modernists believe that stability is dynamic. Similarly, the representation of *integrity* of LE is a totality of species that logically entails the need to preserve land by refraining from any human made touches. This is practically impossible in modern times. In addition, the idea of Leopold's *beauty* is also regarded as unclear, subjective and failed to provide objective direction (Freyfogle 2009, p. 24). From these examples, I conclude that the LE is still a process that is partly being molded by the ever changing ecological sciences and the reaction to it.

So, can the LE function in modern time? Emphasizing on this question there is also debate on the validity of the LE in modern times, although Callicott specifically endeavored to suit the ecological stance of LE with the modern scientific system. Accordingly, Callicott interprets the LE as if it goes in line with changes in nature. In addition, for Callicott, there is a possibility for humans to change the land with minimum scale. Nonetheless, as I discussed earlier, Callicott does not receive the LE as originally spelled by Leopold; somewhat he moderately modified it by recognizing the dynamism of nature (Freyfogle 2009, p. 25). Therefore, Callicottian point of

view accepts the function of the LE in modern times with some modifications on its pillar moral maxim.

According to Freyfogle, Newton views the "dynamism" of nature as if it is not a basic problem that devaluate the LE. For her, the primary focus of Leopold's LE is not on the ecologically dynamic aspect of nature that consists the "biological composition" of nature. Rather, Newton argues that the LE's emphasis is the ecological operation and efficient flow of "nutrient" in land community. For her, this functioning is less dynamic. Hence, Newton conceives that the LE could function with the dynamism of nature (2009, p. 25).

Nevertheless, thinkers such as Meine strongly argue that "[t]he land ethic will need to respond to emerging scientific insights and shifting foundations…the land ethic must be supple and flexible" (Meine 2004, p. 212). This implies that unlike the above idea of Newton, the LE needs to be sensitive to the changes in nature. Because, thinkers like Meine, for instance, believes that the foundation of the LE itself would possibly face the intellectual evolution or progress. In short, Meine regards not only biological composition but also ecological functioning of the nature is the foundation of the LE.

The other challenge to the LE is what environmental fascists raise. They argue that the LE subordinates individual members of the community, although Callicott resisted their challenge. For Callicott, this challenge emanates from the interpretation of the LE as a "substitution for" human social ethics. On the contrary, for Callicott, the function of the LE is an "accretion" to the human social ethics. In other words, the LE adds further ethical aspects to the already accumulated human social ethics. Therefore, for Callicott, the LE with the combination of the second order principles contributes to promote harmonious human-land relationship. For instance, an individual could be a member of a multiple communities such as extended family, a city and a republic. In each of them there are moral duties that the individual needs to meet without replacing or canceling one to the other. Accordingly, the land ethical moral duty is the enlarging mechanism of moral consideration to the whole land. Thus, for Callicott, land ethical insights could not subordinate the rights of individual members to the community. On the contrary, the LE grants individual's the biotic right to exist (2001, pp. 211-212).

3.8. African Philosophical Conception of Nature and the LE

In what follows, I very briefly show the basic African philosophical conception of nature and the LE. In doing so, I focus on their conceptual similarities and the implications between the LE and African view of nature for the protection of the natural environment. In this respect, I rely on the basic views of nature by the two African philosophers, Mogobe B. Ramose (2002) and Godfrey B. Tangwa (2004).

Ramose argued that the concept of "wholeness" useful for the peaceful interaction between humans and the "physical nature" (2002, p. 124). From African point of view, such "wholeness" implies the "caring" and protecting of humans one another and the natural world. So, for Ramose, like Leopold's LE, humans are parts of nature. The LE endorses harmonious human-nature relationships. Similarly, African view of nature conceives the concept of "harmony" as the maintenance of the "balanced" interactions among humans, and between humans and nature. Accordingly, the African view of harmony upholds all-inclusive but "specific relational" states that promote the stable relations between humans and the natural world (2002, p. 124).

Furthermore, Ramose denounces the conception that the "universe" has a "center" by claiming that such thinking would block the way of "truth." So, thinking humans or any other entities as a center in nature is wrong view. The implication is that in nature no one claims a central place and similarly, by any means humans are not in the center of nature (2002, p. 124). Thus, Ramose's view grants that human species should not have a dominant role in nature, which is also similar with the basic conceptual perspectives of the LE.

In addition, similar to the ideas of the LE, for Ramose, "technology" disturbs the "ecology" by disordering "balance" between humans and the "environment" (2002, p. 127). This point is also well-matched with the land ethical notion that humans should not destruct the health of the LP by using human-made tools.

Moreover, the interconnection between humans and the natural environment is enormously disturbed by many environmental ruins such as the "air pollution", "global heating", "the destruction of Ozone layer" and "the threats from nuclear" (2002, p. 128). These kinds of environmental destructions are severely impeding the peaceful human-nature interactions. So, Ramose states that in the present-day the world can attain peace by joining the "ties of interdependence" that also exists in human-nature relationships (2002, p. 128). The idea is that strengthening the "interdependence" between members of human community and natural community is the "best rational" way to attain peaceful human-nature relationships (2002, p. 128). Thus, African view of nature indicates the integrations between all parts of nature.

In the same way, Tangwa, the Cameroonian philosopher thinks that African view of nature is identified in terms of strong interdependence in nature. He also believes that African attitude towards nature is identified as "eco-bio-communitarian", which also entails a peaceful interaction between all members of nature (2004, p. 389). This view is guided by traditional values of "respect" between people; the attitude of "live and let live" and "respectful co-existence" (2004, p. 389 & 390). In addition, for Tangwa, although Africans indentify several distinctions between humans, "sub-humans" and the remaining nature, by any means humans have no "mandate" or "special privilege" in nature (2004, p. 389).

In general, from the above short review, one can infer basic similarities between African conception of nature and the LE's view. These similarities include;

- Human beings are part of nature that has no special right in the natural world, although it is undeniable that humans have distinctive intellectual capacities such as morality and rational thinking about the natural world. Thus, both the LE and African view of nature situate the natural world on similar moral stage like humans consider their fellows from moral point of view.

- Both the LE and African views conceive nature as a community but not as a "particular." Yet, the LE's community concept emanates from the fact that components of nature are ecologically intertwined and recognized. But African community concept of nature does not provide explicit ecological interpretations; rather its idea of community appears in the indigenous people's positive attitudes for the whole natural environment. Nonetheless, both the LE and Africans consider nature as interactively operating entity.

3.9. Some Lessons from the LE to Ethiopian Environmental Policy

Under this title I am not going to provide a detailed account of the implication of the LE for Ethiopian environmental policy. Thus, I confess that this section is not a full-fledged sketch of the subject. Rather, I briefly discuss the implications for the LE to the Ethiopian environmental policy.

According to Keeley and Scoones (2003), the Ethiopian environmental policy mainly relies on the premise that environmental protection is crucial for the purpose of filling food production gaps of the country. The country has been facing food scarcity and droughts. Accordingly, in Ethiopian context, the major issues relating to the land conservation are concerned with the filling the "food gap" of the country (2003, p. 72). Based on this viewpoint, environmental policies of the country are analyzed in terms of three major conditions. First, the policy should reconcile the "substantial food deficit" with a rapidly increasing population. Second, the policy should endeavor to reduce the "degradation of natural resources." Finally, the policy has to foster a successful "participatory management of nature in rural communities" (2003, p. 72).

I think all these conditions reveal that the Ethiopian environmental policy is essentially anthropocentric because they stand to maintain the needed amount of food so that the population of the country would not starve. I can say that unlike land ethical view, Ethiopian environmental policy provides a dominance role for humans to control nature.

After 1960's agricultural tradition of the country adopts "inorganic farming" that mainly employs synthetic practices. This kind of farming sharply contrasts with the land ethical idea of

organic harming. Because, inorganic farming disregards traditional farming as if it manifests "lack of commercial" attitude to the natural resources (Keeley & Scoones 2003, p. 75). In this regard, I believe that the LE can contribute constructive policy elements that realize the reduction of degree human's intervention in nature. "New policies are developed in line with "new knowledge." Accordingly, I suggest conceptual principles of the LE to Ethiopian conservation policy as additional and a new perspective.

Generally, from the above short review one can derive that the LE could imply constructive values to Ethiopian environmental policy. Thus, some of the lessons that Ethiopian environmental policy makers should learn from the LE include:

- valuing the entire nature intrinsically rather than instrumentally;
- realizing non-anthropocentric and holistic conception of nature;
- recognizing human species as equal constituents of nature as any other biotic members;
- limiting human's destructive and artificial intervention in nature; and
- treating the land as an organism that has a life.

Apparently, I believe that the critical amalgamation and applicability of the above land ethical concepts in Ethiopia particularly benefit environmental policy makers and managers through creating strong policy principles and procedures. In addition, since in Ethiopia, the conception of land is mainly human-centered, then the holistic view of land is significantly narrow the gap of thinking nature property of human species. Therefore, I believe that any environmental stakeholders and actors need to align with the proper interpretation and application of the LE.

In summary, in this chapter I discussed selected thinkers' critical ideas on the issues of LE and conservation. As stated earlier, Callicott questions the paradoxical aspect of Leopold's first definition of ethics that involves the notion that the restriction of the struggle for existence and the claim of freedom of action in competition. For Callicott, the two are paradoxical.

I also selectively discussed Newton's idea on the LE and new conservation system that she derived from Leopold's works, especially from the LE. I explained her ideas that the accuracy of energy flow by "food chains" normalizes the LP and promotes the LH. Thus, she maintains that

conservation is formulated to tackle land problems that are mainly caused by human-made interventions. For her, conservation could be a treatment mechanism for the land sickness, and its main objective is to maintain the "self-healing" capacity of the land. In addition, she confirms that soil fertility is a determinant factor for LH and for best productions. She explains the need to slow the downhill rapidity of nutrient flow that would keep normal flow of LP. She also support to show that Leopold's opposition to the economic determinist's comprehension of the land is plausible, since it advances human benefits through economic oriented interventions, and it compromises the rights of the future generations. In fact, Newton like Leopold stresses on the need to promote the "integrity", "stability" and "beauty" of the land community, which could be manifested in the ecological, moral and evolutionary aspects of the LE.

The chapter also shortly discussed the ideas of Norton. He mainly identifies that human interest and the interests of nature temporarily diverge. However, his "convergence hypothesis" entails that these interests will converge in the long-run. In fact, Norton also concedes that the LE has anthropocentric and instrumental aspects, although he does not deny the non-anthropocentric version of the LE. Norton believes that "intuitive wisdom" and our ancestors are important forces that enable humans to ecologically conceive nature and to know their proper position in nature. So, for Norton, intuitive perception is relatively accurate and clearer than science to realize the "indivisibility" of earth. Furthermore, I stated that Norton regards the LE as revolutionary account of ethics.

I also briefly discussed some challenges and debates in relation to the view of LE and its interpretations. In this respect, Norton and Callicott as disagree on the claims of the anthropocentric or non anthropocentric, deontological or consequential interpretation of the LE. For Norton, the LE is human-centered and consequentially important for humans while Callicott's view is non anthropocentric and deontological.

The applicability of the LE in modern times is also another discussion that the chapter raised. The dynamism of nature and science has important factors that divide thinkers to ask the applicability of the LE in modern world. Norton thinks that such dynamism is not the main concern of the LE because the LE is basically founded on the ecological function of land, but not

on biological composition of the land. In contrast, Meine claims that the LE needs to respond to the emerging scientific insights and it needs to be flexible.

Finally, the chapter specified some lessons that Ethiopian environmental policy makers would learn from Leopold's LE.

CHAPTER FOUR

CONCLUSION

The general objective of this thesis was to examine the practical implications of the LE for conservation of natural environment. Besides, it has also the objective of exploring the contributions of the LE to develop nature friendly-attitudes so that nature could be rescued from multifaceted human-made problems. I stressed that the examination of LE's implication for nature friendly attitudes is a key for all humans to know their status in the natural world and to morally promote a peaceful human-nature interaction by maintaining the natural operation of nature. Accordingly, I realized that the proper place of human species is the similar with all other members of nature. Thus, the LE does not give any privilege to human species, although it obligates humans to morally extend the "social conscience" from human society to natural world.

In the analysis of the original version of the LE, I mainly found out that there is a gradual development of ethics, and the ultimate ethic involves human-nature relationship. This relationship is supported by understanding the ecological community concept that is reflected in the idea of LP. As I discussed in chapter two, the normal expression of Leopoldian ecological LP is the flow of energy in the land. Accordingly, ethical humans should recognize the ecological functioning of the LP and struggle for the maintenance of the natural flow of energy in the land by employing all-inclusive land conservation measures. Moreover, as I discussed in chapter two, the LE provokes the moral dictum, which evaluates peaceful human-nature relationship in terms of the "integrity", "stability" and "beauty" of the whole land. So, for Leopold, the ethical action of humans is grounded on normalizing human-land interaction that is manifested by the normal condition of these three elements.

I noted that the LE could not totally avoid human's intervention in nature. Rather, as John Baird Callicott notes, scales are essential to make changes in nature. Nonetheless, I concede that scale itself varies from land to land and from one community to the other. This implies that scale

specifications alone could not give a comprehensive answer to determine normal level of human intervention in nature.

Moreover, as Callicott notes, the relation between the evolutionary progress of human society and ethics is the foundational manifestation of the LE. Similarly, Callicott's thought of the LE reveals the direct link between the LE and the progress of "moral consciousness." It is also identified that the LE conceptually identifies both "sentimental" and rational approaches to bring peaceful human-nature relationships. Thus, social "sympathy" has a vital role for the ecological understanding of nature. Thus, humans are needed to be endowed with natural and moral behaviors to foster Leopoldian way of conservation perspectives and principles so that the LH will be promoted.

As Callicott notes, the conceptual basis of the LE corresponds with the "super organismic" form of land; "psychological" characteristics and humanistic grounds. These grounds of the land reveal the need to treat land not like inanimate object or property, rather as a huge life form that supersede humans in terms of both "time" and "place." Moreover, Callicottian explications of "holistic", "individualistic", "Copernican Astronomy, "biophysiological" and "cognitive" discussion of the LE imply that the LE is philosophically a contentious form of ethic.

In addition, the designation of SOPs to prioritize moral duties of moral agent who is a member of a multiple moral community determines the "temporal" and "spatial" extent of human possibility to alter the land. In this respect, Callicott claims minimum alternation rate. From the conceptual synthesis of Leopold's LE and Callicott's SOPs, one can infer the extent that humans are allowed to intervene in nature, although the proposed scale does not clearly state the conditions and standards for such interference.

In fact, Callicottian SOPs permit that human would alter nature with minimum temporal and spatial scale. In this respect, it is necessary to raise the issue of continual interest of humans in nature. My point is that humans have a continually unsatisfied need that they claim from nature. Besides, I think that the level of interest to alter the land also varies from individual to individual, based on various grounds.

Furthermore, the thesis identified a strong conceptual connection between Sarkar's six conditions for adequate conservation ethic and the LE. Accordingly, Sarkar's conditions include the general biodiversity valuation; guided by moral forces; should concentrate on "collectives" over "particulars"; should consider the level of species endanger; should request prioritizing ways, and conservation should be molded with non-human centered standards. In fact, as I stated earlier, there are some differences between these conditions and the LE. I concede that one of their disparities lies in their conception of "endangered species." The LE could not explicitly investigate about the moral fate of the endangered kind of species while Sarkar's conditions clearly identified the need to give priority to conserve "endangered" members of the land community.

As I discussed in the latter part of chapter three, the LE and African view of nature have significant common point. There are essentially associated with the conception of the natural world as a communal world that all components of nature have equal status. As Godfrey B. Tangwa indicated African view of nature is "eco-bio- communitarian", which mainly represents the harmonious interaction between all parts of nature and strong "interdependence" in each components of nature. Thus, I identified that the conceptual combination of the LE and African view of nature would contribute to form a promising way of dealing with environmental problems.

I also identified that land ethical concepts could be effectively realized not only by scales but also by adapting its conceptual contributions to different conservational policies. That is why I briefly discussed the case of Ethiopian environmental policy as a sample. As I already indicated in chapter three, this policy can learn several beneficial lessons from the LE. Thus, the LE is highly helpful for proper conservation policies. Furthermore, the land ethical orientation of conservation could be one of the best ways of protecting and managing natural environment. Because, the LE is both ethically and scientifically recognized holistic mechanism of conservation that could generate nature friendly values among humans.

The thesis also found that the following lessons are significantly derived from Leopold's LE and they are crucial to develop effective environmental conservation policies and management;

- valuing the entire nature intrinsically rather than instrumentally;
- realizing non-anthropocentric and holistic conception of nature;
- recognizing human species as equal constituents of nature as any other biotic members;
- limiting human's destructive and artificial intervention in nature;
- treating the land as an organism that has a life;
- avoiding the conception of land from mere economic stand point;
- engendering nature friendly attitudes by cultivating "enlightened self-interest" view of nature and creating ecological awareness to all reasonable beings;
- promoting organic farming and reducing synthetic agricultural practices;
- conceiving land as an indivisible community that individuals and collectives are ecologically and morally valuable; and
- endorsing proper conservation education that fosters both moral and legal obligations.

Accordingly, the conservation theory of Leopold mainly maintains the preservation of the whole land as it exists naturally. This kind of conservation characteristically differs from the conventional and traditional view of conservation. Here, as Julianne Lutz Newton stated, the traditional form of conservation focuses on the preservation of particular resources by claiming particular "resource use practices." Thus, the traditional perspective of conservation gives priority to resources that are urgently beneficial for humans while the LE promotes conservation by considering nature as intrinsically worthwhile apart from the benefit it provides to human species.

One of the major findings of this thesis is that unlike many other non-anthropocentric and holistic versions of environmental ethics, the LE emphasizes on the need for emotional response to tackle human's erroneous position in nature. The idea is that the trends of most holistic ethical accounts boldly employ reason for their flow of thought while the LE gives emotional reasoning

as one perspective of thought. Hence, in the LE the synthesis of emotional and rational accounts would significantly make it different from other non-human centered environmental thoughts.

I believe that the LE is not adequately studied, although thinkers such as Callicott and Newton have done their best to understand it. I imagine that the perfect practical implementations of the LE at both individual and institutional level would significantly reduce the damages of the natural environment by developing both ecological and ethical mechanisms of conservation.

Finally, in the course of my research I faced some difficulties. In the first place, I could not find adequate original works for my study. Besides, because of time constraints I could not conduct field work and compare Leopold's LE and African or Ethiopian land ethic. Hence, these constraints hindered the thesis from addressing its objectives as expected.

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