



Sustainable development goals and ethics: building “the future we want”

José Baltazar Salgueirinho Osório Andrade Guerra^{1,2,3} · Michele Hoffmann³ · Ritanara Tayane Bianchet³ · Patrícia Medeiros³ · Ana Paula Provin³ · Roberto Iunskovski¹

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Abstract

To ensure the survival and quality of life of our species, we seek sustainable development to balance the economic, social and environmental spheres in an ethical and equitable manner. The United Nations’ sustainable development goals (SDGs) have become the guiding principles aimed at guaranteeing a safe space for everyone through awareness and clarity of the responsibilities of each individual. This article addresses different views on the topic “sustainable development,” relating them to ethical issues and then associating the discussions with the SDGs. However, in relation to the subject of ethics and concern for planet Earth, several other documents, such as *Laudato Si’*, *Gaia* and *Gaia 2.0*, are of great importance to complement and enrich the discussion. A global perspective is proposed, based on the encyclical *Laudato Si’*, the *Gaia* theory of James Lovelock, religious concepts and idea of the good of humanity, along with the vision of Timothy Lenton who talks about *Gaia 2.0*. It is highlighted that understanding the role of the Church, the government and academic research in combating environmental, social and economic problems is of great relevance. Finally, based on the discussions provided herein it can be observed that although the statements and documents examined present similarities in pointing to an ethical agenda, they need further debate and research.

Keywords Sustainable development goals · Ethics · *Laudato Si’* · Agenda 21 · The world we want · Planetary boundaries

1 Introduction

Initially, it was believed that planet Earth and its elements were available to man to use indiscriminately according to his needs. When men saw the earth from space, it became clear that the planet is limited, existing within a closed system powered by sunlight. Subsequently, with the advancement of science, the interdependence between all beings and natural elements has been increasingly understood (Lovelock, 2000).

✉ José Baltazar Salgueirinho Osório Andrade Guerra
jose.baltazarguerra@animaeducacao.com.br

Extended author information available on the last page of the article

It is now widely accepted that the earth can be considered as a living organism and that one action implies several reactions (Lovelock, 2000; Pillay & Elkadi, 2010). This is a vision of reality based on “awareness of the essential state of interrelation and interdependence of all phenomena—physical, biological, psychological, social and cultural” (Capra, 1984). Consequently, the current understanding of our planet and its environmental conditions is a limiting and determining factor for the maintenance of species (Rockström et al., 2009). It should be noted in this regard that the current geological period is called the Anthropocene, also known as the “Era of Humanity” (Artaxo, 2014).

Humanity has surpassed some of the planetary limits proposed by scientists and has in its hands the power to stagnate this situation (Rockström et al., 2009); however, breaking with the structure of the current system has been challenging (Lenton & Latour, 2018). Therefore, many research studies have been directed toward determining the limits of the exploitation of resources. It is said that among the ten main limits, humanity has already crossed three: climate change, rate of biodiversity loss and rate of interference in the nitrogen cycle. In addition, ocean acidification and changes in the phosphorus cycle are very close to the limit.

In view of this, these milestones will indicate whether we are at a point of no return, that is, at an inflection point. At this point, it is believed that nothing could be done to reinstate the essential characteristics for maintaining our way of life (Lenton et al., 2008; Rockström et al., 2009). In view of this scenario, many countries and organizations have come together in search of methods and ways to alleviate, to some extent, our impacts on planet Earth and identify the most serious one. Therefore, with the development of goals and objectives, the long-awaited achievement of sustainable development is sought.

Sustainable development focuses on finding a balance to meet socioeconomic needs in harmony with environmental issues. In addition, it is desirable to create social equity, since every individual has the right to develop and also guarantee conditions for future generations (Bolis et al., 2017). It should be noted that the first mention in United Nations documents of “Education for sustainable development” was in the middle of the twentieth century. This concept was implemented at the United Nations Conference on Environment and Development in 1992, where delegates concluded that through education it is possible to achieve sustainable development (Nasibulina, 2015).

In 2015, the sustainable development goals (SDGs) of Agenda 2030 emerged as a fundamental instrument to guide social, economic and environmental development globally. These objectives aim to guarantee a safe and fair space for all beings in a sustainable manner. Also, the resumption of responsibility to perform its role as an active subject, in the fulfillment of this vision, is emphasized (Leal Filho et al., 2019). For sustainable development to take effect, integration and balance between economic, social and environmental aspects are necessary (Kwatra et al., 2020), and in this regard, the importance of surveying the “triple bottom line” can be highlighted, as each location has different characteristics and, consequently, entails differentiated emergency plans (Silva & Figueiredo, 2020).

Within the study of ethics, specificities have emerged, such as environmental ethics, conceptualized as a social and humanitarian value. Thus, the study of this specificity involves not only representatives of the social and human sciences, but of all entities involved in a community. The main message of environmental ethics is that “[...] human moral problems are not only related to the welfare and social issues of humanity but the responsibility for the future well-being of people, animals and other forms of life” (Miloradova & Ishkov, 2015).

It is emphasized that the need for morality has always been present in human societies. Social values are transmitted through several channels, such as the family, and groups

in which people are inserted under the influence of cultural and religious trends, among others. It can be said that religion influences the way of living in some communities, for instance, in the creation of moral consciousness, or at least moral behavior, and in this way it plays an important role in certain aspects of life (Busoi, 2015). Around 84% of the world population is affiliated with a belief. Social research centers and international institutions are increasingly recognizing their importance in development policy and establishing partnerships with religious communities to produce sets of guidelines for the common good (Deneulin & Zampini-Davies, 2017).

When it comes to ethics and concerns about planet Earth, it is important to highlight, in addition to the sustainable development goals, documents such as *Laudato Si'*, *Gaia* and *Gaia 2.0*. According to Ittekkot and Milne (2016), the new encyclical letter (EL) from Rome, "*Laudato Si'*" (2015), has received great attention all over the world, both for the message and the messenger. In six chapters with 246 paragraphs, climate change and its impact are treated as symptoms whose roots can be found in current social and economic systems.

Regarding the Gaia Hypothesis, in 1988, the theory emerged proposing that living organisms interact with their inorganic surroundings on Earth to form a complex and self-regulated synergistic system that helps to maintain and perpetuate living conditions on the planet. A long debate about this hypothesis and its permutations followed, including the claim that the Earth itself is alive or is an entity with superorganism status (Schwartzman, 2020). Conscious choices to operate within Gaia constitute a fundamental new state of Gaia called Gaia 2.0. In this way, the Gaia 2.0 concept can provide an effective framework for promoting global sustainability (Lenton & Latour, 2018).

In this context, the research reported herein was focused on addressing the sustainable development goals as an ethical agenda. Specifically, the encyclical *Laudato Si'* is addressed, as it involves religion, development and a vision of planet Earth for the common good, together with the concepts of Gaia and Gaia 2.0.

2 Methodology

To meet the objectives of this study, a qualitative approach was taken and an integrative literature review was carried out. This offers the unique feature of allowing for the inclusion of more than empirical evidence, facilitating a comparison between previous studies and the observations made, globally, on issues of ethics and sustainable development. This theoretical review was carried out through searches in the databases ScienceDirect, Web of Science and Scopus, to identify articles in journals and authors strongly related to the theme addressed (Guerra et al., 2019; Haines et al., 2012; Lenton & Latour, 2018).

Reports provided by the United Nations (UN) were also consulted. The initial phase involved the concise identification of the problem to inform the purpose of the review. A well-defined literature search for keywords was conducted in the databases to ensure that all relevant literature related to the topic of interest was captured. The data assessment phase involved a rigorous assessment of the quality of the primary sources of literature before analyzing the data (Hauck et al., 2020). Figure 1 shows the step-by-step procedure of this methodology.

Firstly, a database was selected (1). Three keywords were entered into the database, one at a time (2). The selected keywords were (Gaia AND Gaia 2.0), ("Sustainable development goals" AND "Laudato si") and ("Sustainable development goals" AND Ethics), as

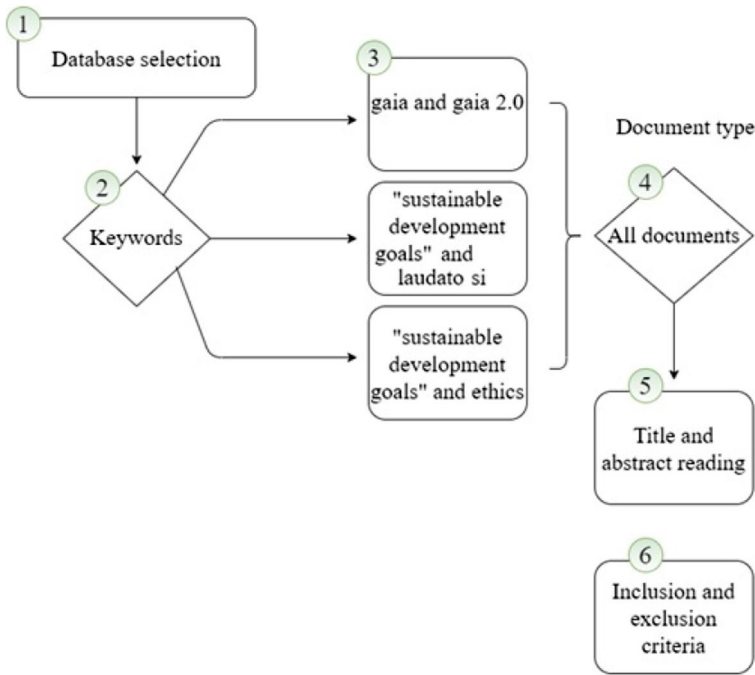


Fig. 1 Methodological steps

these address the subject of this review (3). For the type of document, all documents were selected (4). The reading was carried out considering the title and abstract of each manuscript resulting from the keywords and filtering (5). The inclusion and exclusion criteria were then applied (6). Inclusion criteria were the presence of keywords in the title, abstract or body of the document. Deletion was performed for repeated documents.

3 Results and discussion

3.1 Analysis of databases

For each database, the three groups of search terms were used: (Gaia AND Gaia 2.0); ("Sustainable development goals" AND "Laudato si"); ("Sustainable development goals" AND Ethics). Figure 2 shows the final results of the search.

As shown in Fig. 2, a higher number of documents were identified in the ScienceDirect database, followed by Web of Science. On applying the first group of terms (Gaia AND Gaia 2.0), a total of 1,425 articles was identified. For the second group of terms ("Sustainable development goals" AND "Laudato si"), 18 articles were identified. The third group of terms ("Sustainable development goals" AND Ethics) collected a total of 1,753 articles. These data show the small number of studies directed mainly at the second group of terms. After the analysis, to discuss the results and discussions in the theoretical scope, 56 documents were used.

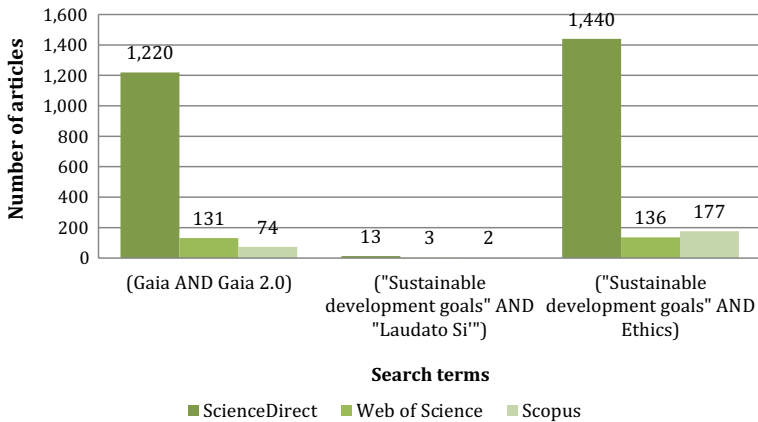


Fig. 2 Search results for the databases

3.2 International conferences, the meaning of sustainable development and suggested mechanisms to achieve it

The definition of sustainability is associated with numerous formations of meanings that guide people and corporations to rethink their world views and their behaviors (Bien & Sassen, 2020). It can be said that the expression “sustainable development” gained visibility after the Brundtland Commission Report in 1987, defining it as development that meets the needs of the current generation without compromising the needs of future generations (Kwatra et al., 2020).

In 1992, the United Nations “Earth Summit” took place in Rio de Janeiro, where biodiversity conservation was discussed as a “common concern of humanity.” Subsequently, concepts regarding environmental ethics emerged and encouraged us to follow traditional conservation aims and to prioritize the use of sustainable resources. In this way, science joins with man–nature relations, religious foundations, indigenous beliefs and Western and Eastern philosophical traditions with a single objective, ensuring the maintenance and conservation of biodiversity and sustainable attitudes (Meine, 2018). At this Earth Summit, there were 179 participating countries, among them the greatest economic powers. They met to establish actions worldwide for the implementation of a new development model, referred to at the time as “sustainable development”. As a result of this conference, there was the elaboration of a document called Agenda 21.

This document, agreed to and signed by all participating countries, dealt with objectives that needed to be reached by all parties involved in order to establish a new development model for the twenty-first century. It should be noted that the document consists of 40 chapters, the main guidelines being the construction of sustainable societies concomitant with initiatives for environmental protection, social justice and economic efficiency.

The main objectives of Agenda 21 can be summarized as follows: the improvement of living conditions, thus ensuring access to basic rights for those most in need among populations of any nation; the optimization of the use and management of natural resources, avoiding overuse (which is related to the next objective); and guaranteeing the prosperity of future generations. In Agenda 21, an anthropocentric view is approached by emphasizing

that the guarantee of a healthy and productive life in harmony with nature is the focus of sustainable development (Haines et al., 2012).

Primarily, the topics addressed in Agenda 21 involve the integration of many themes including sustainable development, preservation of the environment and ecosystems, a reduction in deforestation and desertification, poverty eradication, conscious consumption, access to health and education, awareness of environmental issues, protection of biodiversity and sustainable use of natural resources (Cicin-Sain, 1996; Guerra et al., 2019; Ohlemacher, 2003).

Another document resulting from this conference is the Earth Charter, the first draft of which was created during Rio 92, but the document was only ratified by UNESCO, 2000. Like the other documents, the Earth Charter places the category of inter-retro-relationship of everything with everything, leading to the conclusion of the common destiny of Earth and humanity. Based on the holistic paradigm of ecology, the Charter denounces the risk to the dynamic imbalance of the Earth, due to the exploitative and predatory forms to which human beings have become accustomed (Boff, 2000).

It is concluded that, in order to achieve sustainable development, it is essential to solve local problems, including social and political conflicts, for the effective implementation of this agenda to occur. Action at this level of sensitivity would contribute considerably to the efficiency of the implementation of the objectives that were enthusiastically deliberated by heads of different nations (Guerra et al., 2019; Ohlemacher, 2003).

In 2012, a new United Nations Conference was held in the city of Rio de Janeiro, entitled Rio + 20. The event highlighted two main themes in its deliberations: the green economy (in the context of sustainable development and the eradication of poverty) and the institutional structure for sustainable development. As a result of this meeting, we obtained *The Future We Want*, composed of a compendium of 283 objectives outlined and accepted by the representatives of the nations present.

The great challenge discussed by these heads of state during Rio + 20 was how to solve the dichotomy of maintaining economic progress and at the same time reducing the exploitation of natural resources, thus postponing their scarcity. These issues were widely discussed during the Earth Summit, but no significant resolution was observed over the course of the subsequent two decades (Hecht et al., 2012).

Fulfilling the basic needs of human beings while achieving economic progress is the great conundrum to be debated and resolved in this century. In this context, basic needs are considered to be access to healthcare, education, food and housing. However, these rights, although considered basic, are unattainable in some populations. Despite the relentless efforts of organizations like the UN to clearly declare these rights or for the heads of states to publicly assume these commitments at conferences, this inequality is becoming increasingly exponential (Bartelmus, 2013).

Economic progress can be defined in a variety of ways, through indices of production of goods and services or economic growth in a country. But sustained growth is defined primarily as a country's ability to produce enough to meet its trade needs using natural resources responsibly. Therein lies the great dilemma of today's society, that is, producing efficiently to meet the growing demand without exhausting the natural resources that are already scarce (Bartelmus, 2013).

On the other hand, Rio + 20 brought positive perspectives for the implementation of sustainable development in the largest number of countries to date and the awareness of several leaders, companies and large financial entities to deal with environmental issues. Emphasis was placed on the exponential advancement of technology, which enables the optimization of production processes, new waste treatment techniques, the promotion of

renewable energy sources and government incentives for sustainable initiatives (Hecht et al., 2012).

To establish the guidelines outlined in *The Future We Want*, an analysis of what has been implemented in the last 20 years in relation to the environment was first performed. Consequently, the importance and processes of the green economy and actions taken to guarantee the sustainable development of the planet were highlighted, especially those concerning ways of eliminating poverty and the difficulties associated with international governance from the perspective of sustainable development (Cicin-Sain, 1996). A noteworthy point that distinguishes Rio + 20 from other meetings is the move away from anthropocentric thinking, which places man as the great holder of natural resources.

Even though environmental concerns took hold in the mid-1970s, few groups embraced the search for more sustainable development, which prioritizes preserving our own home. In fact, recent decades have been marked by clear demonstrations of the human potential for destruction.

An erroneous belief in the unlimited resilience of the environment has led to humans consuming wildly, generating waste, burning fossil fuels, increasing social inequalities and damaging mainly those who are socially invisible, and emitting ever increasing amounts of carbon dioxide to atmosphere, among many other adverse actions (Meine, 2018; Souza, 2015; Stanitsas et al., 2019).

After decades of campaigns and changing attitudes, in 2015 the United Nations engaged in extensive discussions, formalizing the 2030 Agenda with 17 sustainable development goals with 169 targets to be achieved (Howe, 2019; Leal Filho et al., 2019; Neto et al., 2019). In order to "end poverty in all its forms" and "balance the three dimensions of sustainable development: economic, social and environmental," it is of utmost importance that the SDGs are discussed and explored in all their dimensions, within both universities and corporations (Leal Filho et al., 2019).

Thus, several governments met to establish the new sustainable development agenda, with the objective of guaranteeing a life with dignity for all and produce a legitimate and effective action plan. Consequently, the governments of the respective countries have committed themselves ethically to fulfilling these sustainable development goals (SDGs), in order to define and pursue the paths that must be taken to achieve a more sustainable future, concerned with issues of social, economic and environmental origins.

Thus, the aims address an array of issues including poverty eradication, combating hunger, health and well-being, inclusive and quality education, gender equality, sustainable water and sanitation management, access to affordable energy, economic growth, inclusiveness and sustainability, fostering innovation and inclusive industries, reducing social inequalities, promoting cities, sustainable and safe settlements, sustainable production and consumption patterns, measures to combat climate change, conservation of the oceans and terrestrial ecosystems, promoting peaceful, inclusive and fair societies, and strengthening the means of implementing and revitalizing the global partnership for sustainable development.

The similarity between Agenda 21 and sustainable objectives is clear, since both seek social and gender equality, sustainable practices, care for the common good, consideration for our neighbors, production of renewable energies and an alliance between science and nature.

The role of the state in nature was addressed in Agenda 21, this being a notable focus in the elaboration of the final document. In addition, poverty eradication is prominent in the agenda, since it is impossible to achieve sustainable development with people living on the poverty line, without access to basic rights such as drinking water, adequate food

supply and sewage treatment. Thus, there is an urgent need to eradicate poverty so that people can look beyond this situation and become aware of the importance of sustainable development.

International relations are therefore prioritized, and the responsibility for the implementation of appropriate actions is collective. On the other hand, themes such as poverty eradication, gender equality and the conceptualization of sustainable development are treated in a simple and non-objective way. Also, the anthropocentric view of the exploitation of natural resources, where man assumes the role of dominator and exploiter of the environment, is predominant (Guerra et al., 2019).

In contrast, in the objectives assumed in the document *The Future We Want* resulting from the Rio +20 conference, the role of the state is shared with society, partially inserting the individual as being responsible for the preservation of the environment. Themes such as poverty eradication, social inequality, the preservation of biomes and gender equality are discussed more emphatically and with greater prominence (Haines et al., 2012).

Regarding the conceptualization of the term "sustainable development," new perspectives are explored through discussions on ways to achieve efficient production and conscious consumption in a more objective way. These debates culminated in the concept of sustainability in its three dimensions, as it is perceived today.

In the 2030 Agenda, discussions on sustainable development were broadened, highlighting the extreme importance of realization, not as a guarantee of the appropriate management of natural resources but as a measure of the maintenance of the human species. Individuals can play a leading role in environmental preservation, not only through effective actions themselves, but by monitoring the actions of the state and large companies. The awareness awakened through environmental education highlights the individual's decision-making power over environmental impacts, which influences the perspective of companies in the elaboration of products and in the actions of the state regarding these issues.

In the social sphere, discussions on poverty eradication, women's empowerment and tackling social inequalities strengthen the role of supporting sustainable development as a fundamental pillar for achieving sustainability. It has been concluded that social problems in some countries have become a major obstacle to effective sustainable development.











As Pope Francis (LS 139) states, "there are no two separate crises: an environmental and a social crisis; but a single and complex socio-environmental crisis." Therefore, proposing solutions requires a comprehensive approach to fight poverty, restore dignity to the excluded and, at the same time, take care of nature. In this reasoning, the 17 objectives that make up the SDGs are indivisible and were designed to articulate and interact in a harmonious way (Giraud & Orliange, 2016).

3.3 Sustainable development goals as an ethical agenda

As the planet is totally interconnected and the systems are interdependent, it is known that a disturbance will generate an imbalance and some effort will be required to restore the balance. With an awareness that our actions modify the planet at different levels, planning the future of the planet now appears to be a formidable challenge (Sachs, 2008). Table 1 details the documents consulted to produce this article and identify the relationships between the issues addressed and the sustainable development goals (SDG).

Table 1 shows that of the 38 documents related to the sustainable development goals (SDGs), 21 meet all the objectives in their discussion and the other 17 documents correspond to at least one objective (notably SDG 13, SDG 16 and SDG 17). The documents

Table 1 Relationship between documents consulted and the sustainable development goals (SDGs)

Author	SDG
Amrutha and Geetha (2020)	
Bartelmus (2013); Boff (2000); Busoi (2015); Deak (2017); Filho et al. ; Giraud and Orliange (2016); Guerra et al. (2019); Haines et al. (2012); Hecht et al. (2012); Ittekkot and Milne (2016); Kwatra et al. (2020); Koehrsen (2018); Rockström (2009); Rogeli et al. (2018); Sachs (2008); Howe (2019); UNDP (2015); UNESCO (2000)	
Bien and Sassen (2020)	
Bolis et al. (2017); Fryxell and Lo (2001); Ohlemacher (2003)	
Breyer et al. (2017)	
Dahl (2012); Lenton (2011); Sun et al. (2019)	
Lenton and Latour (2018); Mantatov and Mantatova (2015); Morand and Lajaunie (2018); Wesley et al. (2016)	
Meine (2018)	
Nasibulina (2015)	
Neto et al. (2019)	

do not necessarily address the SDGs in their text, given that some materials were published in years prior to the Agenda 2030 convention but, based on the authors' reading and understanding, it was possible to carry out the above analysis.

In fact, the current challenges of sustainable development goals have been highlighted mainly through ethical and moral appeals, driven mostly by ecological and environmental values. In fact, some authors claim that the ecological crisis is the external manifestation of the ethical, cultural and spiritual crisis of humanity (Pope Francis, 2015).

To support this idea, it is important to bear in mind that ethics and morals derive from human beings, and to better understand their meaning they can be associated with sustainable development. According to the document *Laudato Si'*, in order to offer solutions, "science" needs to include data from a variety of fields, including philosophy and ethics. Taking this argument further, it has been noted that localized technological remedies and "urgent and partial responses" "separate what is really interconnected and mask the deepest problems of the global system" (Ittekkot & Milne, 2016).

As anthropology teaches us, the human world is the cultural world that is not given ready and finished, but is produced and built according to the needs and wants of human communities. Therefore, the human world is different from the natural world, which simply follows the internal movement of its biological dynamism.

Being human allows us to become humanized, and this happens in the relationships that are established with things (nature) and with others. In the words of Francis, "the human person grows, matures and sanctifies himself the more he relates, the more he leaves himself to live in communion with God, with others and with all creatures" (LS 240). It is in the context of these relationships that produce culture that ethics and morals are found. Although these two terms are commonly considered synonymous, using the original meaning it is possible to broaden the understanding of this human phenomenon and the impact on good living.

The word moral, of Latin origin, means customs and indicates a practical system of the current order, established in a determined society or social group, establishing a set of values and habits consecrated by the cultural tradition of a people. For this reason, there is evidence that there are different morals, which depend on the development and even the correlation of forces in different human groups and societies. Thus, ethics is related to essential values, with founding principles of actions (Boff, 2000; Dussel, 1988). As a philosophical theme, ethics is the philosophy of morals, and it is the reflection on values, practical rules and behaviors of societies. Simply put, morals are relative and local while ethics is absolute, universal, valid in all situations and for all times.

The debates on sustainable development are strongly related to the analysis of morals established in contemporary societies, which many consider to be the universal principles of ethics. The UN Universal Declaration of Human Rights of 1948, for example, states that "every human being has duties to the community ..." (UN, 2015). It is observed, then, that several principles of ethics are directly applicable to the current moral issues, as briefly cited below:

- I. The principle of human dignity, since everyone is worthy of having access to nature, drinking water, quality education, justice and decent work (UN, 2015; UNESCO, 2000);
- II. The principle of solidarity, as objective 17 suggests, seeking to strengthen a global partnership for sustainable development, which mobilizes and shares knowledge,

- expertise, technology and financial resources, to support the achievement of sustainable development goals in all countries, particularly in developing countries (UNDP, 2015);
- III. The principle of human equality, in which everyone is equal, therefore there must be equal opportunities, both in terms of gender and ethnicity, and for the inclusion of people with special needs or unfavorable economic conditions;
 - IV. The principle of the common good, since, according to almost all definitions, nature belongs to the common good and, without proper environmental, social and economic management, human potential and dignity are diminished for all and denied to some;
 - V. The principle of subordination of private property to the universal destination of goods and, consequently, the universal right to their use is a golden rule of social behavior and the first principle of the entire ethical-social order (Pope Francis, 2015).

Socially, human action, when it seeks to preserve the integrity, beauty, diversity and stability of all ecosystems on the planet, is considered noble (Mantatov & Mantatova, 2015). Thus, it is necessary to emphasize the common human responsibility for the future of the planet and, in this sense, ethics can be expressed in just one word: "responsibility," that is, it will guarantee the preservation and salvation of life, of any type or form (Pope Francis, 2015; Mantatov & Mantatova, 2015). It should be noted that the principle of the common good generates the feeling of solidarity for the following generations, but without failing to pay attention to the need for ethics and to renew solidarity in the current generation (Pope Francis, 2015).

According to Boff (2000), ethics must start not simply from the other, but from the most "other" of others, that is, the poor and the excluded, the black and the indigenous, the oppressed woman, the one discriminated by the most varied prejudices. Thus, listening to the other's voice is showing ethical awareness. "Consciousness is not so much an application of the principles to the specific case, but a listening, a listening to the voice that challenges from outside, from beyond the horizon of the system: the poor who cry out for justice from the absolute, holy, right of a person as such. Ethical awareness is knowing how to open up to the other and take him seriously (responsibility) in favor of the other before the system" (Dussel, 1988).

Poverty is the essential common element in ethical criteria, since we only reach universality if we start from a particularity of the latter, of those who are outside, of those who have their "being" denied. The cry of the poor denounces that the social and moral system is flawed, unfair and to be transformed (Boff, 2000). All scientific evidence demonstrates that imbalance, environmental degradation and global warming threaten and cause greater problems for the poorest nations and populations.

Scholars claim that ethics combined with sustainable development would bring a "new conscience" to society. Consciousness is understood as the shared identity, values and meanings, that is, conscience is seen as a sociocultural and not a psychological concept. When society and the environment in which it is inserted change, so does human consciousness. Breyer et al. (2017) cite that a "new conscience" is linked to shared conscience, that is, that which is opposed to anthropocentrism.

The shared awareness sees individuals beyond the market relationship. It is established by communication and without selfishness, uniting economic, cultural, personal and human aspects in general, in an ecologically sustainable way and fleeing the individualistic view, commonly held in today's society. Therefore, a shared or collective

awareness enhances the increase in ecological awareness, encouraging the abandonment of one's own interests, for the common good, not seeing oneself as a center but as a symbiotic part of nature (Breyer et al., 2017).

Finally, it can be noted that ethics is completely interconnected with the SDGs and vice versa, that is, each complements and justifies the other. After all, how would a society without ethics achieve social, economic and gender equality? Justice and the eradication of hunger could ensure a quality education and drinking water for all and while maintaining a more ethical, supportive and egalitarian society, sustainable development is a consequence.

In the perspective presented, in which ethics and morals are distinguished, the SDGs can be considered as an ethical movement that promotes and collaborates for the consolidation of a new global morality. A new order in which the values expressed in the 17 objectives become the norm, accepted and practiced in all societies with a view to the common good, the good life. And again, as in the case of ethics, the SDGs as universal values carry the dream that has not yet been realized, the hope of a better world, of a common home better cared for by all.

Figure 3 shows the correlation between the main characteristics of ethics and the objectives of sustainable development that best fit them.

There are conflicting factors that make it difficult to define the universal principles of ethics. There will always be tension associated with development and the conservation and preservation of the environment. After all, the current world socioeconomic system is aimed at the profit of large companies, exploitation of workers, power in the hands of a few, who are often corrupt, and ignorance of the dominators (Koehrsen, 2018; UNESCO, 2000).

Addressing the need to promote sustainable development means confronting the fact that the current developmental and consumerist behavior/model is unsustainable. Thus, according to Pope Francis, "we should also think about slowing down the march a little, putting reasonable limits and even going backwards, before it's too late" (Pope Francis, 2015).

The SDGs and the Roman encyclical converge on the need to evolve sustainable production and consumption patterns, as addressed, for instance, by SDG 12. However, the Pope's radical stance on growth goes beyond what the SDGs express, since it suggests the need for a certain decrease in order for the countries of the southern hemisphere to continue growing (UNDP, 2015).

For the effectiveness of their proposals, both the SDGs and *Laudato Si* highlight the revitalization of politics as an essential mechanism. According to Giraud and Orliange (2016), *Laudato Si*' and the sustainable development goals have a universal ambition in common: both examine the relationship between climate and development; both formulate collective responses to global challenges. The Pope's approach to "maturing stronger international institutions to eradicate poverty" (no. 175), for example, is reflected mainly in SDG 17. This goal proposes to "strengthen the means of implementation and revitalize the global partnership for sustainable development" through multilateral stimuli (UNDP, 2015).

The revitalization of multilateral action is less about creating new international institutions than about multiplying partnerships between the actors and a network approach. This is what SDG 17 proposes and its sub-objectives advocate the strengthening of structures that run through "multisectoral partnerships," including "triangular cooperation (public, public-private partnerships and with civil society) at regional and international levels." The return of the politician then passes through the role of national political institutions.

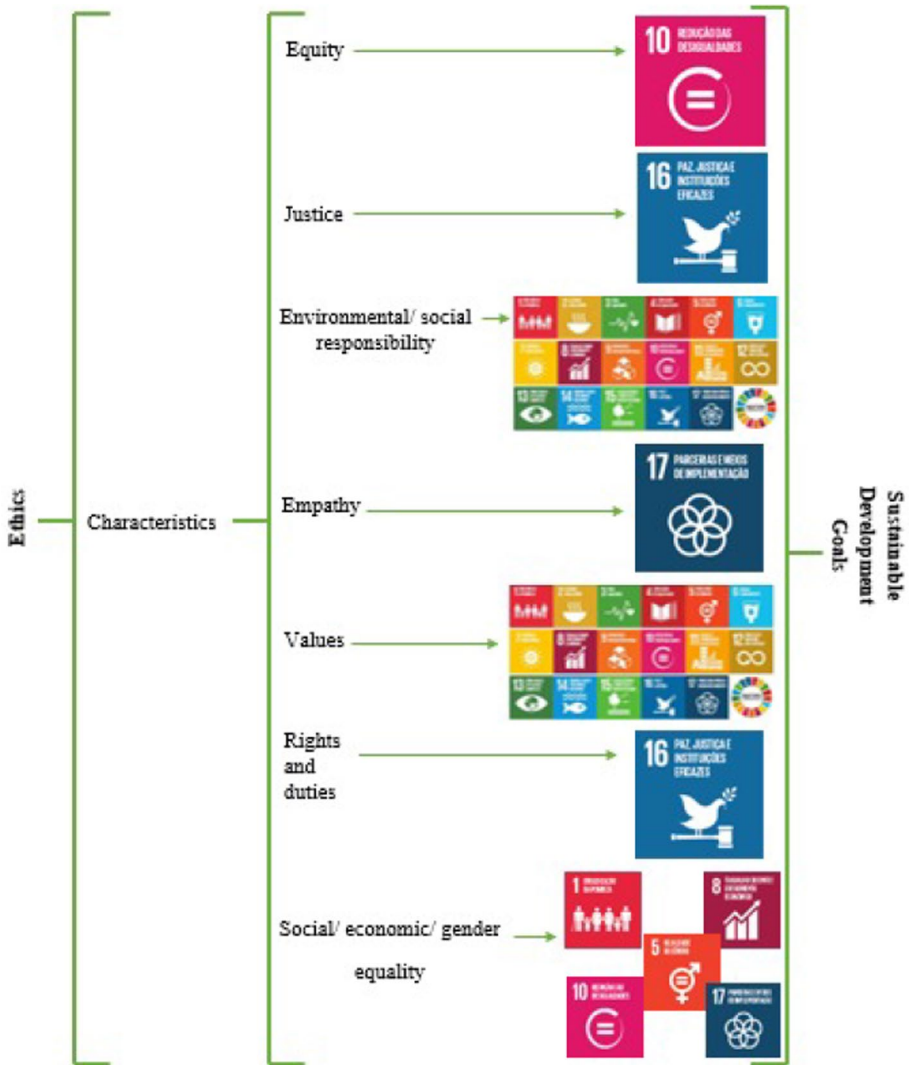


Fig. 3 Correlation between the main characteristics of ethics and the objectives of sustainable development

At this point, the progress achieved by agreements at the UN meeting still seems fragile; however, real progress was made (Giraud & Orliange, 2016).

The SDGs call for “creating efficient, accountable and transparent institutions at all levels.” In general, the SDGs call for the implementation of public policies that favor sustainable development and are against the “short-term” strategies of the markets. Catholic teaching is even more explicit. According to Pope Francis (2015), “politics should not be subject to the economy, and it should not be subject to the dictates and the efficient paradigm of technocracy” (n. 189).

However, the interaction between conflicts and dilemmas clarifies where we can begin to identify some ethical issues that are indisputable. For example, the required ethics must be built based on equal sharing and the common good, in harmony with nature. As Fig. 1

demonstrates, ethics must also be based on the balance between traditional human values in relation to conservation and the use of new technological advances. Finally, ethics, even in the midst of this technological age and the current global socioeconomic model, must find a new harmony and balance between what is sacred and the exploitation of the environment and between basic needs and exacerbated consumerism and also address social, economic, religious and gender inequalities (Morand & Lajaunie, 2018; Pope Francis, 2015; UNESCO, 2000).

Regarding the association of society with development, Santos and Silva (2013) exemplify the “collective hunger,” which can only be combated with democracy, since this is the system that guarantees economic openings with the world, unlike a dictatorship. In addition, Furtado (1974) addresses social underdevelopment. He states that underdevelopment arises from processes where there are a controller and a dependent, which is clear in the capitalist system, where consumption is in the hands of a few, thus depriving the poor of basic needs, such as health, basic sanitation and education. However, there are cases in highly developed countries where poor people are deprived. As an example, we have the USA, highlighting the importance of democracy for the adoption of government policies in an ethical manner.

Through ethics, complex issues that involve a multiplicity of perceptions, currently seen as conflicting, must be resolved. A base of agreed principles should support public policies. The forthcoming discussions will, therefore, address the need for debate on sustainable development objectives and ethics, with an emphasis on the notions of solidarity, social justice, equality, and nature as a common good, which is vital for human development.

Hans Jonas was a philosopher who sought to rethink the principles of ethics. His considerations are based on the transition from the ethics of conviction (Kant) to those of responsibility (Weber), whose concerns are not singularly human, but involve the entire universe, which maintains life. As in the case of the encyclical of Pope Francis *Laudato Si'*, which is a religious statement and not a scientific article, a political record or environmental statement, Jonas instigates several questions of a socio-environmental and economic nature (Deneulin & Zampini-Davies, 2017).

Scientific and technological progress that seems to have no limits generates innumerable ethical dilemmas, heightened by a lack of norms and values to give direction to individual and social actions. The predominant socioeconomic system has an established and recognized morality. It is a way of life based on unlimited growth and progress, on unrestrained consumption, on the overvaluation of wealth and possession of goods, on unquestionable private property, all presented as everyone's goal and a reference for the best of life. Whoever fulfills this system in his practices, his norms, his values, his virtues, his laws, is a good, just, benevolent man, praised by his fellow men (Dussel, 1988).

In the encyclical of *Laudato Si'*, the Pope addresses a critique of morality at a time of great technological advances, emphasizing that human beings have never had so much power over themselves, being able to alter DNA and even fetuses during pregnancy. But many have used technology to harm others, for instance, with the creation of atomic bombs. Thus, it is claimed that technological growth has not been accompanied by an increase in moral values, responsibility and conscience. Greed and the quest for a demonstration of dominance and power are corrupting society (Pope Francis, 2015).

Large companies have a low awareness of environmental issues, mainly due to the current socioeconomic system that keeps capital at the forefront, in addition to being mainly concerned with profitability with little regard for the environment. Together with the redefinition of efficiency and productivity, we need a complete overhaul of the concept of profit.

Today private profits are obtained, all too often, at the expense of social justice and through environmental exploitation (Capra, 1984).

Unfortunately, there is little public pressure for environmental responsibility. It is clear that environmentally legal companies are seen as more ethically structured, corroborating with SDG 9, which aim toward modernizing, by 2030, the infrastructure and rehabilitating industries to make them sustainable (Amrutha & Geetha, 2020; Fryxell & Lo, 2001; UNDP, 2015).

As seen in Fig. 3, ethics assigns rights and duties to all, similarly to SDG 16, which seeks to promote peaceful and inclusive societies, providing access to justice for all, promoting the rule of law, nationally and internationally, to ensure equal access to justice for all (UNDP, 2015; Wesley et al., 2016). Thus, the Earth Charter points out that the only solution to the environmental problem is the sum of forces for the construction of a globalized and sustainable society, having as essential values the guarantee of human rights, economic justice and, most importantly, the culture of peace (Boff, 2000).

Pope Francis cites nature in his encyclical as a common sister, and the earth as the mother of all beings and he criticizes the irresponsible use and abuse of the goods that God has placed in it. Note the intertwining of religion with scientific evidence, which is the irresponsible and uncontrolled destruction generated by man. In other words, not only can different sources of knowledge combine, but this is essential for the common good, such as the environment. The scholar of religions, Mircea Eliade, says that religious experience is a characteristic of the human being as such, that is, an element in the structure of consciousness, and not a stage in the history of that consciousness.

Religious experience is a permanent possibility of everyday life, constituting very important historical-cultural data for the knowledge of societies (Eliade, 2010). The Pope believes that not only the exact sciences but also the social sciences, including theology, should discuss issues of a social, political, economic and environmental nature (Deneulin & Zampini-Davies, 2017; Pope Francis, 2015). Pope Francis deals with an integral ecology, understanding that there is an intimate relationship between the poor and the fragility of the planet. He emphasizes that everything is interconnected in the world and invites us to look for other ways to understand the economy and progress, and he finishes by proposing a new lifestyle.

However, some authors question the involvement of religion in environmental issues, especially concerning religious world views and values that can promote skepticism about climate change (Koehrsen, 2018). However, if we analyze the question of social impact, religions encompass, influence and even shape the lives of billions of people and this allows religions to deal concretely and realistically with environmental change and its impact on their lives. In addition to working on the moral and ethical concepts of the common good, loving thy neighbor and the question of everyone being created by the same divine entity, religion also contains arguments to address the main ethical issues that arise in development processes, for example, “how one should live” (Deneulin & Zampini-Davies, 2017). Reading the encyclical *Laudato Si'*, it is possible to associate it with several sustainable development objectives. Figure 4 shows the correlation between citations in the encyclical and the SDGs.

Pope Francis quotes several times in the writing of the encyclical the need to consider our neighbors, emphasizing those who do not enjoy of the same rights, such as developing countries that have predominantly poor people. These populations do not have other economic resources or the ability to adapt to catastrophic climatic impacts, obtaining only reduced and precarious access to social services and protection. The lack of reaction to











Sustainable development goals	Laudato si' quotes
	<p>"The exploitation of the planet has already exceeded acceptable limits and we still have not solved the problem of poverty."</p>
	<p>"Our world has a grave social debt towards the poor who lack access to drinking water, because they are denied the right to a life consistent with their inalienable dignity."</p>
	<p>"Inequity affects not only individuals but entire countries; it compels us to consider an ethics of international relations." "...we should be particularly indignant at the enormous inequalities in our midst, whereby we continue to tolerate some considering themselves worthier than others."</p>
	<p>"There is an urgent need to develop policies so that, in the next few years, the emission of carbon dioxide and other highly polluting gases can be drastically reduced, for example, substituting for fossil fuels and developing sources of renewable energy."</p>
	<p>"The growing problem of marine waste and the protection of the open seas represent particular challenges."</p>
	<p>"Caring for ecosystems demands far-sightedness, since no one looking for quick and easy profit is truly interested in their preservation."</p>
	<p>"Humanity is called to recognize the need for changes of lifestyle, production and consumption, in order to combat this warming or at least the human causes which produce or aggravate it."</p>
	<p>"Climate change is a global problem with grave implications: environmental, social, economic, political and for the distribution of goods. It represents one of the principal challenges facing humanity in our day."</p>
	<p>"Finally, the common good calls for social peace, the stability and security provided by a certain order which cannot be achieved without particular concern for distributive justice; whenever this is violated, violence always ensues."</p>
	<p>"A global consensus is essential for confronting the deeper problems, which cannot be resolved by unilateral actions on the part of individual countries. Such a consensus could lead, for example, to planning a sustainable and diversified agriculture, developing renewable and less polluting forms of energy, encouraging a more efficient use of energy, promoting a better management of marine and forest resources, and ensuring universal access to drinking water."</p>

Fig. 4 Laudato Si' and its correlations with sustainable development objectives

these situations experienced by others is a sign of the loss of a sense of responsibility for our fellow men.

SDG 10 provides for reducing inequality within and between countries, and the current progress toward ending this inequality is notably slow. Poverty means the impossibility of producing, reproducing or developing human life and the inability to satisfy elementary needs. Human life is the ethical subject’s model of reality, which gives content to all his actions. The universal material criterion, on which ethics is founded, is reproduction and the development of human life, not individual, but always community, since it is the relationships with others that humanize us (Dussel, 2000). Assuming this perspective, Pope Francis says that opting for the poor is a fundamental ethical requirement for the effective realization of the common good (LS 158). Figure 5 shows the interconnection of terms mentioned above.

As shown in Fig. 5, *Laudato Si’ - On the care of the common home*, addresses issues surrounded by ethics principles, and both are explicit in the course of each objective of sustainable development. It is concluded, then, that the three terms are entirely interconnected, complementing each other.

In the Gaia hypothesis, described by Lovelock (2000), man is placed as part of a larger system and it is considered that his actions have altered the balance of the terrestrial system. For Lovelock (2000), the Earth self-regulates, that is, when there is a disturbance, such as a change in the carbon cycle, Gaia (planet Earth) develops mechanisms to stabilize disturbances in its dynamics. Consequently, Francis brings a concrete perspective by adopting an old teaching theme present in various traditions, which is the conviction that “less is more” and “accumulation distracts the heart.” And then there is a proposal for a growth in sobriety and the ability to rejoice with little, since this is liberating, as noted in the following passage of Pope Francis (2015): “happiness requires knowing how to limit some needs that numb us, thus remaining available for the multiple possibilities that life offers.”

Naturally, the planet is constantly changing, but the increase in our species and the way it organizes its societies are in fact accelerating climate change, which is passing to a level of climate emergency (Farley-Ripple, 2020). The Pope emphasizes the need to look at climate change, stressing that one of the ways to achieve a climate balance would be through the innovation of renewable and accessible energy for all, easing the exploitation of nonrenewable resources and emission of polluting gases (Pope Francis, 2015; UNDP, 2015).

Fig. 5 The interconnection of terms



It is important to rethink the way we relate to the environment. The goal is to make production systems as autotrophic as possible. Today we remove inputs from nature and transform them, use them for a short period and then dispose of them without exhausting the useful potential of these resources. The way in which humanity uses natural resources is inefficient and wastes the energy potential of resources (Lenton & Latour, 2018). From this perspective, more important than curbing production is to rethink and mimic nature, seeking balance with the environment. SDG 12 seeks to raise the global awareness of responsible production and consumption, as Pope Francis points out in his encyclical (Fig. 4) (Pope Francis, 2015; UNDP, 2015).

When we are able to overcome individualism, an alternative lifestyle can really be developed and a relevant change in society becomes possible. Ecological education has an important role, and there are educators capable of reorganizing the pedagogical itineraries of ecological ethics so that they effectively help to grow in solidarity, responsibility and care based on compassion (Pope Francis, 2015).

Data released in 2018 by the Intergovernmental Panel on Climate Change (IPCC), revealed that the temperature of the planet has already increased 1 °C when compared to the pre-industrial period and the forecast is that by 2030 it will have heated up by 1.5 °C (Lenton, 2011; Rogelj et al., 2018; Sun et al., 2019). This increase is reflected in the oceans, affecting the melting of glaciers and biological changes in marine life. Bearing this in mind, SDG 14 values care for life in water bodies, sustainably managing the protection of marine and coastal ecosystems to avoid significant adverse impacts. In *Laudato Si'*, as shown in Fig. 4, the need for sustainable management over the oceans is also discussed (Pope Francis, 2015; UNDP, 2015).

If there is a global awareness that some limits have already been crossed, that the economic model adopted is fragile and that it will jeopardize the maintenance of resources for future generations, it can be considered that sustainability is firstly an ethical challenge (Dahl, 2012; Sachs, 2012). Ethical issues meet human values, and what is more valuable to man than the maintenance of his own life? The maintenance and reproduction of life is a fundamental principle of ethics. To believe that only decision-makers can change the course of human history in the Anthropocene is a utopia.

Changes will only occur when there is a change in global consciousness (Dahl, 2012; Deak, 2017). As early as 1982, the physicist Fritjof Capra defended the need to reevaluate the economy and indicated that it was not merely an intellectual task, but that it would need to involve profound changes in our value system. The very idea of wealth, which is central to the economy, is closely linked to human expectations, values and lifestyles. Defining wealth in the ecological context will mean transcending its current connotations of material accumulation and giving it a broader sense of human enrichment (Capra, 1984).

With regard to the approach to ethics in *Laudato Si'*, the Pope calls for the need to cure mainly all fundamental human relations, since the ecological crisis is nothing more than an expression of the ethical and cultural crisis of modernity. Resulting in deeply individualistic people, searching for momentary gain and self-satisfaction, leading to social and family crises and a lack of empathy for others. This is the moment to recognize that banality has served us little, in fact, it has hurt us a lot, mostly by preventing the development of a culture of care for the environment (Pope Francis, 2015).

4 Final considerations

The sustainable development goals can be read as an ethical agenda, as they seek to guarantee for future generations the benefits that the current one enjoys. This forms a basis for social, gender and income equality, which directly reflect on the environment, through the rational use of natural resources, such as water, and the fair sharing of the universal good. The encyclical *Laudato Si'* by Pope Francis addresses issues to be resolved mainly with respect to the least favored people and our common good (i.e., the environment). It also discusses the role of ethics in achieving sustainable development.

A sustainable approach to development would be one that allows future generations the same access to resources that we currently have for the perpetuation of life. Thinking of the planet as Gaia, as an organism that regulates itself, and human beings as a species that inhabits it and interferes in its cycles in such a way as to lead to climate change, highlights the responsibility we have to rethink our role within the larger cycle that involves Gaia. We need to address first the roots of the crisis of human values so that we can deal with the ecological crisis, which consequently reflects the moral illness of society.

The new conscience to be sought is one that creates a sense of responsibility, this being the best definition when it comes to the union of sustainable development objectives and ethics. This is envisioned as responsibility for the common good, for others and for nature and all its cycles, leading to the development of cleaner technologies, reduced production and sustainable consumption. It would encompass the search for renewable energies, reducing the consumption of plastics which are polluting the oceans, fighting for everyone to have access to the same opportunities and eradicating poverty and hunger. In a practical sense, it involves the responsibility to ensure that the goals (in particular the UN sustainable development goals) of the decade are met.

The human world needs to be transformed through the introduction of a new culture in which the hegemonic economic model based on individualism and consumerism is surpassed, with the construction of a culture of peace and solidarity that privileges the common good. Most importantly, politics and the economy need to be placed clearly at the service of life, especially human life (LS 189). It would be a cultural revolution to assume the culture of sobriety, gratuity, sharing, a slower pace and solidarity.

The great ethical challenge of the SDGs is to overcome what often happens with the discourse of sustainable growth, it being used as a justification to absorb ecological values within the logic of finance and technocracy. The social and environmental responsibility of companies is reduced, in most cases, to a series of actions aimed at publicity and selling an image (LS, 194). Finally, further research on the relationship between the sustainable development goals, the encyclical *Laudato Si'* and ethics is recommended, since a union between institutions (governments and churches) could greatly favor a more ethical and sustainable path, which is necessary for the conservation of planet Earth.

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Declarations

Conflict of interest The authors declare that there are no conflicts of interest.

References

- Amrutha, V. N., & Geetha, S. N. (2020). A systematic review on green human resource management: Implications for social sustainability. *Journal of Cleaner Production*, 247, 119131. <https://doi.org/10.1016/j.jclepro.2019.119131>
- Artaxo, P. (2014). Uma nova era geológica em nosso planeta: o Antropoceno?. *Revista Usp*, (103), 13. <https://doi.org/10.11606/issn.2316-9036.v0i103p13-24>
- Bartelmus, P. (2013). The future we want: Green growth or sustainable development? *Environmental Development*, 7(1), 165–170. <https://doi.org/10.1016/j.envdev.2013.04.001>
- Bien, C., & Sassen, R. (2020). Sensemaking of a sustainability transition by higher education institution leaders. *Journal of Cleaner Production*, 256, 120299. <https://doi.org/10.1016/j.jclepro.2020.120299>
- Boff, L. (2000). *Ethos mundial—um consenso mínimo entre os humanos*.
- Bolis, I., Morioka, S. N., & Szelwar, L. I. (2017). Are we making decisions in a sustainable way? A comprehensive literature review about rationalities for sustainable development. *Journal of Cleaner Production*, 145, 310–322. <https://doi.org/10.1016/j.jclepro.2017.01.025>
- Breyer, C., Heinonen, S., & Ruotsalainen, J. (2017). New consciousness: A societal and energetic vision for rebalancing humankind within the limits of planet Earth. *Technological Forecasting and Social Change*, 114, 7–15. <https://doi.org/10.1016/j.techfore.2016.06.029>
- Busoi, S. M. (2015). Sustainable Development and the Influence of Social Values A Case Study on Romania. *Procedia Economics and Finance*, 26(15), 46–53. [https://doi.org/10.1016/s2212-5671\(15\)00807-2](https://doi.org/10.1016/s2212-5671(15)00807-2)
- Capra, F. (1984). *The turning point: science, society, and the rising culture*.
- Cicin-Sain, B. (1996). Earth Summit implementation: Progress since Rio. *Marine Policy*, 20(2), 123–143. [https://doi.org/10.1016/S0308-597X\(96\)00002-4](https://doi.org/10.1016/S0308-597X(96)00002-4)
- Dahl, A. L. (2012). Achievements and gaps in indicators for sustainability. *Ecological Indicators*, 17, 14–19. <https://doi.org/10.1016/j.ecolind.2011.04.032>
- de Oliveira Neto, G. C., Ferreira Correia, J. M., Silva, P. C., de Oliveira Sanches, A. G., & Lucato, W. C. (2019). Cleaner Production in the textile industry and its relationship to sustainable development goals. *Journal of Cleaner Production*, 228, 1514–1525. <https://doi.org/10.1016/j.jclepro.2019.04.334>
- Deak, D. (2017). Social interventions in nature. *Integral Ecology and Sustainable Business Social*, 26, 31–53. <https://doi.org/10.1108/S1572-832320170000026003>
- Deneulin, S., & Zampini-Davies, A. (2017). Engaging Development and Religion: Methodological Groundings. *World Development*, 99, 110–121. <https://doi.org/10.1016/j.worlddev.2017.07.014>
- Dussel, E. (1988). *Ethics and community*.
- Dussel, E. (2000). *Ética da libertação—na idade da globalização e da exclusão* p. 671.
- Eliade, M. (2010). *História das crenças e das ideias religiosas*. Retrieved from <http://books.google.com.br/books?id=qJP4ngEACAAJ>
- Farley-Ripple, E. (2020). Wordplay or paradigm shift: The meaning of “Research Impact.” *International Journal of Education Policy and Leadership*, 16(11). <https://doi.org/10.22230/ijep.2020v16n11a1021>
- Francis P. (2015). *Encyclical letter LAUDATO SI'*. p. 184. <https://doi.org/10.1413/82725>
- Fryxell, G. E., & Lo, C. W. H. (2001). Organizational membership and environmental ethics: A comparison of managers in state-owned firms, collectives, private firms and joint ventures in China. *World Development*, 29(11), 1941–1956. [https://doi.org/10.1016/S0305-750X\(01\)00078-X](https://doi.org/10.1016/S0305-750X(01)00078-X)
- Furtado, C. (1974). *O Mito do desenvolvimento econômico*.
- Giraud, G., & Orliange, P. (2016). Laudato Si' e os objetivos de desenvolvimento sustentável: Uma convergência? *Cadernos Teologia Pública*, 13(117), 1–28.
- Guerra, J., Schmidt, L., & Lourenço, L. B. (2019). From local agenda 21 to a localized agenda 2030—the Portuguese and Brazilian cases in perspective. *Community Development*, 50(3), 352–367. <https://doi.org/10.1080/15575330.2019.1599405>
- Haines, A., Alleyne, G., Kickbusch, I., & Dora, C. (2012). From the earth summit to Rio+20: Integration of health and sustainable development. *The Lancet*, 379(9832), 2189–2197. [https://doi.org/10.1016/S0140-6736\(12\)60779-X](https://doi.org/10.1016/S0140-6736(12)60779-X)
- Hauck, Y. L., Bradfield, Z., & Kuliukas, L. (2020). Women’s experiences with breastfeeding in public: An integrative review. *Women and Birth*. <https://doi.org/10.1016/j.wombi.2020.04.008>

- Hecht, A. D., Fiksel, J., Fulton, S. C., Yosie, T. F., Hawkins, N. C., Leuenberger, H., & Lovejoy, T. E. (2012). Creating the future we want. *Sustainability: Science, Practice, and Policy*, 8(2), 62–75. <https://doi.org/10.1080/15487733.2012.11908098>
- Howe, P. (2019). The triple nexus: A potential approach to supporting the achievement of the sustainable development goals? *World Development*, 124, 104629. <https://doi.org/10.1016/j.worlddev.2019.104629>
- Ittekkot, V., & Milne, E. (2016). Encyclical Letter “Laudato Si’”: A gentle but firm nudge from Pope Francis. *Environmental Development*, 17, 1–3. <https://doi.org/10.1016/j.envdev.2015.09.011>
- Koehrsen, J. (2018). Religious agency in sustainability transitions: Between experimentation, upscaling, and regime support. *Environmental Innovation and Societal Transitions*, 27, 4–15. <https://doi.org/10.1016/j.eist.2017.09.003>
- Kwatra, S., Kumar, A., & Sharma, P. (2020). A critical review of studies related to construction and computation of Sustainable Development Indices. *Ecological Indicators*, 112(2019), 106061. <https://doi.org/10.1016/j.ecolind.2019.106061>
- Leal Filho, W., Tripathi, S. K., Andrade Guerra, J. B. S. O. D., Giné-Garriga, R., Orlovic Lovren, V., & Willats, J. (2019). Using the sustainable development goals towards a better understanding of sustainability challenges. *International Journal of Sustainable Development and World Ecology*, 26(2), 179–190. <https://doi.org/10.1080/13504509.2018.1505674>
- Lenton, T. (2011). 2 °C or not 2 °C? That is the climate question. *Nature*. <https://doi.org/10.1038/473007a>
- Lenton, T. M., Held, H., Kriegler, E., Hall, J. W., Lucht, W., Rahmstorf, S., & Schellnhuber, H. J. (2008). Tipping elements in the Earth’s climate system. *Proceedings of the National Academy of Sciences of the United States of America*, 105(6), 1786–1793. <https://doi.org/10.1073/pnas.0705414105>
- Lenton, T. M., & Latour, B. (2018). Gaia 2.0: Could humans add some level of self-awareness to Earth’s self-regulation? *Science*, 361(6407), 4–7. <https://doi.org/10.1126/science.aau0427>
- Lovelock, J. (2000). *Gaia: A new look at life on earth*.
- Mantatov, V., & Mantatova, L. (2015). Philosophical underpinnings of environmental ethics: theory of responsibility by Hans Jonas. *Procedia-Social and Behavioral Sciences*, 214, 1055–1061. <https://doi.org/10.1016/j.sbspro.2015.11.704>
- Meine, C. (2018). Conserving biodiversity in a time of rapid environmental change like. *Biodiversity Conservation*. <https://doi.org/10.1016/B978-0-12-809665-9.10463-X>
- Miloradova, N., & Ishkov, A. (2015). Environmental ethics as a social, professional and personal value of the students of Civil Engineering University. *Procedia Engineering*, 117(1), 246–251. <https://doi.org/10.1016/j.proeng.2015.08.158>
- Morand, S., & Lajaunie, C. (2018). Ethics, Values and Responsibilities 12.1. *Biodiversity and Health Medicine*. <https://doi.org/10.1016/B978-1-78548-115-4.50012-3>
- Nasibulina, A. (2015). Education for sustainable development and environmental ethics. *Procedia - Social and Behavioral Sciences*, 214(June), 1077–1082. <https://doi.org/10.1016/j.sbspro.2015.11.708>
- Ohlemacher, R. (2003). The Earth observation summit: Heralding a new era for international cooperation. *Space Policy*, 19(4), 277–281. <https://doi.org/10.1016/j.spacepol.2003.09.001>
- Pillay, A., & Elkadi, M. (2010). The vanishing face of gaia: A final warning. *International Journal of Environmental Studies*, 67(1), 97–99. <https://doi.org/10.1080/00207230903385791>
- Rockström, J., Steffen, W., Noone, K., Persson, A., Chapin, F. S., Lambin, E. F., & Foley, J. A. (2009). A safe operating space for humanity. *Nature*, 461(7263), 472–475. <https://doi.org/10.1038/461472a>
- Rogelj, J., Shindell, D., Jiang, K., Fifita, S., Forster, P., Ginzburg, V., Vilarinho, M. V. (2018). Mitigation pathways compatible with 1.5°C in the context of sustainable development. In *Intergovernmental Panel on Climate Change (IPCC)* (p. 82pp). Retrieved from https://www.ipcc.ch/site/assets/uploads/sites/2/2019/02/SR15_Chapter2_Low_Res.pdf
- Sachs, I. (2008). Caminhos para o desenvolvimento sustentável. In *Garamond*. <https://doi.org/10.4025/bolgeogr.v31i1.17897>
- Sachs, I. (2012). Dossiê sustentabilidade. *Estudos Avançados*, 26(74), 5–20.
- Santos, J. D. J., & da Silva, P. C. (2013). Sociedade, natureza e desenvolvimento: Abordagem bibliográfica. *Ambivalências*, 1(2), 145–155.
- Schwartzman, D. (2020). An ecosocialist perspective on gaia 2.0: The other world that is still possible. *Capitalism, Nature, Socialism*, 31(2), 40–49. <https://doi.org/10.1080/10455752.2020.1729943>
- Silva, M. E., & Figueiredo, M. D. (2020). Practicing sustainability for responsible business in supply chains. *Journal of Cleaner Production*, 251(119621), 1–11. <https://doi.org/10.1016/j.jclepro.2019.119621>
- Souza, F. A. C. de. (2015). A relação natureza-sociedade no modo de produção capitalista. *Revista Em Pauta*, 13(35), 153–168. <https://doi.org/10.12957/rep.2015.18626>
- Stanitsas, M., Kirytopoulos, K., & Vareilles, E. (2019). Facilitating sustainability transition through serious games: A systematic literature review. *Journal of Cleaner Production*, 208, 924–936. <https://doi.org/10.1016/j.jclepro.2018.10.157>

- Sun, C., Jiang, Z., Li, W., Hou, Q., & Li, L. (2019). Changes in extreme temperature over China when global warming stabilized at 1.5 °C and 2.0 °C. *Scientific Reports*, 9(1), 1–11. <https://doi.org/10.1038/s41598-019-50036-z>
- UN. (2015). *Universal declaration of human right*. pp. 1–72.
- Undp. (2015). *Sustainable development goals*. p. 24.
- UNESCO. (2000). *The ethics of freshwater use: A survey*.
- Wesley, H., Tittle, V., & Seita, A. (2016). No health without peace: Why SDG 16 is essential for health. *The Lancet*, 388(10058), 2352–2353. [https://doi.org/10.1016/S0140-6736\(16\)32133-X](https://doi.org/10.1016/S0140-6736(16)32133-X)

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Authors and Affiliations

José Baltazar Salgueirinho Osório Andrade Guerra^{1,2,3}  · Michele Hoffmann³ · Ritanara Tayane Bianchet³ · Patrícia Medeiros³ · Ana Paula Provin³ · Roberto Iunskovski¹

Michele Hoffmann
michellecfrhoffmann@gmail.com

Ritanara Tayane Bianchet
ritanara.bianchet@unisul.br

Patrícia Medeiros
patriciamedeiros.unisul@gmail.com

Ana Paula Provin
ana_provin@yahoo.com.br

Roberto Iunskovski
roberto.iunskovski@animaeducacao.com.br

- ¹ Centre for Sustainable Development (GREENS), University of Southern Santa Catarina, Florianópolis, Brazil
- ² Cambridge Centre for Environment, Energy and Natural Resource Governance, (CEENRG), University of Cambridge, Cambridge, UK
- ³ Graduate Program in Environmental Sciences, University of Southern Santa Catarina, Palhoça, Brazil