LAND ETHICS FOR SOLVING SOIL AND LAND RESOURCES OF ALDO LEOPOLD

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Abstract

The UNFAO warned global topsoil were at risk of disappearing by 2050. FAO pointed out that every five seconds, soil eroded by the size of a football field (7,140 square meters) day but around a thousand years were needed to cover it only 3 centimeters and only 60 years of farming left; if soil degradation continued. In investigating the Leopoldian Land Ethics, the researcher found that the Leopoldian Land Ethics extended ethical considerations to the holistic ecosystem engulfing soil, water, plants and animals and biocentrism was the exit. Global environmentalists supported Leopoldian Land Ethics. Leopoldian Land Ethics called for moral responsibility to global caring for natures and environment and their relationship based on Ten Commandments, the Golden Rule and democracy. Finally poor land ethics led to physical, economic and social impacts to the over 60% of the low-income citizens. Besides, Leopoldian Land Ethics to protect the entire ecosystem, calling for moral responsibility to care global environment and to solve the physical, economic and social impacts contributed by poor land ethics. The researcher proposed the royal initiative to address deteriorated soil of His Majesty Rama IX by vetiver grass, mixed crop systems and to acid soil by “Soil Persecution” since 1981.

Keywords: Leopoldian Land Ethics, Ecosystem, Physical, Economic and social impacts

Introduction

The UNFAO warned global topsoil the most precious assets were at risk of disappearing by 2050 (UN News, 27 July 2022). To protect the world's land and help farmers, FAO pointed out that every five seconds, soil eroded by the size of a football field (7,140 square meters) day but it would take around a thousand years to create a soil surface of about 3 centimeters. We had just 60 years of farming left; if soil degradation continued said Chris Arsenault (2017/2022). Had humans even to destroy the soil or to pollute soil or to bathe soil with blood in various civilization wars, conflicts of belief, colonization hunts natural resource hunts to feed industrial production. World War I and II, including Cold Wars and international conflicts over the past 1,000 years destroyed around 45,033.34 sq. kilometers or equivalent to the Republic of Estonia or Denmark (Thailand has a size of 513,120 sq. kilometers) which would take around 11, 394 years (UN Statistics Division, 2007/2022 pp.58-69). The researcher believed that humans had both to use and to erode soils for feeding, selling, survival, surviving human species, national existence, and their expansions for feeding and selling. Should ethics then be applied in soil-uses?

The answer was, for 10,000 years, humans had cultivated behaviors of disregarding the rich soils for plantations, subsistence but persistently migrating in search of new fertile soils. Some settlements used manures to enrich soils during the past 800 years before the Industrial Revolution (during 1760-1850). However, in post-industrial Revolution; the motto of minimize costs maximize gains had been imposed (Kostritsky, 2011 p. 114) to accelerate productions for imports and profits. As such, soils had been senselessly or unethically destroyed though using chemical to speed productions. This allowed improper soil-uses as in the academic principle while impacting through the deterioration of soil resources and soils though soils were encountering natural disasters such as erosion by waters, winds and rains and so on.

In the recent centuries, these landscapes were dramatically turned into Agro-Land. Tracing back to1000 years, these landscapes was estimated around 4 million Km^2 of ice-free and non-barren land area for farm-uses. Today global lands were distributed into 10% glaciers, 19% barren land-deserts, dry salt flats, beaches, sand dunes, and exposed rocks. The rest 71% 'habitable land was distributed into 35.5% farmland, 37% for forests; 11% as shrubs and grasslands; 1% as freshwater coverage; and 1%built-up urban area which includes cities,

towns, villages, roads and other human infrastructure. If we combine pastures used for grazing with land used to grow crops for animal feed, livestock accounts for 77% of global farming land. While livestock took up most of the global agricultural land it only produces 18% of the world's calories and 37% of total protein. The expansion of agriculture has been one of humanity's largest impacts on the environment. It has transformed habitats and been one of the greatest pressures for biodiversity: of the 28,000 species evaluated to be threatened with extinction on the IUCN Red List, agriculture is listed as a threat for 24,000 of them.

Yonggang (2016) analyzed Leopoldian Land Ethics. And found that it emphasized the evolution of ethics and community concepts, the creation of ethical ecological feelings for people to expand their social consciousness and wisdom. In Leopold's view, people felt protecting resources and allowed them to be natural, but it was difficult to implement but truly effective, as in strengthening education on resource protection included participated in some resource protection organizations but all of these fails to solve the critical environment and resource fundamental problems, which worsened and never worked as intended because of the lack of ecological awareness. So, it became just a matter of imagination. Leopold therefore emphasized the importance of 2 issues: expanding the content of ethical theory by integrating nature into human ethics. It was necessary to create a new ecological worldview believing that humans were the leader in the biological field. However, Yonggang believed that when it came to ethics and sacrifice for the common good, people often did not want to get involved because most humans tend to believe that "You are your own refuge" (Khp. (Thai) 25/36, 66.) or "Help yourself first and God will help you" (Thessalonians 3:10; James 4:8) or "Greed Is Good" (Zarroli, J. 2008; Kluger, J. 2014).

Sathaporn Jai-aree, Deputy Director-General of the Department of Lands and the working group, said the soil destruction resulted by people and nature affected the livelihood and income of farmers (Department of Land Development, 2020). The major problem of national soil degradation came from (A) the improper technical land uses led to (1) soil erosion problems bringing rich topsoil loss and the unending decline in productivity. The eroded soil precipitated and shallowed in the water source which needed emergent solutions 134.54 million rai or 41.95% of the entire national areas. (2) The soil organic

lack issue unappropriated for cultivation at 181 million rai or 59.50% of the entire national areas. And (3) problems caused by the natural soil condition coupled with the acceleration of human-induced problems such as saline soil, acid soil, peat soil and sandy soil at around 182 million rai, and so on. (B) The impacts from the deterioration of soil and land resources, were (1) physical impacts - soil degradation was caused by inappropriate land management, lack of invalid protection causing the soil surface erosion led to the loss of fertility and precipitated and shallowed in various water sources while the government had to spend costly expenses of dredging which affected environments. *(2)* Economic impacts - soil degradation directly affected agricultural productivity of 34 million farmers (60 percent of the country's population), who made up the majority of the national population, and would suffer from low yields bringing them poverty. They earned 11 times lower than the non-agricultural populations. (3) Social impacts - farmers earning low income, had less options to earn their living. Their choices were either to encroach arable conserved forests or to migrate into cities for earning and left problems behind. All both choices raised problems to the country. And another critical problem was to disregard the basic human dilemmas-soil and land. Guidelines for preventing and solving soil erosion problems were to use of soil and water conservation measures, and methods appropriated to the 6 slope levels of the area became the most important factors in the process of soil erosion. They were the flat and relatively flat areas, slightly undulating areas, undulating areas, steeply undulating areas, hilly areas, and complex steep areas or steep slope areas. Besides considering the slope level of the area was critical so as soil properties such as soil texture, soil depth, drainage, rainfall, flush and land uses were also considered. Guidelines for preventing soil erosion by conserving soil and water with both mechanical and planting measures (Sathaporn Jai-aree, 2020).

Wittawat Yuttakosa (2017) proposed mixed crop systems with vetiver grass to all levels. Besides covering soil helped conserving soil water, helping to add organic substances to the soil and helping circulate plant nutrients from the lower soil to the topsoil. Vetiver grass rows also helped reduce leaching and soil erosion as well, improved the soil, restored, enriched and soaked soil according to the academic process. 20 years later-King Rama IX conferred his royal initiative to Sumet Tantivejkul, Secretary-General of the Chaipattana Foundation in 25 July 2011 that in general, it needed prudence since even vetiver grasses by principle they had to prevent soil erosion but they may be the

cause of landslides in every region because of storms. Their roots deeply penetrated in the soil and might cause soil split themselves and brought water flew in. Also, fast growing trees were planted but they had no taproots to hold soils. These needed prudent considerations to each area. Though His Majesty proposed using vetiver grass to improve, conserve and restore soil and deteriorated soil and hard soil since 23 April 1991. Fertile soils would be increase but soil erosion and destruction would still never end.

Aldo Leopold introduced Land Ethics with its main principle included (1) people should consider themselves as the ordinary members and citizens of biotic communities, not the "conquerors" over the land (par. 10, p. 203.) (2) We should extend ethical considerations to the holistic ecosystem (i.e. "Soil, water, plants and animals") (par. 8, p. 203). (3) Preliminary ethical principle, one should not worry about each kind of plants or animals but one should be worry with the good functions of the plant community, animals and all. (par. 36, p. 211.). (4) “The moral principle in summary” of ecological ethics was that we should try to seek the principle of securing abundance, stability and beauty on the communities of plants, animals, living beings, soil and water (par. 82, p. 223.). At the same time, in Thailand His Majesty Rama IX proposed the Vetiver Grass Approach to protect and prevent soil erosion and enrich deteriorated soils (23 April 1991).

However, the Leopoldian Land Ethics was the relationship between people and soil Caring for people is inseparable from caring for the land, and ethics is a moral code that grows out of such caring relationships. Though classic but it had met three pressing questions; they were (1) could it protect the entire ecosystem? (2) Were its effects and impacts acceptable? And (3) one had to overlook the goodness of a person for the common good, even if the majority committed offenses claiming to conserve and to nourish the land possible to be physically, economically and socially affected? The researcher would deal with them consecutively.

Research Objectives

1. To investigate the Leopoldian Land Ethics and its entire ecosystem protection
2. To investigate its effect /impact acceptance

3. To investigate the utilitarianism of the Leopoldian Land Ethics affecting the physical, economical, and social conservation and nourishment.

Literature Reviews

Theory of the Leopoldian Land Ethics: Its content is distributed into 3 issues, namely, the evolutionary pattern of ethics, community concept and ecology consciousness; the relationship between people and soil caring were inseparable; and ethics was a moral code that grows out of such caring relationships (para. 13, p. 205.). Its main principle was people should consider themselves as the ordinary members and citizens of biotic communities, not the "conquerors" over the land (par. 10, p. 203.) (2) We should extend ethical considerations to the holistic ecosystem (i.e. "Soil, water, plants and animals") (par. 8, p. 203). (3). Preliminary ethical principle, one should not worry about each kind of plants or animals but one should be worry with the good functions of the plant community, animals and all. (par. 36, p. 211.). (4). "The moral principle in summary" of ecological ethics was that we should try to seek the principle of securing abundance, stability and beauty on the communities of plants, animals, living beings, soil and water (par. 82, p. 223).

Leopoldian Code of Ethics had three stages - its formulation was based on certain philosophical theories consisted of three aspects: (1) the value theory of philosophy (Secology, Apgology, or Virology) what was good, desirable, and valued to time and effort (para. 23, p. 208) (2) Anthropocentrism/ humanocentrism) that man was the center or the most important entity in the universe that must be adjusted because it must live with the community of plants, animals, living beings, soil and water, etc., and (3) the Christian environmental concept emphasizing the ecological responsibility as a protector of the kingdom of God to manage creation in a specific way (Genesis 1: 26-28).

Research Methodology

This qualitative reflection was to fulfill its objectives, documentary exploration with credible books, textbooks, research reports and related researches to accomplish triangulation technique. Triangulation has been a method used to increase the credibility and validity of research findings. It helped uncover the deviant dimension of a phenomenon, and also serve as the critical test, by virtue of its comprehensiveness, for competing theories. Second, it minimized bias. Third, it provided richer and more comprehensive

information. Finally, using several methods together also helped rule out rival explanations. The researcher in this qualitative approach weighed on content analyses. The method of conceptual analysis tends to approach interactions and either compatibilism or incompatibilism.

Results

The Leopoldian Land Ethics Protected the Entire Ecosystem

It extended ethical considerations to the holistic ecosystem engulfing soil, water, plants and animals. It also enlarged the boundaries of the community to include soils, waters, plants, and animals; or collectively: the land (para. 8, p.204). This observation suggested that biocentrism was essentially an individualistic ethic. Life would seem an attribute of individual living things. Global environmentalists supported holistic entities such as ecosystems, wilderness areas, and species all deserve moral consideration.

Its Effect / Impact Acceptance

The essay was published in 1949 as the finale to A Sand County Almanac, The Leopoldian Land Ethics called for moral responsibility to the natural world to caring: about people, about land, and about strengthening the relationships between them. It was an inherent sense of what's right and wrong referring the Ten Commandments as a set of moral standards. Its principle talked about ethics between people and their communities referring the Golden Rule (do unto others as you would do unto yourself) and the concept of democracy as foundations that informed our societal code of conduct. The Leopoldian Land Ethics argued, the concept was the missing piece in what he calls the ethical sequence.

The Leopoldian Land Ethics Affected the Physical, Economical, and Social Conservation and Nourishment

1. Physical impacts - soil degradation was caused by inappropriate land management, lack of invalid protection causing the soil surface erosion led to the loss of fertility and precipitated and shallowed in various water sources while the government had to spend costly expenses of dredging which affected environments.

2. Economic impacts - soil degradation directly affected agricultural productivity of 34 million farmers (60 percent of the country's population), who made up the majority of the national population, and would suffer from low yields bringing them poverty. They earned 11 times lower than the non-agricultural populations.

3. Social impacts - farmers earning low income, had less options to earn their living. Their choices were either to encroach arable conserved forests or to migrate into cities for earning and left problems behind.

Discussions

The Leopoldian Land Ethics and Its Entire Ecosystem Protection

The researcher found that the Leopoldian Land Ethics extended ethical considerations to the holistic ecosystem engulfing soil, water, plants and animals. This observation suggested that biocentrism was essentially an individualistic ethic. Global environmentalists supported that holisticentities such as ecosystems, wilderness areas, and species which all deserve moral consideration. In Hartshorne’s theory, the body not only reacts to the world around it, but also reacts to itself. We feel the feelings of at least some of our cells. As Hartshorne said, hurt my cells and you hurt me. Some organic wholes, such as plants, do not have a structure integrated enough to allow for a dominant stream of experience. Hartshorne viewed plants as having no feeling, but he attributed feelings to their individual cells. Meaning, when we treated and protect ecosystem. We had to address the entire system which included soil, water, plants and animals. This was the strong point of Leopoldian Land Ethics that the entire ecosystem would be well treated and protected rather than selective entity. However, soil, water, plants and animals could be changed by nature or by men; Leopoldian Land Ethics would be disable upon these immediate change as we are facing now on climate changes which impacted the entire global ecosystem. The concept of Leopoldian Land Ethics would be balanced if ecosystem was permanent and humans did not erode and polluted it. Therefore, the researcher would propose alternative concepts and practices like eco-centrism, which meant to accept and to support the balance of ecosystem equality and hierarchy while opposing changes and shift treatment of ecosystems. Also, proposing environmentalism advocated the preservation, restoration and improvement of the natural environment and critical earth

system elements or processes such as the climate, and may be referred to as a movement to control pollution or protect plant and animal diversity. To implement eco-centrism and environmentalism, there would be number of barriers since majority of human were still in poor for arable fields to survive, therefore, they had to encroach any arable parks to cultivate any things to survive themselves and their families. As such, law enforcement must be strictly imposed since every government around the world provide subsidies for such type of people but their greed and law-break loving geared them to do such misdeeds. Nevertheless, the researcher would insist if we weakened nature, it would weaken us with deadly returns, and as such we should further explore the Leopoldian Land Ethics to maximize gains for global humanity.

To Investigate Its Effect / Impact Acceptance

The Leopoldian Land Ethics called for moral responsibility to the natural world to caring: about people, about land, and about strengthening the relationships between them. It was an inherent sense of what's right and wrong referring the Ten Commandments as a set of moral standards. Its principle talked about ethics between people and their communities referring the Golden Rule (do unto others as you would do unto yourself) and the concept of democracy as foundations that informed our societal code of conduct. The Leopoldian Land Ethics argued, the concept was the missing piece in what he calls the ethical sequence. The strength of the concept was in the Ten Commandments and the Golden Rule (do unto others as you would do unto yourself) where majority of the global citizens accepted. However, this world still allowed citizens abode with "Greed Is Good". Greed (or avarice) was an uncontrolled longing for increase in the acquisition or use of material gain on any things and everything, particularly power and greed was undesirable since it created behavior-conflict between personal and social goals. The concept was not bias because the Ten Commandments and the Golden Rule were counted the standards of conduct. So, alms and other philanthropic deeds could be alternatives to alleviate selfishness and other cardinal sins particularly greed to grasp natural resources but enhancing friendship-making and fraternity-making. In short-term and in long-term, Leopoldian Land Ethics would be the leading approach to preserve global natures as in WEF 2022 which emphasized collaboration, trust restoration to address economic, environmental, political, and social fault-lines exacerbated by the COVID-19 pandemic. Certainly, in

their implementation, the researcher expected there would be many barriers to build regional collaboration and trust restoration but it could start with inside-out in addressing national political, economic, ideological, technological, environmental and media conflicts including schism, sectarian and other hidden controversies. Finally, the researcher would remind that the maxim of the Leopoldian Land Ethics was "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." At the end, the concept of Leopoldian should be further explored to prepare our global citizens for future global challenges and for our next global generations.

To Investigate the Utilitarianism of the Leopoldian Land Ethics Affecting the Physical, Economical, and Social Conservation and Nourishment

Physical impacts - poor land management, and poor protection measures led to loss of fertility, and shallowing water source and overconsuming government budget. Economic impacts - lower agricultural productivity, low yields and causing poverty to over 60% percent of the national population; and social impacts - less options to earn their living for the poor and encroaching arable national conserved forests or migrating into cities for earning and left problems behind. The strength was knowing that there were land management, protection measures, productivity, yields, earning, and arable areas. However, the weakness was poor land management, poor protection measures, poor productivity, poor yields, poor earning, and attractive arable areas for encroachment. Optionally, personnel involved, and every common and poor people should unite to sustain the state forests from encroachments. Alternatively, the government and the local people should both create local jobs and create land and forest protection and conservation measures. The researcher proposed that in short-term and long-term, the physical, economic and social impacts should not be found in each global area through environmental justice which was the fair treatment and meaningful involvement of all people regardless of race, colour, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Certainly, the researcher estimated that implementing environmental justice would meet dramatic resistance but it could be overcome through call for common understanding, common benefits, common prosperity

and how to resiliently maximize these gains with community supports. These physical, economic and social impacts could be as negative guide to reach positive measures and gains. Leopoldian Land Ethics should be explored further on protection and preservation measures of forest to reduce physical, economic and social impacts.

Conclusions

In investigating the Leopoldian Land Ethics and its entire ecosystem protection, the researcher found that the Leopoldian Land Ethics extended ethical considerations to the holistic ecosystem engulfing soil, water, plants and animals. This observation suggested that biocentrism was essentially an individualistic ethic. Global environmentalists supported holistic entities such as ecosystems, wilderness areas, and species which all deserve moral consideration. As of the investigation of the Leopoldian Land Ethics' effect /impact acceptance; the researcher found that the Leopoldian Land Ethics called for moral responsibility to the natural world to caring: about people, about land, and about strengthening the relationships between them. It was an inherent sense of what's right and wrong referring the Ten Commandments as a set of moral standards. Its principle talked about ethics between people and their communities referring the Golden Rule (do unto others as you would do unto yourself) and the concept of democracy as foundations that informed our societal code of conduct. The Leopoldian Land Ethics argued, the concept was the missing piece in what he calls the ethical sequence. Finally, the investigation of the utilitarianism of the Leopoldian Land Ethics affecting the physical, economical, and social conservation and nourishment; the researcher found that its physical impacts - poor land management, and poor protection measures led to loss of fertility, and shallowing water source and overconsuming government budget. It economic impacts - lower agricultural productivity, low yields and causing poverty to over 60% percent of the national population; and its social impacts - less options to earn their living for the poor and encroaching arable national conserved forests or migrating into cities for earning and left problems behind. Besides, Leopoldian Land Ethics to protect the entire ecosystem, calling for moral responsibility to care global environment and to solve the physical, economic and social impacts contributed by poor land ethics. The researcher proposed the royal initiative to address deteriorated soil of His Majesty Rama IX by vetiver grass, mixed crop systems and to acid soil by "Soil Persecution."

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