

Multidimensional poverty, the environment and the relationship between man and nature: paths to sustainable development

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Abstract

The phenomenon of poverty has been present in the dynamics of building society for many centuries. In recent decades, several authors have studied the complexity of poverty under multiple dimensions, relating it to development and individual freedom. The connection between poverty and the environment is understood when observing the evolution of the man-nature relationship over time, since, historically, human beings have positioned themselves as superior to nature. That said, this article seeks to understand how the connection between poverty and the environment takes place through the man-nature relationship, establishing paths to achieve sustainable development. Based on bibliographical and documentary research, it was possible to observe how complex and notorious the established relationships are. Not by chance, the pandemic period (2020-2023) caused by the coronavirus and the consequent social disruption arising from it represented a highly unusual modification of the human-nature interaction. The short- and long-term impacts on the environment and on poverty demonstrate the dimension of anthropic actions and show that contemporary actions based on the exploitation of natural resources generate severe consequences for human life.

Keywords:

biodiversity, coronavirus, multidimensionality, natural resources.



Introduction

Discussions about poverty in the world have permeated literature for many centuries and more recently, they have been addressed by authors who study the complexity of poverty in multiple dimensions and relate it to development and individual freedom. Notoriously, the idea of development is intrinsically linked to the study of poverty and is also related to the notion of freedom put forward by Sen (2010), in which the expansion of the autonomy of the 'free' being or the elimination of its deprivations is the primary means of development.

Sen (2010) was one of the main thinkers and precursors of the analysis of poverty in multiple aspects. He described the facets of poverty and questioned why it exists, how to measure it, who the poor are and why they exist, understanding that overcoming the problems experienced is fundamental for the development process (Sen, 2010). For him, being poor incorporates the complexity of the world, involving social circumstances and it goes far beyond living below the imaginary poverty line because, in order to achieve development, the main sources of deprivation of freedom must be eliminated.

Freedom is an action conditioned by social, political, and economic opportunities. In other words, it is imperative to pay attention to the integration between economic opportunities, political freedoms, social services, protective security, among others. In the literature, there is a growing number of works and scholars that have incorporated new dimensions and perspectives in the study of poverty, understanding that its mitigation/eradication is a sine qua non condition for development (especially sustainable development).

This global need led the United Nations (UN) to propose actions and goals to achieve sustainable development (ONU, 2023). It is no coincidence that the 193 member states of the UN proposed, as the first objective of the 2030 Agenda, 'to end poverty in all its forms, in all its parts' (ONU, 2023). The 2030 Agenda for Sustainable Development is an interesting parameter of multidimensionality. Sustainability already brings with it the tripod: social, economic, and environmental and the seventeen goals of the agenda show how they can be achieved and how they are all intrinsically linked.

The connection between poverty and the environment; for example, can be understood by observing the evolution of the relationship between man and nature over time since, historically, human beings have positioned themselves as superior to nature, exercising a role of domination over it. The situation worsened when the assimilation between earthly happiness and material well-being took place, which is fed back by the capitalist economic system. In 2020, the beginning of the pandemic caused by the coronavirus (COVID-19) was declared in the world. Its consequent social disruption represented a very unusual modification of the relationship between man and nature and this alteration ended up generating several studies and a series of questions and answers on anthropic action.

Short-term effects could be seen and long-term effects are still expected, such as inequalities in the distribution of resources and socioeconomic shocks. The problems raised are visibly connected (poverty, environment, and sustainable development) but in a complex and plural way. That said, this work aims to understand how the connection between poverty and the environment occurs (through the man-nature relationship) to achieve sustainable development. Published scientific papers and reports available on the web were used for this purpose, so it is bibliographic and documentary research.

Materials and methods

The research is bibliographic since scientific papers, books, and various publications available on the web, such as those that the Brazilian government makes available on its official platforms, are used to respond to the proposed objective.

Review of the literature on the evolution of poverty studies

The debate on poverty is diverse, without a single definition in scientific research. The theoretical currents are miscellaneous, appropriate different approaches, and use different methodological contributions to understand them. The concept has different ramifications and this transcends theoretical propositions and can be observed daily by populations living in poverty around the world in increasing proportions.

The one-dimensional or income approach, or even the classic view of poverty, is one of the best known and most widespread in science. To analyze poverty from this perspective means to say that a single factor can determine whether an individual is poor or not. This approach uses income and consumption data from individuals and households to define what it means to be poor.

In this sense, Rowntree's work at the beginning of the twentieth century is pioneering in this field, analyzing poverty in New York City and England based on income parameters according to the size and structure of the family unit (Rocha, 2003). The one-dimensional approach finds validation in neoclassical economic theory, based on utilitarian thinking. Theorists of this current defend that individuals are considered consumers and seek the maximum use of their resources, their expenses reflecting the utility of the goods they consume (Sen, 2010).

In view of this, it is in this way that income or consumption stands out as an exclusive indicator of well-being. Poverty is understood as insufficient income or consumption, which prevents individuals from reaching a minimum level of well-being that can maximize their total utility (Lacerda, 2010); that is, that it provides the satisfaction of their needs. Nonetheless, using income as an instrument to measure well-being has generated debates in the literature, based on the understanding that well-being is subjective.

In this approach, poor or non-poor is defined on the basis of a monetary line and the value of this line is also the subject of debate since there is no uniformity of opinions on the value to be adopted, requiring specificities by region, peoples, and cultures (Rocha, 2003; Hoffman and Kageyama, 2006). Towards the middle of the twentieth century, the analysis of poverty began to include a multidimensional bias in the debates as non-monetary dimensions related to the basic needs of individuals were included in research.

This dimension finds validation in Sen (2010) theoretical contributions when he emphasizes that the poverty line that does not consider the individual characteristics of people cannot produce a reliable diagnosis of the true causes of deprivation. In this context, Sen (2010) capability deprivation approach stands out, which will be detailed below.

The multidimensional approach presents an advance in scientific studies on poverty since it broadens discussions and can positively influence the execution of public policies, determining criteria that prevent the individual from developing as a citizen since poverty is widely discussed in relation to the denial of citizenship rights, inciting the current social structure (Codes, 2008).

According to Rocha (2003), the multidimensional perspective differs from the one-dimensional perspective in three ways: a) in it, income ceases to be the key indicator for measuring poverty but seeks to adopt parameters that reflect quality of life; b) it is related to objectives and measurement of results that cover society as a whole, thus seeking to build instruments that can promote comparison between countries, evaluating the satisfaction of basic needs over time; c) the notion of poverty is broadened, encompassing factors such as nutrition, education, sanitation, and housing.

Thus, it is understood that the idea of poverty has its beginning in income, but over time it advances in the inclusion of other elements. Some approaches that make up the multidimensional perspective are represented by the approach of basic needs, relative deprivations and capabilities. The basic needs approach can be presented as the first variant in the search to understand the causes of poverty. It arises as a counterpoint to the thought of eradicating poverty based on the economic growth of underdeveloped countries (Lacerda, 2010).

In this regard, Rocha (2003) lists two groups of elements that make up this approach: a) elements of private consumption by families, such as food, housing, clothing, furniture and various appliances;

b) groups of elements that refer to essential services provided for the community, such as drinking water, sanitation services, transportation, health, education, and access to culture.

Therefore, the basic needs approach is more concerned with 'rating poverty' than with 'quantifying it' (Lacerda, 2010). In it, there is consensus that income is not an exclusive and absolute criterion to define what poverty means, it is added to the basic needs of education, health, nutrition, sanitation, housing, access to drinking water, electricity, among others.

The second approach, relative deprivation, is based, in addition to basic human needs, on understanding the interdependence between the concept of poverty and the social and institutional structures in force in countries (Codes, 2008). This means that the relationship between different types of deprivation and income can change over time.

Thus, relative poverty would be established by comparison, where in a different social situation, a certain element can be classified as a need. In practical terms, the poor would be those who do not reach the condition of obtaining a certain level of adequate living conditions to maintain their existence or honor social commitments. On the other hand, this conceptualization reveals the challenge of measuring poverty in the world, which can sometimes be excessively subjective. Thus, Sen (2010) capability deprivation approach arises, which suggests a theoretical/methodological framework.

Sen (2010) capability deprivation approach proposes an expansion of the approaches discussed throughout the text, adding elements related to social justice, equality, and inequality, as well as a conception that does not underestimate the role of economic factors, adding political and social implications. Overcoming poverty, therefore, would be strictly related to development, which for him, should aim above all at expanding people's freedoms.

These freedoms are classified as substantive and instrumental. Instrumental freedoms are types of freedom that contribute as instruments for individuals to increase their substantive freedom. Sen (2010) lists five types of instrumental freedoms: political, economic, social opportunities, transparency and social protection.

The perspective of poverty as deprivation of capabilities does not imply denying the reasonable idea that low income is clearly one of the main causes of poverty, since lack of income can be one of the primary causes of a person's deprivation of capabilities (Sen, 2010). Sen (2010) mentions three arguments in defense of addressing poverty as capability deprivation: first, poverty can be identified in terms of capacity deprivation.

The approach focus on deprivations that are intrinsically important in contrast to low incomes, which are only instrumentally important; second, income level is not the only instrument for generating capacities; third, the relationship between low income and low capability varies between communities and even between families and individuals (Sen, 2010). In this way, the analysis of poverty can range from those classified as physical, such as being well fed, adequately dressed, having decent housing and health, to the achievement of more complex social goals, such as participating in community life (Fukuda-Parr and Kumar, 2003).

Results and discussion

The study of the relationship between man and nature in its most varied aspects is full of complexity. Intrinsic to this is the role of domination played by the man, which has a long trajectory. Initially, motivated by religion, man sought to protect it, within their interests, and then explore it, driven by industrial society. One branch of philosophy, environmental philosophy, immediately poses this question: how should we act in relation to the environment? Because, historically, human beings have positioned themselves as superior to nature, exercising a role of domination.

To clarify some issues, ensure the use of resources, and restrict various practices, laws have been created that today are added to the provisions of Article 225 of the Federal Constitution 1988, which deals with the universal right to life in an ecologically balanced environment (Brasil, 2021). The theme; however, remains complex since even the laws enacted are based on an anthropocentric

ethic; that is, for the benefit of men and their future generations and they continue to be placed as 'guardians' of the species, but little attention is stuck to the intrinsic values of living beings.

Another problem revolves around the assimilation between earthly happiness and material well-being or gross domestic product (GDP) per capita in its crudest form, without considering the loss of the natural and artificial heritage necessary for its production. In other words, GDP is quantified happiness (Latouche, 2012). The insufficiency of this intrinsic idea of the growth society gave rise to new conceptions, such as the degrowth society (which must 'metabolize' with its environment), which, in order to exist, needs to leave the current economic imaginary (Latouche, 2012).

This trajectory is very similar to the emergence of the multi-aspect analysis of poverty proposed by Sen (2010), since for him, the complexity of poverty is directly related to development and, consequently, to the freedom of the individual, in which this is an action conditioned by social, political, and economic opportunities. Thus, as mentioned, for development to take place, it is necessary to remove the main sources of deprivation of freedom, among which is poverty.

In 2020, the beginning of the pandemic caused by the coronavirus (COVID-19) was declared in the world. Its subsequent social disruption represented a very unusual modification of human interaction with the Earth System and this alteration can and did generate a variety of responses given the opportunity to use this period as an unintended experiment to better predict, model, and monitor the Earth System (Diffenbaugh, 2020).

This period resulted in changes in human behavior and therefore, it is important to understand how large the disruptions and impacts (immediate or not) caused by COVID-19 are on people's lives and throughout the Earth System, stemming mainly from social disruption and how worsening poverty has a negative and lasting impact on several other dimensions (Diffenbaugh, 2020).

Social disruption led to short-term changes, such as: reduced mobility and economic activity, which reduced energy use in the commerce, industry, and transportation sectors, with increased use of residential energy; reductions in pollutant emissions that resulted in noticeable changes in air quality in some regions (if maintained, they could translate into better harvests); ambient air pollution is a major cause of premature death and diseases worldwide, even in the short term.

It should be noted that improvements in health resulting from improved air quality during the pandemic should be seen as an accidental side effect, not as benefit of the pandemic (Diffenbaugh, 2020). Now, inequalities in resource distribution and socioeconomic disruptions caused by the pandemic will almost certainly have long-term negative impacts on human health and well-being.

The economic shock is likely to increase the scope and severity of global poverty: high rates of poverty and food insecurity have already emerged, as shown in ONU (2024) report: 'the COVID-19 pandemic and the triple crises of climate change, biodiversity loss, and pollution are having devastating and lasting impacts'.

Deepening global poverty, which also increases climate risks, creates a likely negative environment with long-lasting impacts including deforestation, land degradation, poaching, overfishing, and the easing of existing environmental policies. In Brazil; for example, deforestation in the Amazon exceeded 2 000 km² in the first five months of 2020, representing an increase of approximately 35% compared to the same period in 2019 (Diffenbaugh, 2020).

In addition to the dismantling of existing environmental policies as a result of the lack of governance, since it is capable of inserting the idea of sustainability in public policies and their interrelations; that is, in establishing the paradigm of sustainable development in the country (Moura *et al.*, 2016).

Poverty and biodiversity

The idea that the preservation and conservation of the environment contributes to poverty reduction is pertinent and can also result in the improvement of the well-being of humanity and the significant reduction of environmental risks and ecological scarcity (Viana, 2008). In addition, it is understood that environmental conservation, as a sustainable development practice, is essential

to guarantee opportunities to improve the lives of indigenous, quilombola, traditional, riverine and rural populations in Brazil.

These populations are highly dependent on the natural environment for their subsistence. In addition, they have a rich ethnoecological knowledge about nature, which should be a strategic component to reduce poverty and improve their quality of life (Viana, 2008). Works such as that by Paiva-Júnior and Silva (2021) portray tourism (ecotourism or sustainable tourism) as a driver of initiatives that guarantee the increase in the income of the poorest populations.

The authors identified some elements that facilitate and limit the contribution of the activities of this type of tourism to poverty alleviation at the local level, identifying that creative tourism can contribute to Sustainable Development Goal 1 (SDG 1) target 1 generation of economic opportunities, such as employment and income and SDG 1 target 2: reduction of social needs, such as lack of freedom of expression, low self-confidence.

On the other hand, it has a reduced influence on the structural aspects of poverty related to targets 3, 4, and 5 (access to the social protection system, access to economic resources, and basic services, and vulnerability to extreme events). Blicharska *et al.* (2019) understood how biodiversity benefits can directly contribute to the achievement of SDG 1 in addition to generating benefits for other SDGs.

Biodiversity 'provides resources, generates income directly and indirectly, maintains productivity in marine ecosystems, provides natural infrastructure to protect against hazards, and provides a safety net for post-disaster recovery' and 'hard times' (Blicharska *et al.*, 2019). Other experiences, such as the Bolsa Floresta Program, pointed out by Viana (2008), are also pointed out as an innovative instrument with great potential to promote conservation and sustainable development in the Amazon.

There are lessons learned in terms of the legal and institutional framework of the program in addition to other methodological lessons of a socioenvironmental and economic nature, thus being pointed out as a source of resources in the fight against poverty and in the promotion of the preservation of the environment. In addition to providing resources, biodiversity can contribute directly to experiences considered successful, in terms of the development of public policies aimed at family farming, small rural producers, settlers, indigenous peoples, and traditional communities.

Like those who are remunerated for the environmental services provided by biodiversity through recent legislation, such as the national policy of payment for environmental services, which plays a fundamental role in the search for sustainable development. According to Silva *et al.* (2021), linked to the socioeconomic context of consumption and productive stimulation of food from family farming, the importance of the family production system for the environment can be observed.

The balance of ecosystems and the promotion of actions to reuse food and animal waste; for example, reflect the possibilities that a sustainable system can have a positive impact on society. In addition, public policies to promote family farming and small producer farming, coupled with opportunities in the Brazilian market, such as the growing demand for organic products in recent years (Khatounian, 2023), end up generating income for family producers.

This idea coincides with the contributions made by Drummond (2002) when weaving a theoretical analysis around the classical and contemporary theories of the sociology of development. The author concludes that the abundance of natural resources in a region or country (or their large participation in productive results) is strongly associated with underdevelopment or at least with a relatively lower level of prosperity and dynamism than that which occurs in industrial and service regions.

An alternative would be what he calls 'efficient and rational resource extraction', which would basically be associated with local transformation based on efficient technology; nevertheless, it is not intended to be a trend that will take on sufficient proportions in the coming decades. Biodiversity is also a great source of raw material for obtaining different formulas that can be transformed into medicines from transformation by the pharmaceutical industry (Joly and Bolzani, 2017), whose sources can be terrestrial, marine or freshwater.

According to Calixto (2003); Rajeswara *et al.* (2012), more than 40% of all available medicines and 70% of those used as antibiotics and anti-cancer drugs come from terrestrial biodiversity and more than 77 000 plants are currently used as a source of medicines for humanity. They are natural products that can be a great source of new antithrombotics, antimicrobials and antivirals.

These include, for example, the natural resources used in the treatment of HIV, herpes, hepatitis B and C, and influenza A and B. This antiviral property is, for obvious reasons, one of the most researched in the world (Linnakoski *et al.*, 2018). Other aspects that also deserve attention are the changes that have occurred in biodiversity as a result of climate change. Direct and indirect factors impact the transformation of biodiversity and associated ecosystem services.

Over the past 50 years, this transformation has accelerated significantly due to changes in land and sea use, improper exploitation of species, climate change, pollution and the invasion of alien species into new environments. The changes that occur in biodiversity as a result of climate change can directly impact on the poor, as they are the populations most susceptible to the risks of environmental disasters.

These factors, therefore, result from a series of underlying causes that are based on social values and behaviors of today's society, such as production and consumption patterns, the demographic dynamics and trends of the human population, trade and technological innovations (IPBES, 2019).

In this regard, Diffenbaugh *et al.* (2020) collaborated with the study and reported that poverty, when deepened and prolonged, is related to the reduction of resources available for climate mitigation and adaptation, which will increase climate risks and aggravate climate-related consequences, such as the alteration and loss of biodiversity. The evident relationship between biodiversity and poverty has become closer in the recent context caused by the coronavirus (COVID-19). Chowdhury *et al.* (2021), when studying the negative consequences of confinement, found that deforestation and illegal resource extraction increased, and there was also an increase in global poverty.

The lack of employment displaced humans, who resorted to the forest. In Brazil (as well as in Colombia, Cambodia, Indonesia, Nepal, and Madagascar), an increase in illegal logging has been reported since the pandemic, not counting the intrinsic institutional aspects. Thus, in a scenario of exacerbated unemployment and economic insecurity, there was evidence of a growing illegal persecution of wild animals and growing deforestation (habitat loss), directly impacting biodiversity.

That said, it is inferred that the deepening of poverty generates a negative environment, with impacts that last over time, such as deforestation (which increased in the Amazon in the period of the pandemic), land degradation, poaching, overfishing, and the easing of environmental policies, which goes against; for example, the decades-long effort to replace environmental degradation with ecotourism gains (Diffenbaugh, 2020). Likewise, concomitantly, when there is environmental damage, those who are in a situation of greater vulnerability, the poor in their multiple dimensions, will suffer the impacts more severely, which brings the debate on the importance of governance and public policies.

Conclusions

In the face of modern consumption relations, the dynamics of the world economy can be reflected in the increasing concentration of poverty in the world, discussions of this approach are very close to the relationship between the environment and man. It was perceived that the activities resulting from anthropic actions generate a negative balance in relation to the environment since the global consumption pattern is based on the growing use of industrialized resources that demand more and more natural resources.

The effects of man-nature relationships and the impact they have on people living in poverty are more severe since they do not have the instrumental capacity to access adequate health treatment, have adequate hygienic conditions, as they often do not have access to treated water, are exposed to open streams, inhale toxic fumes from burning wood for cooking, in addition to other characteristics of the urban and rural environment that affect poverty. Thus, the complexity of the

relationship between environmental deterioration and poverty, treated here from a multidimensional perspective, is remarkable. The increase in poverty also reflects negatively on the environment as several studies show, the consequent increase in deforestation, land degradation, poaching, and overfishing.

So, what path must be taken for the human-nature balance to become a global reality? The need to implement public policies and alliances between governments and private institutions to mitigate the impacts caused by excessive consumption can be an alternative to achieve sustainable development supported by the regulations of sustainable development goals. It is also essential to have an integrated (and long-term) process that articulates federal, state, and municipal bodies, opening space for the participation of different civil society organizations in the decision-making process. A cross-sectional treatment of environmental standards and policies is also necessary - which must go beyond the corrective and punitive nature- so that the socioenvironmental dimension is internalized in the scope of sectoral public policies and sustainable development is promoted.

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