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RESEARCH

From the present to the future: environment in the bioethical context

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Abstract

This is a reflective study on articles 16 and 17 of the *Universal Declaration on Bioethics and Human Rights*, on "protection future generations" and "protection of the environment, biosphere and biodiversity". Successive revisits and critical views are necessary in order to enhance their practical effects, as these are subjects of constant analysis and often left out in discussions that accentuate social distinctions. An etymological search was made for constituent terms of the principles to favor their connection, to rethink their contents, associating them with current themes. It was also proposed a re-reading of the statement in a "inverse logic", having the environment as the background. They are not mere principles in the declaration and, without them, it would hardly be possible to fully accomplish the others. They establish connection between the other articles and assure a balanced life for present and future generations, depending on the human activities.
Keywords: Bioethics. Biosphere. Biodiversity. Ecological and environmental phenomena.

Resumo

Do presente ao futuro: meio ambiente no contexto bioético

Trata-se de estudo reflexivo acerca dos artigos 16 e 17 da *Declaração Universal sobre Bioética e Direitos Humanos*, sobre proteção das gerações futuras, do meio ambiente, da biosfera e da biodiversidade. Por serem temas constantemente analisados, é necessário ter visão crítica para aprimorar seus efeitos práticos, muitas vezes deixados de lado em discussões que acentuam apartações sociais. Realizou-se busca etimológica dos termos constituintes dos princípios para favorecer sua conexão e repensar seu conteúdo, associando-os com questões atuais. Propôs-se também reinterpretar a declaração, tendo o meio ambiente como pano de fundo. Ambos não são meros princípios na declaração e sem eles seria improvável atingir plenamente os demais, uma vez que os interligam e asseguram vida equilibrada para gerações atuais e futuras, dependendo do fazer humano.
Palavras-chave: Bioética. Biosfera. Biodiversidade. Fenômenos ecológicos e ambientais.

Resumen

Del presente al futuro: medioambiente en el contexto bioético

Se trata de un estudio reflexivo sobre los artículos 16 y 17 de la *Declaración Universal sobre Bioética y Derechos Humanos*, sobre la protección de las generaciones futuras, del medioambiente, de la biosfera y de la biodiversidad. Por ser temas de constante análisis, es necesario tener una visión crítica para mejorar los efectos prácticos, muchas veces dejados de lado en discusiones que acentúan separaciones sociales. Se realizó una búsqueda etimológica de los términos constituyentes de los principios para favorecer su conexión y repensar su contenido, asociándolos con temas actuales. Se propuso, también, reinterpretar la declaración, teniendo al medioambiente como telón de fondo. Ambos no son meros principios en la declaración, y sin ellos sería improbable alcanzar plenamente los demás, dado que los interconectan y aseguran una vida equilibrada para las generaciones actuales y futuras, dependiendo del obrar humano.
Palabras clave: Bioética. Biosfera. Biodiversidad. Fenómenos ecológicos y ambientales.

Declaram não haver conflito de interesse.

The term "bioethics", coined by Potter [1], revealed in itself, among other things, a clear concern for the environment and was conceived as a bridge to the future. The prefix "bio" brought aspects of life to the term in a more direct and palpable way through its juxtaposition to the word "ethics". However, the following conceptions distanced themselves from the original one.

Incipient approaches dealt with short-term situations rather than the continued existence of species, examining old problems (such as abortion and euthanasia) rather than issues that are really important for the survival of humankind [2]. This resembles what Morin views as " ecology of action ", that is: *all human action, from the moment it is initiated, escapes the hands of its initiator and enters into the play of the multiple interactions proper to society, which deviate it from its original goal and sometimes give it a meaning opposite to what it was aimed at* [3]. The conceptual multiplicity, in the context of bioethics, has as its common ancestor the works of Aldo Leopold and Potter [4].

Regardless of conceiving a more appropriate concept (or not) for bioethics, the problems of human existence are still present and deserve attention. The branch of science that will be studying them matters little, as long as they are explored. The more the approach is multi, inter and trans disciplinary, the more knowledge will be produced.

Bioethics helps government leaders and society at large to think about their decisions as they affect public health, economics, social justice, the environment, and the well-being of future generations [5]. The environment plays a central role in this context given its intrinsic relationship with the maintenance and quality of life. It should be noted that the terms "meio"; "ambiente"; and "meio ambiente", are used in Portuguese in Brazil and therefore were kept in the text and correspond to the term "environment" in English.

This study aims to reflect on the principles contained in articles 16 and 17 of the *Universal Declaration on Bioethics and Human Rights* (UDBHR), which deal respectively with the protection *of future generations and the protection of the environment, biosphere and biodiversity* [6]. The analysis was intended to show that they are not just two more principles in a statement and are essential to support the other articles and to ensure the preservation of life on the planet.

Method

This conceptual study of descriptive and qualitative approach falls within the historical-organisational category [7] and seeks to understand bioethics in the environment and vice versa. It is based on the *Universal Declaration on Bioethics and Human Rights* [6]. *Political criteria of scientificalness do not eliminate the formal ones* [8] and the documentary information is relevant because it represents *stable sources that can be revised countless times* [9]. On the other hand, it presents weak points, like *tendentious selectivity, if the compilation is not complete* [9]. The article is divided in two stages, being the first one a conceptual approach of the principles studied:

Article 16 – Protecting future generations

The impact of life sciences on future generations, including on their genetic constitution, should be given due regard.

Article 17 – Protection of the environment, the biosphere and biodiversity

Due regard is to be given to the interconnection between human beings and other forms of life, to the importance of appropriate access and utilization of biological and genetic resources, to respect for traditional knowledge and to the role of human beings in the protection of the environment, the biosphere and biodiversity" [6].

In order to do so, an etymological search of the constituent terms of the articles ("protection", "generations", "future", "environment", "biosphere" and "biodiversity") was made. The second stage sought to establish connections between the principles, to evaluate their content, to associate them with current themes and to propose a reading of the UDBHR having the environment as background in order to reinterpret the formal structure of the declaration.

Results and discussion

Terminology considerations

The constituent terms of articles 16 and 17 of the Universal Declaration on Bioethics and Human Rights are in this first step. In view of the number of references, it was decided to present a clipping of meanings (Table 1).

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The content presented in Table 1 helps to understand the scope of the principles' terminology. However, Hattingh [10] points out three conceptual aspects that may indicate imprecision: several definitions involving the terms "environment" and "biodiversity", which may represent "everything"; impossibility of defining "environment" and "biodiversity" in a scientifically objective way; and change in the range of the "biodiversity" concept, which currently presents a more holistic view of biology.

Table 1. Etymology and meanings of terms in articles 16 and 17 of the *Universal Declaration on Bioethics and Human Rights* [6]

Term	Etymology [11-14]	Meanings [15]
"Protection" (art. 16 and 17)	Latin *prōtēctĭō, -ōnis*: shelter, shade, support. From "protect", Latin *protĕgo, -ĕre*: cover in front; defend, protect from danger; hide, conceal.	Personal dedication; privileged treatment; apparatus or device that protects against damage; to give good treatment; to take care of someone's interests; favour; prevent destruction or extinction; to preserve; take care of something or someone weaker; which involves something in order to prevent it from breaking, scratching, getting dirt; legislation that protects something and the set of practical measures to enforce this legislation.
"Generations" (art. 16)	Latin *generātĭo, -ōnis*: reproduction, generation; genealogy, family, race, family tree. Related to gender, *genus, -ĕris*: birth, origin, ancestry; people, nation; gender, species; manner, way	Production, training; action or effect of generating, that is, creating, giving origin, causing, coming into existence; the function by which beings reproduce, producing a similar being; each degree of parent-child affiliation (in a direct line); time from one affiliation to another (evaluated in 25 years); set of elements produced at the same time, vintage; lineage; last generation, it is what is more modern and advanced.
"Future" (art. 16)	Latin *futurus*: of, or time to come. *Futūrum, -i*: what's to come	Posterity, to come, ,forthcoming further; what is planned or expected; it is said of a position that one will have in later time; time following the present; destiny; it is said of the state, position on the next occasion.
"Meio" (art. 17)	Latin *medĭum, -us*: center, intermediate space; public square; public; society.	Set of surrounding circumstances; place where one lives; physical environment; goods, resources, material elements; set of resources to achieve a goal; way, form.
"Ambiente" (art. 17)	Latin *ambĭens, -ēntis*, participle of *ambīre*: place, space, enclosure, walk around. *Ambi*: around, on each side.	Set of conditions: non material that involve someone, living beings and / or things; material, cultural, psychological and moral that involve one or more people.
"Biosphere" (art. 17)	From the German Biosphäre (word created by E. Suess in 1875), influence of the French *biosphère* and English biosphere.	Represents the set of ecosystems existing on the planet Earth, ecosphere (includes lithosphere, hydrosphere and atmosphere).
"Biodiversity" (art. 17)	Greek *βi.oç*: life; and Latin *diversĭtas, -ātis*: variety, difference.	*"Biological diversity" means the variability of living organisms of all origins, including, but not limited to, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part of; including diversity within species, between species and ecosystems* [15].

Note: "meio" and "ambiente" correspond to the "environment" in the original version of the Universal Declaration on Bioethics and Human Rights in English

Amplitude of protection

Occasionally, "protect" is synonymous with "preserve" and "conserve". However, when it comes to environmental issues, it is important to briefly distinguish them. According to Law 9.985 / 2000, which establishes the Sistema Nacional de Unidades de Conservação (National System of Conservation), "nature conservation" refers to the *management of human use of nature, including preservation, maintenance, sustainable use, restoration and recovery of the natural environment, so that it can produce the greatest benefit, on a sustainable basis, to the present generations, maintaining its potential to satisfy the needs and aspirations of future generations, and guaranteeing the survival of living beings in general* [16].

The same instrument defines "preservation" as *a set of methods, procedures and policies aimed at the long-term protection of species, habitats and*

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ecosystems, in addition to maintaining ecological processes, preventing the simplification of natural systems [16], and "integral protection" as *maintenance of ecosystems free of changes caused by human interference, allowing only the indirect use of their natural attributes* [16].

Lee [4] points out how beliefs about the connection between all things, inspired by preservationists such as John Muir, Aldo Leopold and Arne Naess (deep ecology theory), have raised concerns about the integral health of ecological systems after researchers in the 1970s began to question the utilitarian value that was given to the environment. Conservationists, known as anthropocentrists or superficial ecologists, had a significantly different ideal because they valued human interests in the defense of the environment.

Protection could be thought of using two different perspectives: intrinsic value (per se) and instrumental value (based on human interests) [10]. To better solve current impacts, it is questioned whether humanity is at the center of the biosphere, being the most important component, and whether the concerns are with the survival of the species or the environment [4].

It is important to remember the trap of worrying only about nature, regardless of human interests [10], because biocentric focus on wilderness worship, as well as solutions focused on the benefits brought only to humankind, are inadequate for the outline of environmental problems [17]. The ecocentric perspective, according to Junges [17], is the most adequate to think about and discuss the current environmental crisis, since it assumes the way nature works.

"Conserve" seems to indicate possibility of use, ensuring maintenance. "Preserve" has a more restrictive character, conferring some isolation, and "protect" can be either one or the other, varying according to the degree and object to be protected. In any case, predatory exploitation - non-observance of norms aimed at assuring natural heritage, degradation without repair and privileging only human or other living beings in isolation - is never allowed, even if legally accepted (such as in environmental licensing, for example).

Future generations: life in the foreground on the stage of history

Article 16 of the Universal Declaration on Bioethics and Human Rights contemplates *the impact of life sciences on future generations* [6]. However, its interpretation need not be limited to human beings or some specific time - the future is in constant renewal, being presented in each tomorrow. This arises from the fact that the writing of the article includes "genetic constitution" of the coming generations.

The term "constitution", in its original sense, is the act of constituting (form, composed of Latin *constĭtŭĕrĕ*), establishing, firm [18]. it originates from *constitutĭo*, *-onis* (nature, state, condition, definition) and *cumsto* (in the sense of *consto*, -are: to be sure; to be evident, to be composed of, to consist of, to exist, to subsist, to remain, to last; in agreement, in harmony; to appear) [19]. "Constitute" is defined as *institute, appoint, form, produce; be the basis, the essential part, foundation; be an integral part of; to compose* [20].

"Genetics", from the French *genéthique*, derived from the Greek *genētikós* (proper for generation), variation of *gennētikós*, that is, relative to genesis, genic, genesic; relative, determined by gene (characteristic of an organism) [21], *is the study of aspects of genes, the fundamental units of biological information* [22].

However, to be better understood the concept of protection of future generations, it is necessary to consider the history of past generations and established social relations. In this context is the controversial figure of altruism. In order to understand the term, one must separate the purely instinctive social behaviours from the others, for the present human society depends on "true altruism", considered by Eccles [23] with two distinctive features: intention (planned action) and respect for the interests of the other, from the idea that it *is evident that normal human life is a fabrication of altruistic acts* [24].

Although it is not yet possible to say that human coexistence is perfect, altruism, as a behaviour, leads us to reach other UDBHR principles. This includes, for example, equality, justice and equity (Article 10), solidarity and cooperation (Article 13), social responsibility and health (Article 14) and sharing of benefits (Article 15).

According to Isaac [25], two patterns seem to explain the behaviour of the human social organisation: food sharing and division of labor. Eccles [23] sees in food sharing something altruistic that would have manifested itself 3.6 million years ago when the supposed nuclear family appeared in hominids. There are also traces of this behaviour in Neanderthal funeral customs about 80,000 years ago when it is assumed that fear, anxiety, and the notion of death brought to primitive men the concern derived from self-consciousness.

Today the sense of "altruism" is a little different. Human beings preserve their lives not only by staying alive or seeking means for this, but also by perpetuating their ideas, ensuring the life of their successors (consanguineous or otherwise), caring for other living beings (human or not). However, their struggle and willingness to favour the lives of other species is diminished if it implies a risk to their very existence. The prevailing view still focuses on the "I", which does not reflect the broader spirit of the principle of solidarity and cooperation that could have been attributed to Article 13 of the UDBHR. This reasoning, contrary to what is stated in Article 27 of the UDBHR, does not think of the limitation of the principle, but of the possibility of extending its scope in order to guarantee the protection of life. Thus, solidarity and cooperation, when practiced, protect future generations.

All discourses begin to see man as superior to nature when social sciences and life sciences are separated [26]. This may be a subtle trap that implies distancing from educational processes to understand that citizenship calls us to live in the global context. Ancestral peoples and poorer populations retain knowledge of ecological principles and the functioning of the environment *because they depend more directly from nature to survive* [27], which legitimises their environmental struggles.

Items I and II of article 3 of the Brazilian Federal Constitution of 1988 [28] point out among its fundamental objectives the construction of a free, fair and solidary society, besides the guarantee of national development, intrinsically linked to the future. However, there is no progress without education, freedom and justice. In this way, education ensures the future, and it is not without reason that Article 16 of the UDBHR considers the *impact of life sciences on future generations* [6].

These sciences are part of the educational process. Its stimulus, development and dissemination have positive effects in society, since they empower individuals and favour their autonomy and responsibility, converging with article 5 of the UDBHR. However, for scientific benefits to be achieved, it is prudent to consider the "linguistic domain", since terms and interpretations are different for people [29].

In this context, the production of knowledge will only be effective when scientific language is not synonymous with social differentiation, since its particularities can prevent or hinder the access of lay people (considering literacy level and branches of science with which they have contact). This obstacle may lead to discouragement and disinterest in science and the pursuit of knowledge.

In the medium and long term, the generations create more evident distancing systems, and it is possible that the same idea is defended with divergent positions. The effort in this case would be counterproductive and the protection of future generations would be compromised. This is because the relationship and the understanding with the medium would be presented in a fragmented and disconnected way - in a way not so different from what is observed today.

The way humans learn will reflect the way the world moves forward. Piaget [30], when dealing with the development of practical (sensory-motor) intelligence in childhood, relating it to different theories, always considered that subject and external environment are inseparable. According to the author, *the individual only arrives at his or her inventions or intellectual constructions insofar as he or she is the seat of collective interactions, whose level and value depend naturally on the society as a whole* [31], again referring to solidarity and cooperation.

The understanding provided by the theory of Darwinian evolution was a conceptual framework of what "human being" is. Any claim to protect future generations should consider the genetic heritage accumulated by the species and the legacy that each group brought to the body design, in addition to its connection with the environment, modulating the behavioural basis. In view of the constant changes in society and human thought, many of them driven by technology and communication, it is increasingly difficult to imagine what the next generations can need or aim for. In any case, it is not fair to offer them an environmentally restricted world.

Environmental ethics thinkers are driven by new paradigms. The case of genetically modified organisms (animals and plants), for example, is worrying because of the risks of contamination and / or proliferation of GMOs in nature. Knowing how to change genetics does not necessarily imply manipulating it [32-35] and in these cases there is a double perspective [36]. Principles such as precaution and prevention help in such situations, even because to what extent can irreversible manipulations be allowed with a damaging consequence for beings? The unpredictability of consequences, for example, leads many people to agree that the germinal line of the human species should not be modified, even though its editing can avoid diseases and degenerative processes [36].

Animal ethics, in turn, has become an important field. Several approaches have become more comprehensive and interdisciplinary in view of different contexts and cultural aspects [37]. For Rollin [38]

it is imperative that a universal set of standards be established for all studies, which on the other hand would be incompatible with national sovereignty or with the ignorance of scientists responsible for animal research laboratories.

Life on Earth is extraordinarily diverse. All kinds of vegetables, animals, fungi, protists and microorganisms have evolved over the last three billion years. This diversity is reflected in the considerable variation in structure and content of genomes. Scientists are just beginning to analyse this diversity and elucidate its evolutionary history [39].

From micro to macro and vice versa: action on Earth

The literature points to the need to conceptualise the term "environment" [40-42]. Coimbra defines it as *everything that goes back and forth, everything that surrounds us ... It is the set of beings that populate, or rather, constitute the planet and its relations, among which the anthropic factors, influence (positive or negative) of the human being in the transformations that operate* [43].

Some note that both the term "*meio*" and "*ambiente*" have the same meaning in this context, and therefore the term "*meio ambiente*" (environment) is redundant. Milaré [44] disagrees with this assessment, since the term is consecrated in Brazilian Portuguese, being used in doctrines, laws, jurisprudence and even in the Constitution.

The expression seems to have been first used by the French naturalist Geoffroy Saint-Hilaire in 1835, and later adopted by Augusto Comte [44]. Brazilian legislation, in article 3, item I, of the Law 6.938 / 1981, considers that environment is the *set of conditions, laws, influences and interactions of a physical, chemical and biological order, which allows, shelters and rules life in all its forms* [45].

By linking the material aspect to the non-material, cultural and psychological aspects, it gives the impression that it is possible to speak of everything when dealing with the environment. However, the article 17 of the Universal Declaration on Bioethics and Human Rights, in order to eliminate any doubt and bring the full principle, aligns with the protection of the environment that of the biosphere and biodiversity. Although those concepts overlap substantially, and although they are sometimes used indiscriminately, there are subtle and important differences between them [10].

The UDBHR principle points to *the interconnection between human beings and other forms of life* [6]. Being correlated with other species, it is not possible for human beings, as Morin says [26], to believe that they are superior to other forms of life. The sense of existence is lost because of reasoning that denies alterity and with it the world is "objectified", the environmental crisis being a consequence of the lack of meaning of words, allied to the loss of reference and the dissolution of the senses, the result of postmodern thinking, and, above all, the crisis of the effect of knowledge on the world [46].

The commercial contract has been the essential link between human beings, but could be established, alternatively, by free cooperation between associated producers, mutual aid for generalised self-management, reciprocal recognition of human dignity, among others [47].

As mentioned, Article 17 of the Universal Declaration on Bioethics and Human Rights highlights *the importance of appropriate access and utilization of biological and genetic resources* [6]. In addition, Article 2 of the Convention on Biological Diversity defines biological resources as *genetic resources, organisms or parts thereof, populations, or any other biotic component of ecosystems with actual or potential use or value for humanity* [15]. It also defines genetic *resources as genetic material of actual or potential value* [15].

The access and use of resources, be them biological or genetic, involve an economic principle of utilitarian perspective, that is, they are based on valuation according to human perspective. But, as Georgescu-Roegen points out [48], economic rationality must start from the principles of ecology and thermodynamics, and not only in the immediate human interest.

Rising global temperatures, cryosphere retreat, aquifer deterioration, rising oil prices, and the collapse of fishing are examples of a world saturated under unsustainable pressure, and reveal an ecological footprint that is incompatible with the protection of future generations [47].

Environmental bioethics focuses on three basic issues: technology, toxic waste and resource consumption. Its objective is to identify problems, articulate solutions and contribute to maintaining equity, dignity and rights [49]. Humankind shares the ecosystem with other species and, given its predominance in the biosphere, has a duty to care for the planet not as owner but as administrator [50], in accordance with Article 17 of the UDBHR, which establishes *the role of human beings in the protection of the environment, the biosphere and biodiversity* [6].

Puigdomènech [36] points to the fact that, even though food production has surpassed the population growth rate, hunger is still a global constant. Every day more people live far from food production and distribution points. The author also points out that the geography of misery coincides with armed conflicts, climate change and lack of access to infrastructure, performance technologies (capable of generating increases in production) or markets.

Here we open the discussion to constant waste and its neglected foundations. Brazilian educational institutions waste billions of liters of water and millions of dollars in unsustainable practices because of short-term calculations [51]. Despite producing knowledge, they also produce garbage. Not unlike that, important Brazilian rivers are drying up by the excessive use of center pivot irrigation, which would be capable of supplying small towns by themselves.

Data showed a 16% decrease in the rate of deforestation in the Amazon region, from 2016 to 2017 [52]. Although this is a "positive" result, deforestation persisted. And this results in direct damage to biodiversity - first in the affected area, then in regions of influence and finally on a global scale. Corroborating a scenario of constant loss of biodiversity, now with a "negative" result, in the same region in 2018, there was a growth of 13.7% in the deforestation rate in relation to 2017 [52]. In other words, regardless of the rate, the deforestation continues to be registered and deserves a closer look on the part of us all.

The attitude towards the environment has caused the ruin of many societies [53]. The fundamental role of ecosystems goes back to Greek mythology. Kronos, who was to be king of the Titans, oppressed by his parent, remains cloistered in the Earth (Gaia) until, allied to her, he frees himself to become impassive sovereign. Fearing that his children would betray him as he had done with his father, he begins to swallow them. With the help of Gaia, Zeus is hidden and grows within her, until he is ready to leave and begin the Olympian war against the Titans, from which he was victorious [54]. The narrative shows that those who stand next to Gaia triumph, even though they have passed a long period of pain. This is a valid reflection for the present day, because nothing in history - until the present - has proved to be contrary to this. If Titans and gods needed Earth to win their battles, the human need would be even greater.

In Christianity, Pope Francis calls attention to the present moment: *This sister now cries out to us because of the harm we have inflicted on her by our irresponsible use and abuse of the goods with which God has endowed her. We have come to see ourselves as her lords and masters, entitled to plunder her at will. The violence present in our hearts, wounded by sin, is also reflected in the symptoms of sickness evident in the soil, in the water, in the air and in all forms of life* [55].

Symptoms of sickness also in mankind. Neuroethics seeks to study how anthropogenic influences in the environment can affect mental health and well-being [56]. To promote health, Dwyer [57] believes it is necessary to recognise the claims of sustainability and justice. Perhaps the human being has been based on mistaken logic in supposing that the ecosystem, as it has remained until today, will always remain stable and unchanged [52].

The rural exodus - a product of the Industrial and Green Revolutions - that took families out of the countryside and forced them to move to the outskirts of cities, without any protection, set up social violence. From this, mainly the field has given space to monocultures destined to the production of foods for supplying the urban areas and export (also called agribusiness). Agricultural areas in South America, for example, have increased to the detriment of forest areas [58], such as the Brazilian Atlantic Forest and the Brazilian Cerrado. This directly affects biodiversity.

Law 12.651 / 2012 aims at sustainable development and considers, in its article 41, *activities of conservation and improvement of ecosystems and that generate environmental services* (...) *cultural valuation and traditional ecosystemic knowledge* [59]. This diploma corroborates article 17 of the UDBHR, which advocates *respect for traditional knowledge* [6].

Valuing culture and conserving nature are interrelated steps, without which the risks of global disasters increase. This does not only agree with the UDBHR, but with the *Convention on Biological Diversity* [15] and with several other conventions and regulations, in Brazil and in the world. In addition, according to Law 13,123 / 2015 in its article 1, *the traditional knowledge associated with genetic heritage [is] relevant to the conservation of biological diversity, the integrity of the genetic heritage of the country and the use of its components* [60]. It can not, therefore, be ignored, even though it is intrinsically linked to the protection of future generations.

Article 225 of the Federal Constitution establishes that *all have the right to an ecologically balanced environment for common use of the people and essential to the healthy quality of life, imposing on the Government and the community the duty to defend and preserve it for present and future generations* [28]. This gives everyone responsibility for ecosystems and the privilege of being able to enjoy them. The difficulty lies in reaching the desired levels

and not taking what is finite to the concrete end or the scarcity that makes its use impossible.

Progress presupposes the use of the means, but does not force its dilapidation. Protecting the environment, biosphere and biodiversity is not only creating and managing conservation areas or indigenous lands, nor is it all about ecosystem recovery strategies. This principle can be reproduced in everyday acts: conscious consumption of water in the domestic environment; separation of waste and tailings for selective collection; consumption of only food, cosmetics and other products that are necessary, avoiding consumer logic and obsolescence of products o, among others. This is in keeping with the statements of Pope Francis [34], whose scope greatly contributes to the dissemination of scientific content, sometimes having more impact than science itself.

Bioethics needs to be reoriented to its original conception, that of Potter, to deal with human and ecosystem health problems in an integrated and not isolated way [49,57]. Thus, the proposed principles for environmental health ethics (respect for human rights, utility, justice, animal welfare, administration, sustainability and precaution) could be translated into the following ecological virtues [61]: compassion, inclusiveness, cooperation, justice, respect for nature, prudence and wisdom. However, they should not be confined to professional action alone, but should encompass the conduct of every human being, since everyone is capable of doing so [10].

Reinterpreting the *Universal Declaration on Bioethics and Human Rights*: possible reading with focus on the environment

Confronting the environment is contrary to *human rights, fundamental freedoms and human dignity* (Article 28) [6], and "any limitations on the application of the principles" (Article 27) [6] can not cause harm to nature in the long term this would affect everyone. *Each principle is to be considered in the context of the other principles* (article 26) [6], with international cooperation (Article 24) [6], *foster bioethics education and training at all levels as well as to encourage information and knowledge dissemination programmes about bioethics* (Article 23) [6] There must also be legislative, administrative or other actions by States supported by action in the *spheres of education, training and public information* (article 22) [6].

The principles of the UDBHR will only be properly applied if there is an environmental balance, basic assumption for discussion and effectiveness of the others (articles 18 to 21) [6]. How to refer to autonomy, if there are limitations caused by the scarcity of environmental resources? If environment, biosphere and biodiversity are not protected (Article 17), future generations (Article 16) will be threatened.

Thus, how to share with society the benefits from any research (article 15) [6] if the external losses - which directly affect health and quality of life - are very large? Every gain, from this perspective, becomes secondary, and the *promotion of health and social development for the population* (article 14) [6] is hampered. Everyone will feel the effects, regardless of race, religion, political belief, scientific and technological progress everyone will feel the effects.

Environmentally unfavourable situations can stimulate solidarity and cooperation between human beings (Article 13) [6], linking them to each other in the struggle for overcoming. However, it is understood that this may encourage overly optimistic interpretations of unfavourable events, in the expectation that such negative circumstances may result in something positive. But if the expected level is not reached in a favourable situation, neither will be reached in a worse.

In any case, respect for cultural diversity and pluralism (Article 12) [6] loses its strength, and discrimination and stigmatisation (Article 11) [6], are reinforced, as there will always be groups more affected by the consequences. In addition, the tendency is for marginalisation, in more extreme situations, to intensify and then lose the ideal for more equality, justice and equity (Article 10) [6]. With the increase of any limitations, the most vulnerable end up even more vulnerable (Article 8), and society as a whole has fewer options and more responsibilities (Articles 5 to 7) [6]. It is a natural imperative but of anthropogenic consequence.

Using its autonomy to act in the world, the human being limits it on a macro scale, feeling it cease gradually until there are no such broad possibilities for action. When it reaches the extreme (and it does not take so much), nature is pedagogical, revealing with the damage the need for change. All therapy then turns to circumvent the problem caused by the human being, resulting in more harm than good (Article 4) [6], being directly linked to the chance to learn another way of *not* interacting with the environment.

Finally, if the environment is impaired, so will be dignity and human rights (Article 3), as humanity will not be able to enjoy its rights by being occupied taking care of what it insists on destroying. Which objectives (Article 2) [6], would be thus achieved?

Final considerations

Junges asks: *why is the ecological dimension important for the identity of bioethics?*[62]. He also points out the ethical implications of the binomial technology and life (epistemological focus of bioethics), whose maximum expression is the ecological crisis and the effects on climate change and sustainability.

The human being will invariably understand the importance of preserving the environment and biodiversity. It is necessary to go beyond mere discussion about sustainability and to practice it, based on ethical commitment to future generations, wishing and allowing them the possibility of having the ecological balance that provides well being. In this way the progress that establishes the cyclical alliance of the human being with oneself and with the world will in fact be established, making possible the next step.

In respect for pluralism of ideas and conceptions, some will pause more slowly on the journey of self-discovery, and others will become more aware of it. It is important to emphasise that interference and disregard for the environment and non-observance of natural precepts (physical laws) and technical (norms) return as educational consequences. Scarcity and desertification, climatic variations aggravated by anthropic actions (although it is a controversial issue), floods, landslides, disruption of dams and destruction of runways, farms and green areas, eutrophication and mortality of animals, formation of islands, extinctions, these and many other impacts highlight the need for change.

The protection of the (i) material good (atmosphere, hydrosphere, lithosphere, living beings) in itself is not an alternative but obligatory proposition. This is because it is a natural consequence of life that anticipates those who ignore it to educate without hurting. It is about restricting freedom today so that it will be more complete tomorrow. Letting human beings to find the answer without directing them properly so that they become aware of the real implications of their acts creates direct damages to the quality of collective life and obstacles to the fundamental rights of other beings.

The analysis of articles 16 and 17 of the Universal Declaration on Bioethics and Human Rights points to the perception that there is only one alternative left in the present: to evaluate without fear the complexity of these two principles. This is because they have been carefully formulated by a team of thinkers not muzzled by the various types of "power" which, in most societies, control "knowledge," apart from the free thought of philosophers and scientists. In addressing the need to become aware of science, Morin objectively bridges the scientific responsibility of the thinker with society and the human species. In the two articles evaluated, complexity is the starting point for methodological analysis, directly linked to transdisciplinarity.

Analysing the conceptual terminology (from the etymology) of these two principles reminds the observer to perceive in the structure logic of each article object of analysis focused on the biological organisation of nature (including human). And it also reproduces the inseparability of this organisation with that anthropo-social and, therefore, cultural of the contemporary world and the subjects that integrate it.

Moreover, it becomes more complex as it seeks to ensure the manipulation of the human genome and the quality of natural environments for future generations. That is, would the elaborators of the declaration, in the context of these two articles, thinking that knowledge *obliges them to take an attitude of permanent vigilance against the temptation of certainty, to recognise that our certainties are not proof and truth, as if the world that each one sees is the only world and not the one we build together with others?*[64].

The biology of nature and of the human being, conscious of himself or herself and of the other, shows that there is reciprocal language between the planet and the life forms that evolved in it. It is therefore necessary to consider, in the applied bioethics of both principles, human beings as still lacking an alternative plan. Our species inhabited the planet three million years ago and, in view of this, needs to accept each other and do it "with love."

As Maturana and Varela consider[29], this would be the form of future coexistence, of teaching the different/ equal to (live) as beings of nature based on bioethics of planetary respect, for which love is not discarded as a biological, technological, philosophical or scientific foundation. Because complexity is inclusive and predicts the art of love, as well as advances in science, culture and life.

In general, the declarations of the United Nations Educational, Scientific and Cultural Organization (Unesco) are based on the ethical protagonism of the human race and on the obligation not to harm others (by action or omission)[65]. By understanding the other, in a broad and extended way, like other living beings, we establish, by our very nature, the relation of brotherhood[47]. One of the roles of articles 16 and 17 of the UDBHR is to link all others, making the Declaration a fundamental document for the future generations, applicable at any time and with which one can intervene philosophically in the praxis of human activities to help build an ever better world.

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