

*Conceptual Paper*

# Making Animals Visible in Sustainability Accounting with Critical Look at Financial Valuation

Esmail Tavakolnia<sup>1</sup> 

Department of Accounting, Hazrat-e Masoumeh University, Qom, Iran

Received 23 April 2023 Revised 24 May 2023 Accepted 29 May 2023

## Abstract

Although human rights have widely been addressed in scientific communities, animal rights and relevant challenges have mainly been neglected. Despite all unfortunate accidents that happen to animals, their unfavorable status has rarely been discussed in the literature on sustainable development or sustainability accounting. Nevertheless, the economic analysis of nature inhabitants and animals is an approach that has gained in popularity in accounting, finance, and economics over the recent years. This study promotes the notion that not only does the foregoing approach fail to result in environmental monitoring, but it also allows people to have economic reasons to justify destroying nature and harming animals. This study aims to offer a strategy to make animals visible in sustainability accounting by emphasizing the avoidance of materialism and financial valuation of natural inhabitants and phenomena. This study utilizes a comprehensive literature review and critical analysis of relevant sources to develop a scientific argument that contributes to the ongoing discourse in the field of sustainability accounting. This study proposes to separate animals and emphasize their importance in the sustainability model. It also suggests avoiding exaggerations in financial and economic valuation and focusing on the environment, animals, and other elements of nature. The proposed solution is expected to be a critical approach that can underlie further discussions and analyses.

**Keywords:** Animal Rights, Environmental Accounting, Sustainability Accounting.

<sup>1</sup> Corresponding author's Email: [mat.nilufar@gmail.com](mailto:mat.nilufar@gmail.com)

## Introduction

The concept of development in the mid-twentieth century was primarily focused on economic growth, as measured by GDP. However, after the emergence of socialism in the 1960s, there was a growing emphasis on addressing the basic needs of the population, particularly the poor. This trend was further accelerated by the devastating effects of poverty and environmental destruction, leading to the idea of sustainable development (Nastaran, Ghasemi, & Hadizadeh, 2013). Sustainable development is based on the principles of environmental protection, human rights, and economic and social development, all of which are interdependent (Eftekhar Jahromi, 2009). Although human rights are well-established in legal contexts, the issue of animal rights has not received equal attention. The question of whether animals can experience pain and suffering has led to different approaches, with some denying animal rights completely and others granting them equal status with human rights (Shahbazi, 2011). Animals on Earth have suffered cruelty at the hands of humans for domestication, clothing, and other needs (Harari, 2011; Allievi, Vinnari, & Luukkanen, 2015). While some argue that mainly domestic and certain wild animals are affected, human manipulation and destruction of nature have impacted all creatures (Longcore and Rich, 2004).

Despite all the foregoing incidents, harsh conditions of animals have rarely been discussed in the literature on sustainable development or sustainability accounting. According to Vinnari and Vinnari (2022), human perception and imagination of other inhabitants on Earth would account for the philosophical and fundamental reasons for the current situation. Animals, plants, bacteria, microorganisms, canals, and atmosphere are all considered an integrated and unified collection called the environment or nature. This classification can be observed in the conventional view of sustainable development with three eccentric circles (*i.e.*, community, economy, and environment) and introduction of a new scientific research branch named environmental and social responsibility accounting. This is also true about the concentric model of sustainable development where economy is only a subsystem of the community, both of which (*i.e.*, economy and community) are considered dependent sectors of the environment. Regardless of the fact that which sustainability model is taken into account (*i.e.*, the eccentric three-circle model or the concentric three-circle model), this ontological approach is problematic because it degrades domestic animals to an existential purgatory between society and environment, whereas it classifies wild animals as lifeless things such as stones and rivers. As a result, domestic animals are considered a sector of the economic system or a cause of environmental problems, whereas the only reason for paying attention to wild animals is to reduce the species existing in nature. This view ignores the existence of animals and excludes them from the perspective of sustainable development and thus sustainability accounting (Vinnari & Vinnari, 2022).

Paying logically special attention to domestic and wild animals would mitigate the instrumental view of these inhabitants. Although it is apparently impossible to achieve ideal conditions in which these inhabitants are not harmed, it is hoped that new dimensions are considered by legislators, environmental activists, industrial pioneers, and members of society. An economic look at animals and inhabitants of nature is an approach that has become popular in accounting, finance, and economics in recent years.

Nonetheless, this study promotes the notion that the foregoing approach will not only fail to result in environmental monitoring but also allow people to use economic arguments to justify destroying nature and harming animals.

This study was mainly inspired by the theoretical framework proposed by Vinnari and Vinnari (2022). Their framework is analyzed critically to introduce and discuss an adjustment approach. Hence, this study aims to offer a solution to inclusion of animals in sustainability accounting by emphasizing the avoidance of materialism and financial valuation of phenomena and inhabitants in nature. The proposed critical approach can underlie further discussions and analyses.

## Research Method

This conceptual research used a literature review and critical analysis to find a solution for including animals in sustainability accounting. Relevant sources were identified through a systematic search of academic journals, books, and reports and evaluated for relevance and quality. The conceptual context was developed through a process of conceptualization that involved identifying key concepts and relationships from the literature and drawing on relevant theories, followed by critical discussion and analysis.

## Literature Review

### *Protecting Animals; Iranian History*

Apparently, the causes of current environmental crises should be searched in the attitudes that humans have adopted towards nature and material world or as it is now considered the environment. Nature is the most important environmental variable that has affected human life since the dawn of history. Therefore, its effective role in human evolution has always been considered and analyzed deeply by different scientists. Humans have long been exploring nature as an instrument to better know the Creator. Since the elements of pristine nature are divine creations and signs, they more eternal and inclusive than whatever humans create. In fact, communities have been searching for secrets hidden in nature and their relationships in order to conquer natural forces that are sometimes dominant. Many forms of human arts are the direct confrontations with the evils that emerge in human bodies as a result of mental and physical diseases. Asking help from natural forces, humans have been trying to expel evils from their spirits, bodies, and homes (Poorjafar & Mohandespoor, 2005).

According to ancient Iranian beliefs, the world has a spirit or a soul, some parts of which are even considered holy due to their important effects on the survival of human life. Apparently, such an approach provides other inhabitants with a kind of right to both protect their lives and have comfort. In this view, humans are not considered the center of the universe for whom everything has been created; hence, they are not entitled the right to make any interferences and interventions. As a result, more opportunities are provided to protect the environment (Orojnina & Hooshangi, 2017).

In ancient Iranian beliefs, respect for nature does not mean regarding natural elements and phenomena as gods. In other words, it means valuing, respecting, and complying with

the phenomena that affect life. Through admiration, humans remember the rights that these elements have in life and survival of the world. More importantly, this admiration is also considered worshiping the Almighty God. In this belief, every human being is responsible for improving the world, *i.e.*, improving its peace and happiness, as God wishes. Any attempts at prosperity of the world by planting a tree, flowing water, watering plants, and taking care of animals can be considered a kind of honesty and fight with evils and lies. At the same time, prosperity of the world also means protecting it against any forms of pollution, as the creatures of God are all clean and pure. Hence, they should be protected against the forces of evil that try to destroy the world and pollute the creatures of God (see Orojnia & Hooshangi, 2017). Therefore, in ancient Iranian beliefs, attempts at preserving nature can be considered major goals and responsibilities. This emphasis on prosperity of the world by taking care of water, plants, and animals will lead to environmental protection. Since everyone was responsible for helping the world reach prosperity and happiness in ancient Iranian beliefs, killing sheep or calves and even cutting down trees would be considered heinous sins. Basically, any useful plants or animals should be assisted in perfection, for they will manage to participate in the fight with evil forces. Through growth, plants and animals can then help the survival and prosperity of the world. Thus, it is important to consider mental health and physical health of all land animals, sea animals, birds, and grazers. In this regard, the ancient culture admires the shepherds that help the cattle find mates and protect them from harsh weather conditions, thieves, wolves, and evil people. At the same time, if somebody refuses to provide warm settlement or good food for even stray dogs, he/she has committed a great sin. Therefore, people are responsible for protecting sick animals, even dogs, as they protect decent individuals. In conclusion, respecting animals has a long history in the Iranian culture, something which has now been regarded and emphasized worldwide.

### *Animal Rights; Viewpoints*

Undoubtedly, major challenges to the global village in the third millennium include destruction, pollution, and annihilation of environments for plants, animals, and humans. These challenges are caused by the actions of some humans, who have disrupted the order of nature so badly that they would not seem to need water, air, soil, plants, and animals anymore. It goes without saying that nature and environment do not need the presence or help of humans for survival, whereas humans always need nature. Hence, all animals definitely desire the extinction of the human race, for humans are the sole reason for the extinction of all species of plants and animals by forcing the wild life into its extinction stage (Movassaghi, 2022). There is a long history of numerous studies and reviews about the role of nature (including plants and animals) in society. They have indicated many conflicts and confrontations. According to many classical scientists, the modern society has a dichotomous relationship with nature (including plants and animals). In fact, although this society entitles itself to exploit plants and animals, it recognizes no considerable rights for them. Moreover, a challenging topic is to comply with the rights of animals and consider their rights to live. In this regard, the theory of animal citizenship was introduced as "Zoopolis" by Donaldson and Kymlicka (2011). According to this theory, citizens in democratic countries have three basic rights: (1) the right to live in a country; (2) the right to have benefits and welfare included in political contracts and agreements; and (3) the right to participate in democratic institutions. An important aspect of this theory is to explain different states of citizenship in western democratic societies.

Firstly, citizens are the ones who have all or most of citizenship rights. Secondly, holders of permanent residency are the ones who have the legal right to live in a country but lack the right to vote. Furthermore, holders of temporary residency have the right to live in a country within a limited period of time. In some cases, they even have the right to use hygienic facilities in some countries. Finally, there are foreign workers who either have or lack the legal documents. Then there are refugees and other cases.

Donaldson and Kymlicka (2011) classified animals as three ethical categories and suggested that they should be given political rights based on their relationships with humans. Domestic animals live among humans because they have been nurtured to depend on humans for food and shelter. Hence, these animals can be considered fellow citizens of humans whose benefits should be taken seriously in the situations that affect their lives. Their benefits should also be considered in political decisions. The wild animals who live outside human societies and do not depend on humans for survival can be compared with the citizens of foreign countries. In fact, they are the independent inhabitants whose lives should not be violated by humans. The third category includes the animals that stand between the two foregoing categories. Instances are foxes, squirrels, and mice. Since these animals live among humans and depend only indirectly on humans (*e.g.*, through leftovers), they can be considered the permanent residents without citizenship.

According to Hall (2018), the theoretical analyses presented by Donaldson and Kymlicka (2011) are very useful in two respects, the first of which is their emphasis on different types of relationships between humans and animals (including domestic, domesticated, liminal, and wild). By doing so, they corrected the conventional simple classification of animals as domestic and wild categories. Second, they introduced a new topic in different kinds of human–animal symbiosis by simulating various types of citizenship and relevant rights. By doing so, they implied that it would be essential to identify new strategies for fairly treating a wide variety of animals. For instance, fair treatment of animals should not necessarily be based on membership in a specific animal species. The members of a species can have different relationships with humans. For example, cats can be feral or domestic, and dogs can be companions or seeing eyes. There are different advantages and responsibilities considered for domestic animals. Feral dogs should mainly communicate with other feral dogs; however, companion dogs need to communicate with humans and other symbiotic species in order to partake in a society of humans and animals.

Hall (2018) emphasized ethical commitment by changing approaches from political sciences to social sciences. In this concept, commitment is defined and performed with respect to natural relationships of humans, and then legal contracts such as citizenship rights will follow and reflect those relationships. According to Hall, ethical commitments can be considered social constructs formed on the basis of social relationships over the course of history. As these relationships emerged throughout history, ethical commitments were formed. Different types of these historical commitments that have been defined and accepted include commitment to family (*e.g.*, parental support for children), commitment to society (*e.g.*, educating children and abiding by laws), an employer's commitment to employees (*e.g.*, controlling health and safety in a workplace), professional commitments (by doctors, lawyers, and auditors), a person's commitment to



his/her country (*e.g.*, paying tax and doing military service), and commitment to humanity (*e.g.*, philanthropy).

Therefore, some commitments have been defined in the human life with respect to social relationships of humans. There are also certain commitments based on the social relationships between humans and animals. These relationships can be observed in the lives of domestic animals, which are adopted and taken care of by humans. Many of these domestic animals cannot survive in nature on their own; therefore, humans look after them, something which leads to a kind of commitment. However, many animal rights activists believe that it is wrong to define a right to the ownership of domestic animals, for they have consciousness and feelings. However, according to the conventional definition of ownership, animals are undeniably classified either as conscious or other categories, the ownerships of which can be defined. In practice, pets have certain rights based on the commitments of their owners. Moreover, the relationships between humans and domesticated animals have been formed over many years based on an ethical commitment. In other words, domesticated animals meet the needs of humans. In return, humans take care of these animals. There are also lower levels of commitment to liminal and wild animals that can be defined more accurately. Hence, according to the redefinition and revision of social relationships between humans and various groups of animals, ethical commitments will then be defined for these animals.

The theory of animal rights by Donaldson and Kymlicka (2011) raised many discussions and arguments between researchers. It has been criticized differently in recent years. According to conventional anthropology, although humans share special aspects of nature (*e.g.*, desire for food, lust, and ignorance of deep feelings), they have a unique characteristic that animals lack. It is the ability to “think logically, control emotional impulses, and take ethical and behavioral considerations based on principles”. In fact, these characteristics control and harness the features of the first category, *i.e.*, our animal instincts.

According to the conventional view, it is possible to dominate animals extrinsically. However, they cannot control themselves due to lacking a rational contemplation capacity and an ethical agency. Since politics is nothing but the gathering of individuals with self-control and self-rule, animals should be excluded from politics. More importantly, humans must also ignore and control their animal instincts in order to enter the realm of civic politics. In conclusion, although Donaldson and Kymlicka’s theory (2011) introduced new views and pathways to researchers and scientists, it needed some considerations for theorization and application, which were taken as much as possible by summarizing Hall’s theory (2018).

### *Sustainability Patterns*

As discussed earlier, a major problem is now to regulate the relationships of development with capitals and natural resources. Nature provides the necessary energy and resources for production, consumption, and acquisition of advantages. It also frees humans from the unpleasant outcomes of growing pollution by absorbing and refining or storing pollutions and waste. According to the idea of growth limitations (Meadows, Meadows, Randers, & Behrens, 1972), the existing economic development process leads

to pervasive deviation and obstruction. Hence, “sustainability” is now a word or a concept that is always used along with “development” to strike a balance between socioeconomic and environmental goals (Hediger, 2000).

The most widely used definition of sustainability from the Brundtland Report, used by many governments, organizations, and researchers, states that sustainable development is development that meets the needs of current generations without compromising the ability of future generations to meet their needs (Brundtland, 1987). Sustainability issues and challenges are directly related to some of the capitals that cover specific economic, environmental and social issues. To ensure resilient business models, some companies are changing the way they think about products, technologies, processes, and business models. To achieve this, organizations must consider the impacts of their economic activities—purchased goods, investments made, waste, and pollution—on the natural and human resources on which they depend to avoid irreparable damage to the productive capacity of those resources. In practice, this means that organizations must consider the impact of their economic decisions on the natural environment, economic development, and the social conditions in which people live and work (IFAC, 2015).

Economists have increasingly paid attention to the bilateral effects of natural capacities in the environment and the economic development process. Therefore, nature is now considered a kind of capital along with the other kinds. With the passage of time, researchers have tried to expand the concept of sustainability and use it for policymaking. They introduced two competing views known as “weak” sustainability and “strong” sustainability. In simple terms, some scientists believe that different types of capital can be replaced and regard the sustainability of total capitals as the goal of sustainable development (*i.e.*, weak sustainability). In this view, sustainability depends on the survival and stability of the total capital value. According to this theory, the very weak form of which is known as the sustainability of Solow who is a well-known theorist of economic development, the general production capacity should only remain constant over time in a way that the per capita consumption does not decrease over time (Solow, 1986). Despite the previous adjustments, weak sustainability deals generally with the sustainability of the total economic capital. In other words, the proponents of this theory believe that different types of capital can replace one another (Caviglia-Harris, Chambers, & Kahn, 2009). They also believe that the weak sustainability condition will be met if physical capital or technological capital increases when an ecosystem is destroyed. As a result of weak sustainability, it will be possible to maintain the consumption level (and usefulness) over time. In weak sustainability, neither nature nor other types of capital have inherent values. They are only considered the tools for reaching the highest level of possible usefulness. Other scientists believe that not only the total capitals but also the accumulated natural capital—regardless of other types of capital—should merely be stable over time (*i.e.*, strong sustainability). In this view, the substitution degrees of other kinds of capital, instead of natural capital, are considered very low and near zero. This approach can be defined as the stability of natural capital over time. In strong sustainability, nature and economy are considered two complementary sectors that should both remain simultaneously stable. Undoubtedly, adopting either of these two views will have various political outcomes in production, society, and environment (see Sharzei & Mohaghegh, 2012).

### *Animals in Sustainability*

Animals are killed for most of the food we eat, whether directly by slaughtering meat or indirectly by growing crops and destroying habitats. If we do nothing, animals die too, because while nature is allowed to take its course, we are putting human-made pressure on their lives through our use of the environment - all animals do this to each other, so we should not feel bad about expressing our animality. But when we decide to intentionally intervene and eradicate this species here or poison another there, we are often being extravagant. We risk tearing at wounds that ecosystems can never fully heal. Before we do anything that undermines the role of animals in the healthy ecosystem functioning, we must ask ourselves the all-important question of whether or not this will lead to renewed wildlife scarcity and slow ecosystem recovery. Naturalists, land managers, and politicians have been negligent in not asking this question, which means that our actions have often made the situation worse. We are also unique among animals in having a vendetta against other wildlife ... anything that is unusual, abundant, or annoying to us can become the target of our hatred. This resentment clouds our judgment, especially when, in most cases, the preservation of animal populations is of overriding benefit to us. When we lose respect for animals, we have also lost respect for ourselves. This is not just a whimsical issue, but has serious existential significance because we are killing wildlife on a scale never before seen in the history of our planet (see Mustoe, 2021).

In classical theories and studies, various philosophers always focused on humans. Although their reason was mentioned to be the fact that humans have spirits, use languages, and have free will, all philosophers highlighted thinking and rationality unanimously. The outcome of these considerations led to a view called speciesism, which indicates that a specific species of living creature is dominant and superior to other species due to having specific privileges and characteristics. Hence, humans are considered distinct from and better than animals due to having rationality and thinking capacity. As a result, all ethical considerations are focused on humans. Called anthropocentrism and known as the dominant theory in the realm of classical ethics, this view has had substantial effects on most schools of thought (Behnammanesh & Omani Samani, 2012). In different fields of philosophy, researchers explore ethical, political, and legal dimensions of social status of animals, whereas sociologists have tried to explain animals as social players (Vinnari & Vinnari, 2021).

Regarding sustainability, a brief review of the literature leads to two key insights. Firstly, according to Carter and Charles (2018), inattention to animals in the processing of society means denying the animalistic nature of humans. Although the remaining uncertainties about the common origins of humans with other species and creatures were resolved when Darwin's *On the Origin of Species* was published in 1859, it is apparently difficult for many to cast aside the notion that says humans are exceptional. In other words, any definitions of sustainability should clearly express the fact that homo sapiens account for only one species among others. Intentionally or unintentionally, this topic has so far been ignored in sustainability discussions; hence, its clarification will definitely make a serious change. Secondly, a world is emerging in scientific assumptions, political meetings, and courts everywhere to show that animals should have at least feelings in addition to ethical, political, and legal rights. Therefore, classifying and accounting



animals as “environment” or “nature” would appear to start an anachronism. It is thus essential to classify animals as a specific circle or dimension in the definition of sustainability. In this regard, Vinnari and Vinnari (2022) revised all weak and strong views of sustainability. They adjusted the weak sustainability view consisting of three separate connected circles (*i.e.*, economics, environment, and society) to a model based on four connected circles (*i.e.*, economics, environment, society, and animal welfare). They also adjusted the strong sustainability model consisting of three concentric circles (*i.e.*, economy, society, and environment from small to large) to four concentric circles (*i.e.*, economy, humans, animals, and environment from small to large). It can be argued that the animals added to these models were excluded from both environment and society. In a common model, animals can be defined both as part of society and as part of environment, for animals are included in the environment when they are considered wild, whereas they are included in society when they are considered domestic. These concepts were covered earlier in previous sections. According to Vinnari and Vinnari (2022), adding animals to this model can improve attention to animals and better compliance with their rights. The conventional view of humans and environment is a human-based view that infers all phenomena to meet the human needs. However, according to modern views, all creatures have their own needs, right to life, and right to welfare. This is the kind of view that helps us reason that a sustainability model, whether in a weak or a strong form, will become more complete if animals are included (by separating animals from other dimensions). Although the strong view of sustainability is not human-based and is thus philosophically closer to the goals of the present study, it does not still appear a complete and modern model if animals are ignored. Given their cultural, economic, and geographical conditions, different countries have considered various conditions for animals ranging from the minimum rights to the maximum rights. Although laws and regulations have not addressed this topic directly, different countries have paid different levels of customary and legal attention to the problem. In fact, animals should not be regarded only as objects used by humans, a notion which differentiates the laws of some countries about animals from those of other countries that adopt conventional views.

### *Accounting and Sustainability*

The idea of accounting and sustainability have a long history with now well-defined definitions, while sustainability accounting is not yet clearly delineated and individualized. To date, there is no universally accepted definition of sustainability accounting, but views on its classification and mandatory components are slowly converging (Gacser & Szoka, 2021).

Norway was one of the first European countries to produce an environmental account. Norwegian officials were concerned that their natural resources, on which their economy was relatively dependent compared to other European countries, might run out. They therefore developed accounts to track the use of their natural resources. In the 1980s, they developed accounts for air pollutant emissions that were closely related to energy accounts. The Netherlands was also a leader in the development and adoption of environmental accounting. They developed and attempted to introduce a measure of sustainable national income that takes into account the degradation and depletion of environmental assets as a result of economic activities. This method adopted in many

other European countries and integrated into the environmental accounting procedures developed under the auspices of UN.

The third country that used environmental accounting was France. The system used by France was an integrated system built on three separate but interrelated units. First, natural, cultural, and historical resources were to be measured physically. Second, places were to be organized into geographic accounts that contained physical data on assets based on geographic, ecological, and landscape characteristics. Third, people and institutions should be described in both physical and monetary terms in agent accounts that should be linked to data on how and where each agent used resources (Hecht, 2007). Repetto, Magrath, Wells, Beer, & Rossini (1989) argued that there is a dangerous asymmetry between the way we measure the value of natural resources and the way we think about them. The dual approach to natural resources and other visible assets creates a false and inaccurate dichotomy between the economy and the environment, which ultimately leads policy makers to destroy or ignore the environment under the title and propaganda of economic development. They believed that the increase in agricultural production in the Indonesian highlands was achieved almost entirely at the expense of potential future production. Only when the basic measures of economic performance, as codified in the official national accounting framework, be reconciled with a valid definition of income can economic policy be influenced toward sustainability. They confirmed that Indonesian growth rates would have been significantly lower with adjusted GDP than in conventional accounts.

The ideas derived from the knowledge and the economics of sustainable development were the main source of environmental accounting in the early 1990s. This provided favorable conditions for the testing and emergence of new literature (Gray & Laughlin, 2012; Bebbington & Larrinaga, 2014). The second half of the 1990s was the period of maturation of environmental accounting. Environmental information was taken into account, and environmental auditing was introduced. In addition, environmental accounting was discussed and implemented theoretically and practically in various countries, especially in industrialized countries. This course has been called the cornerstone of environmental accounting because it represented the beginning of the growth of research in environmental accounting. The number of researches related to environmental accounting increased significantly during this period, and environmental reports became accessible to researchers. Standards for environmental management, environmental auditing, and environmental inspection were also developed. In addition, guidelines for environmental reporting and accounting have been published since 2010 to date. The quantity and quality of articles on environmental accounting are also increasing and have led to significant successes and knowledge gains (refer to Vasile & Man, 2012; Hussain, Halim & Bhuiyan, 2016).

According to a recent research (Gil-Marin et.al., 2022), the concept of sustainability accounting includes the operations of companies taking into account economic, environmental and social factors, the disclosure of results in the form of sustainability reports, the provision of adequate information on the company's sustainability performance to society and the communication process of the company's impact to internal and external users through financial and non-financial reporting. This concept establishes the responsibility of companies to provide shareholders with financial and

non-financial information on the impacts of their non-financial activities, including information related to energy use efficiency, waste management, wastewater, chemical and metal waste, occupational health and safety, talent training, social and voluntary activities, supply chain, and quality control (Gimenez, Sierra & Rodon, 2012; Cantele, Tsalis & Nikolaou, 2018; Geerts & Dooms, 2020).

Sustainability is a dynamic factor that changes rapidly and has many different characteristics that cannot be easily measured and quantified. For valuation professionals, this means that they need to deepen their knowledge of strategies to evaluate the relationships between sustainability and market value in a favorable way. Currently, financial valuers are at risk of misinterpreting strategies and making inappropriate adjustments or comparisons due to insufficient knowledge and limited skills in assessing sustainability (Warren-Myers, 2012).

### **Results; Rejecting Financial Valuation for Animals**

This study addressed accounting and inclusion of animals. Despite considering the presentation of a useful framework for reporting and auditing animals, this study does not consider their valuation to be useful and does not propose anything in this regard because of the errors that applying financial values to inhabitants of nature will cause. According to the literature on the financial and economic valuation of nature, there is always a difference between instrumental value and intrinsic (inherent) value.

Instrumental values represent the value of ecosystems as mere means to an end and are often measured in monetary terms. In contrast, intrinsic values refer to the value of ecosystems as ends in themselves and are often presented as moral duties (Arias-Arévalo, Gómez-Baggethun, Martín-López, & Pérez-Rincón, 2018).

Therefore, the inherent value cannot be evaluated financially. When the financial valuation of nature is discussed, the intrinsic aspect of its value is neglected, and the instrumental aspect of its value is used. In other words, the financial valuation of nature makes people think that the value of nature is only instrumental. As a result, people will not have any perception of the fact that nature has a value beyond its economic services. Hence, allocating a number can have dangerous effects because it prevents people from knowing the intrinsic value and keeps them away from the intrinsic value.

In recent years, especially the past four decades, there have been considerable developments in the approaches and methods for financial and economic valuation of the environment. In fact, the accuracy and efficiency of valuations are now more than ever before, although some of their limitations still persist. According to environmental reports (e.g., *Forest Europe*, 2017), these limitations include mutual reliance or dependence of environmental phenomena and their services on each other. This also includes dependence inside an environmental phenomenon as the reaction of its various components to provide a specific service or dependence of different environmental phenomena for providing a specific service. Therefore, it can be argued that the financial or economic valuation of each service in nature may depend on its relationship with other services of nature. As a result, it is probably impossible to consider the effects of other

services in the economic and financial valuation of a natural phenomenon. This limitation is very important, leading to slight and inadmissible valuation.

Another major aspect is inattention to minor and marginal changes in providing services of environmental phenomena. Moreover, in the financial and economic valuation process, no sufficient attention is paid to the fact that some environmental services are not complementary (but can replace each other), and exploiting one of them will prevent using the other. Hence, additional enumeration is an important topic in valuation. It causes excessive valuation of some environmental services and inattention to the value of other services, something which will be so important and effective. In addition, the geographical effectiveness of an environmental phenomenon can be emphasized. Valuation should consider the entire population and geography affected by an environmental phenomenon. Different phenomena can have very different capacities for servicing humans. It is essential to perceive whether a specific service of an environmental phenomenon is local, regional, national, or global for proper estimation in valuation. Failure to properly perceive the depths and dimensions of services provided by environmental phenomenon will lead to insufficient and unbelievable valuations, something which has happened in some cases of environmental and even historical and cultural phenomena.

Furthermore, the effects of human activities and decisions on environmental phenomena and their services may last for a long time. Hence, an appropriate degradation rate is employed to evaluate costs and benefits. In fact, all costs and benefits are converted into the current value for comparison and analysis. Nevertheless, selecting a degradation rate usually requires many hypotheses. A popular solution is to use different degradation rates, which are usually downward, for various years because uncertainty increases in the long time. However, selecting a degradation rate can cause a considerable difference in the final result of a cost-benefit analysis. In developing countries, socioeconomic conditions are very unpredictable in the long run, thereby making calculations face serious errors and inadmissible results. At the same time, the services that environmental phenomena provide depend not only on their scales and performance but also greatly on their conditions and levels of biological variety. The worse the conditions of an environmental phenomenon, the fewest the services. In many cases, there might be a series of gradual conditions with no substantial differences at different times. However, threshold conditions sometimes appear. In fact, a turning point emerges in the destruction of environment in threshold conditions. From that point onward, there will be irreversible changes in that environmental phenomenon which will lead to the permanent loss of relevant services or complete destruction in other words. The concept of uncertainty should also be included in specialized scientific communities with regard to the services of environmental phenomena. Scientists have always discussed what services are provided by various environmental phenomena, how they may change over time, and what quantity and quality they will have. There is still no consensus about these matters. For this purpose, a proposed solution includes conducting a sensitivity analysis, identifying uncertainties, and testing the sensitivity of evaluation results to changes in values or assumptions. However, given the high sensitivity of the problem and considerable differences in evaluation results, it is nearly impossible to obtain a unique result. In addition, there are restrictions on the access to primary data and information. In this regard, a proposed solution is to use data and results of similar studies, something

which will be challenging due to practical differences in many cases. Therefore, environmental valuation is a developing project with considerable restrictions. It can be practical and useful in some cases; however, this does not mean the positive outcome of benefits and costs of using his valuation method.

Despite the key role of valuation in decision-making and improving the efficiency of decisions, it cannot completely indicate the intrinsic value of nature and natural phenomena. Hence, if we try to evaluate and value domestic animals (*i.e.*, the animals that are kept at farms or homes) and wild animals (*i.e.*, the animals that live in nature and are not nurtured by humans) in the most accurate and comprehensive way (even by considering the forthcoming developments in valuation), we will merely face nothing but materialistic confusion. This point of view makes everything quantitative and material. It will finally quantify the values of human lives. Probably, experts and philosophers in accounting, finance, and economics will somehow support this point of view due to their professions and perspectives. However, the real values of many assets including the human capitals of companies and communities depend on spiritual and abstract aspects, in which humans have not believed truly and have been interested recently. This is a warning which will lead to a dangerous outcome if it is not dealt with quickly.

## Discussion and Conclusion

In today's world, many wild animals are killed or trapped by humans every year. The trapped animals are mainly used for entertainment at homes, zoos, and circuses or utilized as research tools to discover new drugs for humans. There are various motivations for hunting wild animals such as using elephant tusks, alligator skins, and rhino horns. In fact, animals have been killed many times to maintain comfort in human life environments. Iran is among the countries with numerous environmental problems, especially animal rights, such as the acts of killing dogs by Municipalities of Tehran<sup>2</sup>, Tabriz<sup>3</sup>, and Damavand<sup>4</sup> in addition to the acts of killing donkeys in the margins of Tehran<sup>5</sup>, torturing horses at Hakim Abad Zoo in Mashhad<sup>6</sup>, killing chickens by Municipality of Ilam<sup>7</sup>, killing a large number of one-day-old chickens at poultry farms<sup>8</sup>, and killing pregnant livestock at slaughterhouses<sup>9</sup>. There are no clearly explained principles for evaluating and reporting the foregoing cases. Accountants can powerfully enter these cases and be in charge of reporting and auditing. In addition to their positive achievements for society, based on previous studies (*e.g.*, Tavakolnia, & Targari, 2015; Tavakolnia, & Makrani, 2015; Tavakolnia, 2017), they can also create a novel work atmosphere for accounting and auditing.

This study was first inspired by the problems raised by Vinnari and Vinnari (2022). In other words, animals are mainly intangible in contemporary communities because a

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<sup>2</sup> <https://www.khabaronline.ir>

<sup>3</sup> <https://www.imna.ir>

<sup>4</sup> <https://www.didarnews.ir>

<sup>5</sup> <https://donya-e-eqtesad.com>

<sup>6</sup> <https://hakimemehr.ir>

<sup>7</sup> <https://www.farsnews.ir>

<sup>8</sup> <https://www.yjc.news>

<sup>9</sup> <https://www.iribnews.ir>



problematic ontology has suspended domestic animals between society and nature and classified wild animals with lifeless inhabitants and habitats. The study then explained how the current notion in sociology and philosophy would lead to a view regarding animals as individuals with ethical, political, and legal rights. In fact, animal rights are about to be fulfilled. After the strong view of sustainability was revised, animals were defined as the individuals settled in a natural environment, and humans were defined as a subcategory of animals. However, reiterating the classification of humans as a subcategory of animals may make readers misinterpret that humans should be considered a species of animals. This interpretation is not correct. The fundamental motivation for this classification is to clarify the hierarchy in which we are all considered subcategories of the environment. However, humans and animals were also considered relatives. The problems of financial and economic valuation of nature inhabitants including animals were then addressed.

The incompatibility raised in this study (*i.e.*, the separation of animals in the sustainability development in addition to avoiding valuation in sustainability accounting, especially with regard to animals) can be discussed in future critical studies. On the one hand, animals accounting can be considered a benevolent attempt at recognizing benefits of animals as a starting point to develop accounting systems and accountability. On the other hand, it can be considered an act of violence which can subject animals to dangerous outcomes of accounting such as monetization, equalization (to other assets), and marketization if it is recognized and implemented completely. This problem also exists in topics of accounting natural capital and human capital. Moreover, there is a fundamental criticism in a wide variety of studies. Accordingly, the mechanisms that seek to solve environmental problems by creating financial values for nature will actually encourage an instrumental view of nature and diminish people's relationships with nature and their responsibility for environmental protection. In other words, such mechanisms persist an economic worldview in which people are considered separate from nature.

Academic research has shown a growing interest in valuing the environment, resulting in various models and methods being proposed (*e.g.*, Cuckston, 2018). However, academicians frequently argue that environmental valuation and accounting will reduce nature to only its monetary value, leading to the degradation of nature's inherent beauty and value (Hines, 1991). This movement may also lead society to view nature as valuable only for its financial worth (*e.g.*, Hrasky & Jones, 2016), which can lead to the destruction of the environment under the guise of economic justification (*e.g.*, Sullivan & Hannis, 2017). Hence, there has been a fundamental criticism in a wide range of literature to show that such mechanisms underlie an economic view that separates people from nature and its inhabitants.

As a result, they cannot be useful strategies to help the environment and living creatures. Although it appears that financial and economic valuation of natural phenomena is a novel up-to-date process, taking an economic look at natural phenomena and comparing the outcomes with those of other alternative activities (*e.g.*, agriculture and factory construction) resulted in the current situation (especially, in developing countries). Hence, the current process of accounting and financial and economic valuation of nature and natural phenomena will be the more extensive, more calculating, and more devastating reimplementation of the conventional but false view that jeopardized the

environment and living creatures. Thus, in addition to separating animals and emphasizing their importance in the sustainability model, this study proposes avoiding financial and economic valuation and taking a look at the environment, animals, and other pillars of nature.

Moreover, there are growing problems with the implementation of financial and economic valuation of the environment and its inhabitants in developing countries that have lower levels of achievements in economic and cultural areas of the environment. In these countries, many decision-makers and legislators now lack a correct perception of the environment and do not give much importance to the environment in their decisions. Their top priorities include employment, income creation, and satisfaction of people's daily needs. Developing financial and economic valuation in such conditions can provide such decision-makers and legislators with a tool to use figures and statistics to justify destroying the environment, something which has already been happening. This problem might be less prevalent in developed countries; however, according to the existing evidence, it has been witnessed with a higher incidence rate in underdeveloped and developing countries. For instance, according to a recent report, an authority for the environment in Iran justified destroying a plain in the north of Iran with the purpose of constructing a petrochemical factory by comparing the financial value and earnings of petrochemical activities.

### **Recommendations**

This study emphasized the idea of separating animals in the sustainability model. It is not a novel idea; however, this study proposed performing separation with the avoidance of monetization and materialism. It is hoped that researchers pay attention to this idea and expand it in future studies. It is also hoped that the arguments presented in this study are sufficiently persuasive with respect to the fact that regarding animals as a sector of the environment would lack conceptual cohesion. At the same time, animals cannot be converted into monetary figures and numbers, and neither can plants, plains, mountains, and seas. However, a holistic conclusion in this regard needs further analysis and exchange of opinions, something which naturally requires the consideration of a series of scientific, empirical, and rational factors. Future studies can also analyze accounting to determine what changes will occur by expanding the scope of accounting to animals and avoiding quantification and monetization of accounting and reporting in this area. Generally, it is important to predict in which direction accounting will progress.

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<p><b>HOW TO CITE THIS ARTICLE</b></p> <p>Tavakolnia, E. (2023). Making Animals Visible in Sustainability Accounting with Critical Look at Financial Valuation. <i>International Journal of Management, Accounting and Economics</i>, 10 (5), 360-378.</p> <p>DOI: 10.5281/zenodo.8062966</p> <p>DOR: 20.1001.1.23832126.2023.10.5.4.5</p> <p>URL: <a href="https://www.ijmae.com/article_173055.html">https://www.ijmae.com/article_173055.html</a></p>	 <p>A square QR code that, when scanned, likely leads to the full article or its online version.</p>