



Revista Colombiana de Bioética

ISSN: 1900-6896

publicacionesbioetica@unbosque.edu.co

Universidad El Bosque

Colombia

Escobar Triana, Jaime; Ovalle Gómez, Constanza
The Role of Bioethics in the Resolution of Environmental Conflicts
Revista Colombiana de Bioética, vol. 10, núm. 1, enero-junio, 2015, pp. 65-85
Universidad El Bosque
Bogotá, Colombia

Available in: <http://www.redalyc.org/articulo.oa?id=189242405006>

- How to cite
- Complete issue
- More information about this article
- Journal's homepage in redalyc.org

redalyc.org

Scientific Information System

Network of Scientific Journals from Latin America, the Caribbean, Spain and Portugal

Non-profit academic project, developed under the open access initiative

The Role of Bioethics in the Resolution of Environmental Conflicts*

Contribuciones de la Bioética en la resolución de conflictos ambientales

Contribuições da bioética à resolução de conflitos ambientais

Jaime Escobar Triana**
Constanza Ovalle Gómez***

Abstract

This article establishes the bioethical criteria that should be taken into account in the resolution of conflicts of environmental significance and proposes a procedure of justification and analysis. Its objective is to identify the gaps in knowledge about critical methodologies and urges for deliberative processes that favor plural and proactive participation. It poses as a thesis that in environmental problems it is necessary to understand the contingent nature of life. At the base of environmental problems there exists a controversial way to value biodiversity and the environment, and it is considered convenient to conceive of biodiversity and the environment as common goods, given that the welfare and survival of the population inhabiting the area depends on them. It concludes by pointing out that the setting of bioethical criteria is a task to be developed and reveals the emergence of a field that unites new knowledge and practices around bioethics.

Key words: Bioethics, environment, unrest, common goods, reflexive equilibrium, deliberation.

Resumen

Este artículo establece cuáles son los criterios bioéticos que se deben tener en cuenta en la resolución de conflictos de índole ambiental y propone un procedimiento de justificación y análisis. Su objetivo es identificar los vacíos

* Este artículo de reflexión es original. Los autores tienen la responsabilidad del contenido y originalidad del documento. Agradecen los debates sobre la necesidad de una metodología para problemas ambientales en los que participaron profesores y estudiantes del Doctorado en Bioética de la Universidad El Bosque y, en particular, a la doctora Chantal Aristizábal Tobler. Entregado el 11 de febrero 2015 y aprobado el 9 de junio de 2015.

** Doctor in Medicine (Universidad Nacional de Colombia), Coloproctology Surgeon (St Marks Hospital, London) M.Sc. Philosophy (Javeriana University) M.Sc. Bioethics (University of Chile) Bioethics Ph.D. (El Bosque University). Director Department of bioethics El Bosque University, Bogotá-Colombia. The researcher is member of the group: Bioethics, Science of Life (El Bosque University). Email: doctorado-bioetica@unbosque.edu.co

*** DDS, Ph.D. Social sciences, childhood and youths, public politics (Manizales University CINDE) M.Sc. in Bioethics. Specialist in Science Philosophy, University Education and Bioethics (El Bosque University) Research: Bioethics and Education (Ph. D. El Bosque University). Coordinator Department of bioethics of El Bosque University. The researchers are members of the group: Bioethics, Science of Life (El Bosque University). Email: ovalle.constanza@gmail.com

en el conocimiento alrededor de las metodologías críticas e insta hacia procesos deliberativos que favorecen la participación plural y propositiva. Plantea como tesis que en problemas ambientales es preciso comprender la naturaleza contingente de la vida. En la base de los conflictos ambientales existe una controversial manera de valorar la biodiversidad y el ambiente, y se considera conveniente concebir a la biodiversidad y al ambiente como bienes comunes, puesto que de su uso depende el bienestar y supervivencia de las poblaciones que los habitan. Concluye señalando que el planteamiento de criterios bioéticos es una tarea por desarrollar y anuncia la emergencia de un campo que reúne nuevos conocimientos y prácticas en torno a la bioética.

Palabras clave: Bioética, ambiente, conflictividad, bien común, equilibrio reflexivo, deliberación.

Resumo

Este artigo estabelece os critérios bioéticos que se devem levar em consideração na resolução de conflitos de natureza ambiental, e propõe um procedimento de justificativa e análise. Seu objetivo é identificar as lacunas no conhecimento sobre as metodologias críticas e insistir pela adoção dos processos deliberativos que favoreçam a participação plural e proativa. Propõe como tese, que nos problemas ambientais é preciso compreender a natureza contingente da vida. Na base dos conflitos ambientais existe uma maneira controversa de valorizar a biodiversidade e o ambiente, e considera-se conveniente concebê-los como bens comuns, dado que o bem-estar e sobrevivência das populações que o habitam dependem de seu uso. Conclui, assinalando que a adoção de critérios bioéticos é uma tarefa a ser desenvolvida e revela a emergência de um campo que reúna novos conhecimentos e práticas em torno da bioética.

Palavras-chave: Bioética, ambiente, agitação, bem comum, equilíbrio reflexivo, deliberação

Introduction

A scientific paradigm is brought about as a consequence of the addition of new scientific activities and technologies into everyday life. This creates a “metamorphosis of the science” due to the scientific and technological changes that influence social activities, how we think about and perceive nature¹ a new scientific field has emerged called “Life Science” that investigates concepts regarding mankind, people, and nature.

Meanwhile environmental changes raise great concern. The report GEO-4 Programa de las Naciones Unidas para el Medio Ambiente (PNUM)² indicated persistent environmental problems, which were difficult to resolve. How-

ever, the report has primarily the purpose of making a call to action in the areas in which there still exist solutions.

Although the danger is real, “we have a greater capacity than we think to face these dangers”³. It is impending to tackle the persistent problems through training and public information in general through the creation of new fields of knowledge such as Bioethics and environmental ethics. These emerging fields contribute to the reflection of the problems that threaten life and assist the decision-making process regarding the environmental conflicts that exist. It is essential to adopt practices that provide incentives for sustainable development. Desired are theories, practices, and institutions that are well directed, innovative, and oriented towards obtaining results that are beneficial to the environment.

¹ PRIGOGINE, Ilya y STENGERS, Isabelle. *La nueva alianza*. Barcelona: Tusquets, 2000, p. 28.

² PROGRAMA DE LAS NACIONES UNIDAS PARA EL MEDIO AMBIENTE (PNUMA). *Perspectivas del medio ambiente mundial GEO-4*. Randers: Phoenix Design AID, 2007, p. 479.

³ SOROS, George. *Tiempos inciertos. Democracia, libertad y derechos humanos en el siglo XXI*. Bogotá: Nomos, 2006, p. 170

Through a critical revision we question from Bioethics¹ by deliberate procedures and conceptual bases that assist the actions and decisions that are required, with the intent of resolving environmental conflicts and problems.

In relation to the decisions that are made, our thesis is that, regarding problems of an environmental nature, to understand contingent nature of life. At the foundation of environmental conflicts there exists a controversial manner to value biodiversity and the environment. We affirm that it is useful to think of biodiversity and the environment as common goods, as the wellbeing of the populations that inhabit an area is dependent on their use.

In the resolution of conflicts our attention is directed towards deliberate procedures and identifying gaps in the knowledge in analytical methodologies, a matter that motivates later discussions and innovations. We propose a methodology whose form is analogous to that used in Clinical Bioethics.

First, a conceptual frame is configured with the goal of making a critical discussion of ethical environmental values. Following, the argument is made for deliberation as crucial to the making of decisions in situations of uncertainty. Then, we identify the principal elements involved in ethical decisions. Finally, we develop the proposed methodology, which covers a reflexive equilibrium and is inherit from a critical thinking.

1. RESULTS

1.1 CONTROVERSIAL VISIONS REGARDING THE ENVIRONMENT

The practices associated with progress merit ethical questioning when their impact is negative. These ethical questioning appear to inau-

gurate a new field of reflection that is framed within a new ethics, this time of an environmental type⁴. The capability for restoration of the biota by reproductive mechanisms reveals practices of conservation and preservation. While in the former it is normal that in the use of the species and their ecosystems the idea is that it cannot be permitted to exceed the capability for recuperation, in the latter any use of these species and ecosystems is prohibited.

One anthropocentric vision accentuates the human responsibility derived from their capability to decide⁵ and the moral obligations attributed to human beings in regard to other beings⁶. An approach on rights admits that human beings have the right to live in a habitable environment that will allow us to develop our capabilities⁷.

The approach of rights tends to broaden to the rights of future generations in regards to the exploiting of the limited resources of the planet. In the place of rights, for some, it is more appropriate to talk of responsibility, care, and obligations that we have towards future generations⁸.

That anti-humanist mindset could be disadvantageous to environmental ethics, as it is blind to this moral capacity that gives specificity to

⁴ WENZ, Peter. *Environmental Ethics Today*. New York: Oxford University Press, 2001, pp. 1-13.

⁵ HOTTOIS, Gilbert. «Panorama crítico de las éticas del mundo viviente». En *Revista Colombiana de Bioética*. Vol. 1 N.º 1, p. 42. Bogotá: Universidad El Bosque- Kimpres, enero-junio de 2006.

⁶ JONAS, Hans. *El principio de responsabilidad*. Barcelona: Herder, 1995, p. 33.

⁷ BLACKSTONE, William. Citado por VELÁZQUEZ, Manuel. *Ética de los negocios. Conceptos y casos*. México: Pearson Educación de México, 2006, p. 229.

⁸ PETRINI, Carlo. «The Rights of Future Generations in Environmental Ethics». En *Bioethics Issues and Dilemmas*. Tyler Pace (ed). New York: Nova Science Publishers, 2010, pp. 75-93.

human beings⁹. As an attempt to rationalize diverse humanist traditions, we propose the development of an Aristotelian mindset that allows for the intrinsic value of living beings without ignoring the dignity of human beings¹⁰.

The utilitarian anthropocentric position fixes its attention on the utility of the biota and the ecosystems. Instrumentally these are valued as a biological richness comparable to an enormous bank account.

The condition of biodiversity represents the richness of species. It is also important for the preservation of certain “key species”. Biodiversity also represents the aesthetic pleasure derived from the appreciation of the variability on earth. Its loss, within this perspective, produces a world that is less beautiful and more monotonous (Nebel y Wright 1999, 477). Recently there have been proposed new arguments in the defense of the environment as “solastalgia”, a term coined by Albrecht¹¹ that manifest the emotional changes caused by the uncertainty before definitive environmental losses.

Mass extinctions are considered “not only occasional interruptions, but as a capital creative force in the formation of the flow of life”¹². There have disappeared, and continue to disappear, thousands of species without scientist having studied them¹³. Mankind could destroy

the biodiversity and perish due to its insatiable cravings of knowledge and the search for happiness, but it has the obligation to “participate in the evolution and to enrich it with techno-sciences” (J. Escobar 2006).

In contrast to anthropocentrism, biocentric and ecocentric postulates emerged. The biocentrism proposed by Paul Taylor¹⁴ considers all beings as moral agents on equal footing with regard to their interests as human beings. The intrinsic or inherent value of living beings is conceived in this postulate as ends in themselves. This self-worth of beings does not need to translate into utility for human beings.

Ecocentrism and its variations conceive the living world as a systematic and complex reality. The point of view known as deep ecology, links, according to Capra, the concepts of ecology with those of holism. The former makes reference to the relation and interdependence between the parts of a system, while the latter is concerned with the functionality of the parts and how they relate to their natural and social environment; in his words: “it recognizes the intrinsic value of all living beings and humans are seen as a mere strand in this journey of life”¹⁵. Arne Naess¹⁶, representing this aspect, sustains that all beings deserve to individually realize their potential, and objects as well as beings deserve the right to exist.

There exist ecocentric visions that are ethically neutral, like the *Gaia* theory. From this idea *Gaia* is indifferent to environmental catastrophes or mass extinctions, which it has survived. This idea it is impossible to derive

⁹ MARCOS, Alfredo. *Ética ambiental*. Valladolid: Universidad de Valladolid, 2001, p. 152.

¹⁰ MACINTYRE, Alasdair. *Tras la virtud*. Barcelona: Editorial Crítica, 2001, p. 199.

¹¹ ALBRECHT, Glenn, et al. «Solastalgia: el dolor causado por el cambio ambiental». *Australasian Psychiatry*. Vol. 15 N.º 1 suppl., 2007, pp. 95-98.

¹² LEAKEY, Richard y LEWIN, Roger. *La sexta extinción. El futuro de la vida y de la humanidad*. Barcelona: Tusquets, 1998, p. 17.

¹³ ELDREDGE, Niles. *La vida en la cuerda floja. La humanidad y la crisis de la biodiversidad*. Barcelona: Tusquets, 2001, p. 11.

¹⁴ TAYLOR, Paul. *Respect for Life. Theory of Environmental Ethics*. New York: Princeton University Press, 1986, p. 99.

¹⁵ CAPRA, Fritjof. *La trama de la vida. Una nueva perspectiva de los seres vivos*. Barcelona: Anagrama, 1998, pp. 25-28.

¹⁶ NAESS, Arne. *Ecology, Community and Lifestyle. Outline of an Ecosophy*. Londres: Cambridge University Press, 1989, p. 164.

an ethic, but instead, as Lovelock¹⁷ affirms, its pretense does not go beyond a scientific theory that is ethically neutral.

Aldo Leopold¹⁸ proposed that the earth is a community that must be loved and respected. According to Leopold, environmental ethics searches for the sensibility and thought that guide correct actions that contribute, from a holistic point of view, to the integrity, the stability, and the beauty of the biotic community.

Van Rensselaer Potter¹⁹, creator of the neologism *Bioethics*, proposes a knowledge that parts with the knowledge of human nature and the world in general: Bioethics should strive to expand wisdom, a knowing relative to the way of utilizing knowledge for the social good, on the basis of a realistic knowledge of the biological nature of man and the biological world. His work culminates with the proposal of a Deep Bioethics, an intermediate time in his contemplation, that emphasizes the proposal of a global ethics that attempts to combine the knowledge of ecology with that of ethical medicine.

From the ecocentric visions arises ecofeminism as a criticism of androcentrism. According to its proponent²⁰ the exploitation of nature is related to the practices of social domination of man over woman. For social ecologists that inherit ecofeminism visions like Bookchin²¹

the dominant power needs to be invert and replaced for a stewardship of nature. The majority of the defenders of the ecofeminist mindset would be in favor of a perspective based on protection, which is a quality recognized in woman. Environmental ethics represent ways to value and care for the living, of conceiving a capability for human intervention and the use of the ecosystems.

1.2 DELIBERATIVE PRACTICES IN DECISION-MAKING IN SITUATION OF UNCERTAINTY

The morality, nowadays, as in its origin, has the task of compensating for the environmental conflicts that arise, and could mean even the survival of a species and the permanence of the biota as a whole.

We consider that survival is intimately related to the health of the ecosystems, the biodiversity, and the way in which we face the persistent and emerging environmental problems. In the attempt to resolve environmental conflicts and problems we think it necessary to make decisions with bioethical criteria. We believe the decisions that are made occur mainly under uncertain conditions. The decisions can in no way isolate themselves from deliberate processes.

It is necessary to characterize environmental conflicts to initiate the deliberative process. The process understands, at a minimum, different and plural visions, at time conflicting, regarding reality, uncovering the interdependence and the differences between local, regional, and global contexts, and tying the relationships between human beings and non-human beings. For this a critical contemplation is required before the making of ethical decisions or actions²².

¹⁷ LOVELOCK, James. Citado por MARCOS. *Op. cit.*, p. 85.

¹⁸ LEOPOLD, Aldo. *A Sand Country Almanac. And the Sketches Here and There*. New York: Oxford University Press, 1949, p. 62.

¹⁹ POTTER, Van. «Bioética puente, bioética global y bioética profunda». En *Cuadernos del Programa Regional del Bioética, OPS*. N.º 7. 1999, pp. 24-29.

²⁰ D'EAUBONNE, Françoise. *Le Féminisme ou la mort*. Paris: Pierre Horay, 1974, p. 33.

²¹ BOOKCHIN, Murray. Citado por LÓPEZ, Alfonso. *Murray Bookchin. Comunalismo, Naturaleza y Libertad*. p. 68 [En Línea]. [Fecha de consulta 19 de junio de 2015]. Disponible en http://www.bsolot.info/wp-content/uploads/2011/09/Lopez_Rojo_Alfonso-murray_BookchinComunalismo_naturaleza_y_libertad.pdf.

²² OVALLE, Constanza. «Fundamentos y prácticas de la bioética en conflictos ambientales». *Revista Colombiana de Bioética*. Vol.

Deliberation is useful in the way that we reflect over that which we can change and, at the time, we have the possibility to realize. In aristotelic terms, “nobody deliberates over things which cannot be any other way, nor what they cannot themselves do”²³.

Deliberating is an imaginative act and it projects into the future, “the result is that is not possible to deliberate about the past, but only about the future and the contingent” (Aristóteles 1994, 133). We consider the contingency of life, especially of essential human life, for the ethical discussions and the normative frames of Bioethics (Düwell, Rehmann-Sutter, & Dietmar, 2008).

Here, contingency is considered as a new dimension that allows for the expansion of the comprehension of reality, through the connection in bioethical analysis, of irreversibility, instability, and uncertainty regarding environmental conflicts². It is “The imperceptible nature of life that makes it so exciting, but at the same time, establishes limits to regulate and control it”²⁴. Contingency makes Bioethics assume a posture of humility and prudence before environmental conflicts.

To deliberate, prudence is a *sine qua non* condition. “The suitable of the prudent appears to be the power to deliberate appropriately over the positive things and to make use of them, not singularly ... but for the good living in general”²⁵.

7 N. ° 2, p. 136. Bogotá: Universidad El Bosque-Kimpres, julio-diciembre de 2012.

²³ ARISTÓTELES. *Ética Nicomachea*. Bogotá: Ediciones universales, 1994, p. 136.

²⁴ SIEP. Ludwig. «The Value of Natural Contingence». En: DÜWELL, Marcus; REHMANN-SUTTER, Christoph y MIETH, Dietmar (eds). *The Contingent Nature of Life. Bioethics and the limits of Human Existence*. New York: Springer, 2008, p. 8.

²⁵ ARISTÓTELES. *Op. cit.*, p. 136.

In the words of Solbakk²⁶ to obtain an ethic of ignorance that implies *a priori* a principle of precaution or aristotelic *phronesis* in the reflection regarding environmental conflicts. In this sense, it also means the expansion of the moral sphere, aiding consensus between the values that represent human beings and non-human beings²⁷, with the goal of accepting the terms of reference of each of the actors²⁸, and, with it, to be capable of imagining a good life that implies comparable ends and experiences.

We are in the necessity to make decisions around the use and distribution of environmental resources to benefit human communities, and, additionally, non-human communities and in general living tissue that composes the ecosystems.

With the aim of finding the “convergence of the values in conflict”, in actions and decisions, we think it convenient the aid the deliberation with the goal of “minimizing conflict”²⁹.

Given our interest in decision-making, several elements related to this process are identified as well as ethical theories that could substantiate each step to follow in a deliberative process in the following way:

²⁶ SOLBAKK, Jan. «Duda terapéutica y diálogo moral». [En línea]. [Fecha de consulta 12 de febrero de 2014]. Disponible en <http://ecobioetica.org.ar/es/articulos/707/>

²⁷ Concepto tomado de Bruno Latour quien involucra a los no humanos y a los objetos, al considerar que estos también tienen capacidad de agencia, los «considera no como simplemente portadores de una proyección simbólica».

²⁸ LATOUR, Bruno. *Reensamblar lo social. Una introducción a la teoría del actor-red*. Buenos Aires: Manantial, 2008, pp. 21-26.

²⁹ MALIANDI, Ricardo. *Ética convergente. Fenomenología de la conflictividad*. Tomo I. Buenos Aires: Las Cuarenta, 1995, pp.42-43.

Table 1. Ethical theories to base a deliberative process

Elements	Situation	Agencies	Conflicts	Actions	Consequences
Teories	Casuistry Relativism	Virtue ethics	Axiology	Ethical principles	Consequentialism
CENTRAL PURPOSES	Age, Gender				
	Place, Time	Qualities		Correct/good	Results
	Culture, Race, Locations,	Character		Duty/obligation	Risk/benefice
	Social level	Intention	Plurality of values	Principles	Pain/ pleasure
	Experience	Free will		Norms and rules	Utility calculation
	Biopsychosocial dimensions	Responsibility			

Source: Modified from Pellegrino³⁰

1.2.1 Situation: The situation consists of the confluence of agencies and actions in a determined time and place, and for this reason is concrete and unique in its circumstances. Required is an acute revision of the interdependencies, internal goods, and other relationships between biopsychosocial and cultural dimensions that also refer us to objects in a human dimension. The biopsychosocial and cultural approach undertakes the multidimensionality of the human being in a interdependency with the practice and social institutions that express with the social practices and institutions that express themselves in indeterminate cultural settings. This revision admits a holistic

vision in the way that it takes into account the relationships and interdependencies with non-human beings, the environment, and the bio cosmos in general³¹.

In situations it is necessary to identify the vulnerabilities and necessities that underlie each of the dimensions that explain the human condition. Human beings like other living creatures are vulnerable, as their condition of existence exposes them to suffering, the finitude, and death. The recognition of this condition of vulnerability motives the concern for others, which can include other living creatures as well as the environment. This sensibility from vulnerability constitutes the base of ethics and fundamentals of the necessity for care and

³⁰ PELLEGRINO, E. «Toward a virtue-based normative ethics for the health professions». En Kennedy Institute of Ethics Journal (special issue). Vol. 5, pp. 253-277, 1995. En MARTÍN, M^a Nieves. Metodología del análisis de casos en ética clínica. [En línea]. [Fecha de consulta 2 de noviembre de 2014]. Disponible en <http://www.institutodebioetica.org/cursosetica/modulo3/Unidad%203%20Análisis%20de%20Casos.pdf>

³¹ OVALLE, Constanza. «Un aporte de la educación en bioética a la concepción de ser humano en contextos de mundialización». *Revista Colombiana de Bioética*. Vol. 5, N.º 2, pp. 118-126. Bogotá: Universidad El Bosque- Kimpres, julio-diciembre de 2010.

protection of the integrity of life, as well as of responsibility and empathy for others.

1.2.2 Agencies: With the goal of being able to unfold the flat landscape that it tries to reveal, objects and non-human beings must be considered true players. It is necessary to incorporate into the culture “technical beings into the form of knowledge and the sense of values”³². The form of ethics that centers its attention on the agencies is concerned with evaluating the qualities and character of people.

1.2.3 Conflicts: The axiological frame is broader than the moral frame. There exist values beyond the ethical, epistemological, technical, economic, political, judicial, ecological, social...³³. When we evaluate, we do it within the parameters of good and harmful, but also with others, of efficiency, cost, utility, of proper actions be the agents in each particular field, etc. Ecological values, as any other subsystem³⁴, are numerous, and include diversity, conservation, equilibrium, sustainability, etc. Values can change and emerge; they are “trans-systemic” in their acceptance and interactions. There exist great nexuses between the values and norms that demand a realization of determinate values. According to Maliandi the tension between each “appears in all moral phenomena”³⁵.

Values are considered a priori and can be learned. They serve as criteria for recognizing the moral character of an action, not of its results, but of its coherence with an emotional

conscience³⁶. In the analysis we prefer to assume the lax perspective regarding morals³⁷. That is, we include as values the goods and virtues, even when they could be distinguished.

A value could justify and action, the two could also be in conflict. In environmental problems, affected are values, norms, principles, and rights that could be framed, according to Maliandi (2008) in the opposition or tension between bio-techno-ethical principles of precaution, exploration, non-discrimination, and respect for biodiversity³⁸. In bioethical terms we could say that we find ourselves before moral conflicts that are characterized by the disagreement of values and interests³⁹.

In the deliberation with regard to environmental dilemmas⁴⁰ we prefer to express the values in the manner of “locators”⁴¹, that allow us to *situate* ourselves in the distinct contexts and identify the actions and interactions that generate conflicts such as economic characteristics, ecologic conditions, and cultural matters⁴². Speaking of values leads us to practices, as well as duties and obligations of the actors in conflict, such as the conservation of diversity, the consumption of goods and services, the

³² SIMONDON, Gilbert. *El modo de existencia de los objetos técnicos*. Buenos Aires: Prometeo, 2008, p. 31.

³³ ECHEVERRÍA, Javier. *La revolución tecnocientífica*. Madrid: Fondo de cultura económica. 2003, p. 230.

³⁴ Echeverría reconoce 12 subsistemas: religiosos, militares, morales, estéticos, sociales, políticos, jurídicos, económicos, ecológicos, técnicos y epistémicos.

³⁵ MALIANDI, Ricardo. *Ética convergente. Fenomenología de la conflictividad*. Buenos Aires: Las Cuarenta, 2010, p. 319.

³⁶ *Ibid.*, p. 322.

³⁷ ECHEVERRÍA, Javier. *La revolución tecnocientífica*. Madrid: Fondo de Cultura Económica, 2003, p. 243.

³⁸ MALIANDI, Ricardo. *Teoría y praxis de los principios bioéticos*. Buenos Aires: Universidad de Lanús, 2008, p. 262.

³⁹ MALIANDI. *Ética Convergente. Fenomenología de la conflictividad*. Buenos Aires: Las Cuarenta, *Op. cit.*, 1995, p. 194.

⁴⁰ LATOUR, Bruno. *Reensamblar lo social. Una introducción a la teoría del actor-red*. Buenos Aires: Manantial, 2008, p. 275.

⁴¹ Los localizadores no para localizar lo global, sino lo local; para saber lo que tiene que ser intervenido. Para Latour los localizadores permiten identificar las interacciones para poder posteriormente «ensamblar, orientar y componer» el mundo social.

⁴² ESCOBAR, Arturo. *Más allá del Tercer Mundo. Globalización y Diferencia*. Bogotá, D.C.: Instituto Colombiano de Antropología e Historia- Universidad del Cauca, 2005, p. 128.

equitable distribution of benefits, the respect and recognition of diversity, and the representation of the actors involved.

Environmental conflicts are exceedingly complex, and are challenging to characterize and systematize theoretically and methodologically. The notion of conflict, of this type, could be framed in what has been termed “tragic conflict”⁴³ and is described as a structure with a “dynamic conflict”⁴⁴.

1.2.4 Actions: Deontological Fundamentals in the decision-making process: Another level of validation and justification of moral phenomena are principles. They propose four *prima facie* principles, that is, that independent of the cultural differences of the people in particular situations they can come to an agreement with a common moral base, questioned broadly⁴⁵, but that even so allows for the adoption of said principles. They hold, in addition, a general pretense in that they group distinct moral norms and rules. Beauchamp y Childress⁴⁶ unite these principles around a philosophical methodology that seeks to arrive at a moral justification through the coherence of deductive and inductive processes.

Criticisms have increased towards the principle-based nature, the proposal is to take into account non-rational factors associated with

the social context, moral sentiments such as empathy, compassion, sympathy, friendship, or care proposed by Gilligan. The criticisms could be summarized in the incorporation of psychosocial aspects in the analysis of moral conflicts that center their attention on the care of a patient and his family⁴⁷.

The normative frame of Bioethics based on the principles of Beauchamp and Childress respond in a greater degree to an analytical and rationalistic culture. Finding these principles not convincing and considering them purely individualistic, Kemp and Rendtorff (2000) fashioned their own proposal (Ebbesen 2010, 105) based on the principles of autonomy, integrity, dignity, and vulnerability. These principles swell more from a phenomenological and hermeneutic focus that values the human person as a “frail subject situated in intersubjective relationships”⁴⁸.

The principles of Kemp and Rendtorff were welcome by the European Commission in the period between 1995-1998 (Centre for Ethics and Law 2000). They are based, in the culture of human rights instead of being funded on the natural law or on renaissance humanism.

Gracia recognizes that it is each time “less attach to the theory of the four principles”⁴⁹, because in his opinion it oversimplifies the moral reality and relegates itself to only one dispute between the distinct principles. In its place he

⁴³ Para Solbakk la situación de conflicto trágico agrega una dimensión independiente del acto, de tipo emocional, a la noción de resolución que tiene que ver con la situación trágica de imposibilidad de la decisión no contaminada de la emocionalidad.

⁴⁴ MALIANDI. Ética convergente. *Op. cit.*, p. 34.

⁴⁵ EBBESEN, Mette. «Two different approaches to principles of biomedical ethics: a philosophical analysis and discussion of the theories of the american ethicists Tom L. Beauchamp and James F. Childress and the danish philosophers Jakob Rendtorff and Peter Kemp». En TYLER, Pace (Edit). *Bioethics Issues and Dilemmas*. New York: Nova Science Publishers, 2010, pp. 95-111.

⁴⁶ BEAUCHAMP, T. y CHILDRESS, J. *Principios de ética biomédica*. Barcelona: Masson, 1999, p. 58.

⁴⁷ McGRATH, Pam. «The ‘Real World’ of Ethics Decision-Making: Insights from Research». En TYLER, Pace (edit). *Bioethics Issues and Dilemmas*. New York: Nova Science Publishers, 2010, pp. 55-73.

⁴⁸ EBBESEN, Mette. «Two different approaches to principles of biomedical ethics: a philosophical analysis and discussion of the theories of the american ethicists Tom L. Beauchamp and James F. Childress and the danish philosophers Jakob Rendtorff and Peter Kemp». En TYLER, Pace (Edit). *Bioethics Issues and Dilemmas*. New York: Nova Science Publishers, 2010, p. 105.

⁴⁹ GRACIA, Diego. *Procedimientos de decisión en ética clínica*. Madrid: Triacastella, 2008, p. 7.

proposed assuming the natural language of ethics that is one of values in the place of principles and rights.

Apel and Habermas propose a procedural principle grounds the morality in the capacity for all beings to communicate through language as “the only valid norms of action are those to which all those affected have agreed as participants in a practical discourse”⁵⁰.

1.2.5 Consequences: Theological fundamentals in the decision-making process:

When actions are evaluated as good or harmful with regard to their consequences we speak of consequentialism. If our ordinary judgments enter into conflict and are evaluated based on a basic principle of utility, we instead deal with utilitarianism. This premise motivates us to act In favor of the greater benefit, or at least, the least harm in the cases where a desirable consequence does not exit. The difficulty lies in defining what is the greatest benefit or maximum value in multicultural societies where there exists distinct value systems. It is recommended to seek neutral or intrinsic goods in place of individual preferences⁵¹, that is to say, goods that are valuable themselves such as happiness, beauty, wellbeing, the quality of life, health, etc.

Environmental problems are related with the distribution of public goods and their efficiency depends not only the role that the State plays but also requires that the people develop social values and a sense of responsibility. For Sen⁵², it is the development of an ethics based on moral sentiments that can guide human actions and decisions in situations of conflicts and environmental conflicts. In this sense, we

think is prudent to conceive biodiversity and the environment as a common goods.

The individual and collective wellbeing requires an explanation or the rational decision that supersedes the personal benefit. In human beings, according to Smith⁵³, there are some principles in their nature that make the state of others an interest, and make happiness dependent on this state. Sympathy is one of these sentiments, as well as the capacity to make compromises at the expense of personal sacrifices, permitting us to assume a sense of justice with which individuals develop a “civic spirit”, that is the basis for collective interest. For Rawls⁵⁴, would consist of a capacity that we humans have to develop, in conditions with a veil of ignorance, a concept of justice and the social good that allows us to reasonably expect voluntary cooperation.

1.3 METHODOLOGY WITH A CRITICAL FOCUS

The majority of clinical decision-making models in Bioethics, as in the scientific methods, proceed inductive or deductive methods. **Deductive methods** count on the existence of general – deontological—principles that can be applied in ethical judgments on concrete cases. On the other hand the **inductive methods** identify probable judgments over particular experiences in which the value that emerge are revealed.

There are other methods that can be formulated as **syncretic**, **coherent**, and **mixed**. These are an alternative to the traditional structures of moral philosophy. They respect the reflexive

⁵⁰ CORTINA, A. y MARTÍNEZ, E. *Ética*. Madrid: Akal, 2001, p. 96.

⁵¹ BEAUCHAMP y CHILDRESS. *Op. cit.*, p. 44.

⁵² SEN, A. *Desarrollo y libertad*. Barcelona: Planeta, 2000, p. 235.

⁵³ SMITH, A. *Teoría de los sentimientos morales*. México: Fondo Cultura Económica, 2004. Citado por SEN, A. *Desarrollo y libertad*. Barcelona: Planeta, 2000, p. 235.

⁵⁴ RAWLS, J. *Teoría de la justicia*. México: Fondo de Cultura Económica, 1979, pp. 26-28.

equilibrium⁵⁵ that unites from deductive processes to inductive ones when it is time to formulate principles. To justify an action, taken into account are principles and consequences with which are “in agreement all those affected as participants in a practical discourse, because they satisfy universal principles”⁵⁶.

In a post-conventional moral judgment, a critical capacity is assumed, that is reflexive, and, at the same time, sensible and emotive. With this capacity we are able to unveil the distinct interests and points of view of the involved actors in conflict. At the post-conventional level, human beings developed capacities care and of justice, that allow to assume ethical postures in benefit of others.

Following we expose the steps of the methodology, from a starting point in the analysis of situations of environmental conflicts. The purpose of the methodology is to promote through a deliberative process impartial moral judgments that orient decisions according to the context of “mundialización” and globalization. Through the use of a value matrix, we identify values, principles, and rights that arise in environmental problems that must be respected and protected. Another matrix is also used to identify duties and obligations.

The inductive process permits the identification of actors, values, the conflictive situation, and negotiations of the agenda. In inductive approximations, we recommend employing methodologies derived from ethnography and from case studies. Deductive processes are used through the revision of the conceptual frame-

works in which inscribe theoretical controversies, expositions of perspective, documental sources, norms, principles, and duties and obligations that are link with each one of the actors involved.

1.4 PROPOSED METHODOLOGY⁵⁷

The elements that intervene in a collective action of ethical character can be simplified as: 1. Description of the complex situation: a) dimensions and b) actors. 2. Identification of the conflictive structure: a) ethical problems and b) conflictive situation: i) specify the values, interests, and principals for each actor and ii) identification of the conflicts between values and interests; 3. Possible collective actions: a) specification of the duties/obligations for each actor and b) bioethical dilemmas; 4. Evaluation of each possible course of action: a) deontological instance and b) theological instance; 5. Harmonization between principals and consequences to define an optimal course of action; 6. Optimal course of action; 7. Moral verification: a) ontological premise, b) ethical premise, c) legal premise and d) revision of similar cases; 8. Moral justification: a) anthropocentrism, b) biocentrism and c) ecocentrism and 9. Adoption of agenda and optimal course.

Following, we develop the methodology through a conflictive environmental situation following the proposed steps.

1.4.1 Exploration of the gold mine “La Colosa”, Cajamarca, Department of Tolima, Colombia: The company Anglo Gold Ashanti (AGA*) has interest in the exploration of the gold mine La Colosa located in Cajamarca, Tolima. The minister of the environment (MMA*)

⁵⁵ *Ibid.*, p. 32.

⁵⁶ CORTINA, A. «El estatuto de la ética aplicada hermenéutica crítica de las actividades humanas». En FERNANDEZ, G. (Comp). *El giro aplicado. Transformaciones del saber en la filosofía contemporánea*. Buenos Aires: Universidad Nacional de Lanús, 2002, p. 69.

⁵⁷ La metodología propuesta sigue los lineamientos básicos de las metodologías en bioética clínica de autores como Diego Gracia (2008); E. Pellegrino citado por Martín (2012); Childress (1999); Maliandi, *Ética convergente. Fenomenología de la conflictividad* (1995); Latour (2008), entre otros.

authorized the multinational company to conduct explorations in the region that is considered a Forest Reserve (RF*). There were 6.3 hectares conceded for the exploration and the company was prohibited from conducting work near bodies of water.

With respect to the debate that followed representatives of the (MMA) affirmed that the (RF) are not protected zones as the Natural Parks (PN) are, and that the adopted measures respected the law. Speakers for the environmental group *Conciencia Ambiental* (CA) claim that the multinational company initiated drilling operations in the land in an illegal manner, as it was confirmed by the minister that the explorations were conducted previous to the permits that ceded the territories. The group insisted on the legal protection of the (RF). There was an alert regarding the negative impact of future gold extraction for the region. It is certain that mining will occur open sky due to the

condition of the land and trials realized by the multinational company that suggest that gold is dispersed superficially in an area of 513 hectares. Explosives will be necessary to loosen the soil. Generated will be environmental damages of great proportions as a result of the removal of the topsoil, extraction of rocks, deforestation, and eradication of fauna and flora. The rivers will be contaminated with cyanide that is required for isolate of gold from the rest of the minerals. According to experts there will be an annual use between 630 and 950 cubic meters of water that will leave various adjacent municipalities with no water supplies, and will effect near 70000 people. The secretary affirmed that only the exploration with minimal impact on the environment was approved. He added that the rights acquired for the exploration do not apply to eventual exploitation. The multinational company must acquire new permits for mineral extraction, which is currently under evaluation.

Table 2. Methodology steps. Description of complex situation (Multidimensional Scale: macro-micro/global-local, from a biopsychosocial and cultural approach)

INDUCTIVE PROCESS

a. DIMENSIONS

DIMENSIONS	SITUATIONS
Noosphere	The (RF) are considered areas of public and social interest that constitute ecological and environmental heritage of the nation. Secretary affirmed that the (RF) are not protected zones as the (PN).
Cultural	The region has traditionally been dedicated to agriculture and livestock. Population is mostly rural
Social, Economics, Politics and Legal	The company (AGA) requested permission for mining. (MMA) Authorized the mining. 6.3 hectares of the (RF) were conceded for the exploration. (AGA) was prohibited from conducting work near bodies of water. (CA) protested: – Reports of (AGA) exploration works without necessary permits insisted on the legal protection of the (RF) and – There was an alert regarding the negative impact of future gold extraction for the region – The secretary affirmed that only the exploration with minimal impact on the environment was approved.

Psychological	There was an alert regarding the negative impact of future gold extraction for the region.
Biota Ecosystem	Rich biodiversity of (RF). The mine is located in a declare ecosystem (RF).

b. ACTORS/AGENTS:

TYPE	ACTORS/AGENTS
Living non-humans wild (VNHS*)	Populations that inhabit the ecosystem (flora and fauna)
Human Beings (VH*)	Population of 70.000 live in nearby municipalities
Objects, institutions	Non-living elements (water, rocks etc.) (MMA) Group (CA) (AGA) Technology applied to mining

I. IDENTIFICATION OF THE CONFLICTED STRUCTURE

INDUCTIVE PROCESS

a. Ethics problems (BIOPSYCHOSOCIAL APPROACH)

DIMENSIONS	TROUBLE TOPICS
Noosphere	Negative experiences in countries where (AGA) has made mining exploitation. Discrepancy in argument against protection of a (RF) not to be a (PN). Misinformation about a possible Gold mining project.
Cultural	Controversy upon employment and economic opportunities, change in customs and ideals of the population to Gold extraction.
Social, economic, politic and legal	Doubts about the legality of mining exploration permit in the (RF). Controversy over land exploration by AGA previous to the permits that concede the territories Unrealistic expectations regarding the value and use of the surrounding land. Possible economic detriment to many and enrichment for the few. No benefit for the population is determined for the use of the (RF). A public good is transferred by a private benefit of the (AGA). Possible damage that threaten the future development and welfare of the population.
Psychological	Worries about damages due to the open sky Gold extraction.
Biota/ecosystem	Vulnerability of the ecosystem.

b. Conflictive Situation

Specify values, interest, principles for each actor

Values / Actors	Conservation / Preservation	Use Goods And Services Costs Utility	Justice: Distribution Representation (Norms- Laws)	Autonomies Recognition Participation	Welfare
(VNHS)	Intrinsic value	Price for their usefulness	Rights, solidarity	Respect biodiversity	Sustainable development Common goods
(VH)	Integrity, dignity Esthetics	Economic expectations	Access, equity on distribution of benefits No depreciation of good.	Participation in decisions on common goods Respect local cultures and practices	Sustainable development Quality of life Environmental health
Objects (GOLD)	Non renewable resources	Instrumental value	Fair distribution of returns		Sustainable development
Environment Water Landscape	Life source Solastalgia	Instrumental value	Ecological and environmental heritage	Auto regulation, Autopoiesis	Balance- Ecosystem balance Healthy
(MMA)	Publics policies	Common goods protection, Rational use of recourses	Common goods Equitable management	Respect biodiversity Guardianship collective values	Sustainable development
Group (CA)	Environmental awareness Commitment life value	Use defense environment Instrumental	Rights vindication Civil resistance	Participation rights issues Voices representing	Fights in favor life dignity healthy
(AGA)	Economy stability	Economy benefits Instrumental Value	Social responsibility	Free market	Income Working conditions, etc.
Mining technology	Clean technology	Efficiency, Efficacy	Technological access	Innovation	Adequate use Impact assessment

c. Identification of conflicts between values and interests

- i. Instrumental Value/ Intrinsic Value
- ii. Gold value / Biota value
- iii. Gold value / Water-rocks value etc.,
- iv. Exploration, Exploitation / Conservation, Preservation
- v. Handicraft practices / new technologies
- vi. Economic benefits (AGA)/ Sustainable development
- vii. Population economic benefits / Sustainable development
- viii. Instrumental value - economic benefits / Biota intrinsic value - Welfare (VH)
- ix. Economic interest (AGA) / Common interest – conservation
- x. Economic development / Sustainable development
- xi. Private goods /Common goods
- xii. Private interest /Public interest

II. POSSIBLE COLLECTIVE ACTIONS

DEDUCTIVE PROCESS

a. Specification of duties /obligations for each actor

Values / Actores	Conservation / Preservation	Use goods - services costs utility	Justice: distribution representation (norms- laws)	Autonomies recognition participation	Welfare
(VH)	Care, ensure, protect	Proper use goods-services	Ensure equity on distribution of benefits	Participation Respect biodiversity	Practice sustainable Maintain health environment
(MMA)	Control, supervision	Supervise, guarantee proper use of goods - services	Good administrative practices Guarantee equitable management common-public goods	Regulate public - private sector Guardianship collective values versus individual values Promote participation	Conditions to enjoy a healthy environment
Group (CA)	Value of life Defend ecosystem	Education Awareness of intrinsic value as a limit over instrumental value	Peaceful demonstrations Coherence with principles for life	Responsibility in speeches Respect people and biodiversity	Ecosystems defense

(AGA)	Adequate Technologies No damage ecosystems Repair damages	Economic gain Productivity and inversion	Social responsibility Enactment (Norms – laws)	Respect autonomy of people-communities	Working conditions Quality of life
-------	---	---	---	--	---------------------------------------

b. Bioethics dilemma (courses of action)

- i. To grant permits for exploration and mining
- ii. No issue permits for exploration and mining and conserve, preserve the (RF)

III. EVALUATION OF EACH COURSE OF ACTION (REFLEXIVE EQUILIBRIUM)

a. Deontologic time (prima facie principles)

- i. Conservation- precaution - no maleficence
- ii. Use of goods – services - utility
- iii. Equitable distribution of burdens – benefits - representation
- iv. Biodiversity respect - participation
- v. Common well – quality of life - sustainable development

1. To grant permits for exploration and mining a. Affects natural resources conservation b. Do not respect biodiversity neither allows citizen participation c. Affects welfare- quality of life- sustainable development	2. No issue permits for exploration and mining and conserve y preserve the Forest reserve a. Affects the use of Gold b. Affects possible economic benefit for (AGA) c. Affects state royalties
--	---

b. Teleological time: impacts and consequences

- vi. Utility principle: intended purposes
- vii. Assessment: cost/utility-risks/benefits

1. To grant permits for exploration and mining a. Alters wellbeing of population and ecosystem b. River contamination, forest and fauna destruction c. Health is alter as the ecosystem equilibrium d. Economic benefit (AGA) e. State royalties	2. No issue permits for exploration and mining and conserve y preserve the Forest reserve a. Maintains welfare conditions of populations and ecosystems b. Conservation (RF) c. Maintains health and the ecosystem equilibrium d. No utility for (AGA) e. No State royalties
---	---

Source: Authors

INDUCTIVE PROCESS

IV. HARMONIZATION BETWEEN PRINCIPLES AND CONSEQUENCES TO DEFINE THE OPTIMAL COURSE OF ACTION

First consideration: The balance and ethical consideration, until now, weighs principles such as consequences implied in each course of action. In conflicts we witness collisions or disagreements (Maliandi, *Ética convergente. Fenomenología de la conflictividad* 1995, 69). In this conflict there exists a collision. The opposition between values and courses of action is violent.

At this point a decision would mandate the exclusion of one course of action in favor of another. Minimizing conflict is recommended, seeking instead the convergence and harmonization between the courses of action, whereby the following agenda for negotiation is deliberated.

Establishment of an agenda for the fulfillment of goals (NEGOTIATION)

- i. Actions of conservation of the biota that permit sustainable development
- ii. Review the permits, contracts and conventions that are made between multinational mining companies and the State
- iii. Study of historical mining companies that use environment friendly technologies
- iv. Environmental education for the population, which can be led by environmental groups
- v. Promote and enforce regulations for the protections and care of the environment through participative action
- vi. Establish a dialogue between the population and the multinational company.
- vii. Establish mechanisms of communication and participation with the MMA.

- viii. Carry out investigations regarding the use of goods and services that allow for sustainable development (with the involvement of universities and research centers
- ix. Search for synergistic actions between the State, community, private sector, research centers, etc.

V. OPTIMAL COURSE OF ACTION

Second consideration: The permits for exploration and operations are suspended pending the requirements of a mine that guarantees sustainable development and the protection of the environment.

VI. MORAL VERIFICATION (OPTIMAL COURSE OF ACTION IS COMPARED TO THE FOLLOWING PREMISES)

- a. Ontological premise: respect for living beings and ecosystems

The optimal course of action applies the precautionary principle. While balancing the respect for living beings that inhabit the ecosystem it is determined that due to the imminent harm it is necessary to implement protective measures for the environment.

- b. Ethical premise: equal consideration of interests

The optimal course of action seeks to harmonize the wellbeing of the biota with the community. The exploitation of metals will depend on the studies and guarantees of environmentally friendly mining that (AGA) would be able to carry out.

- c. Legal premise: environmental legislation

The optimal course of action follows the existing legal mechanisms, while the general

interest takes precedence over individual interests. In that course the biota is considered a cultural heritage and is protected.

- d. Revision of similar cases: Papua Guinea (Indonesia), Marmato (Colombia), Bostwana (África)
 - i. Comparison of cases or analogous reasoning
 - ii. Research and compare previous cases
 - iii. Differences and similarities
 - iv. Discerning the new circumstances demands a unpublished moral valuation.
 - v. Guidance provided by the resolution of previous cases

Upon reviewing previous cases it was established that the mining industry creates great injustices related to aspects of labor, practices that undermine the social stability of the region, impoverishment of the inhabitants, promotion of prostitution and child labor, in addition to the inevitable environmental damage.

DEDUCTIVE PROCESS

VII. MORAL JUSTIFICATION

- a. Anthropocentrism: The optimal course of action respects the wellbeing of human beings. The utility of (AGA) will be given only while it innovates and guarantees the use of environmentally friendly technology and the conditions that are favorable to the population are met.
- b. Biocentrism: The optimal course of action respects the intrinsic value of living beings.
- c. Ecocentrism: The optimal course of action respects the fabric of life

VIII. ADOPTION OF AGENDA AND OPTIMAL COURSE

After analysis it is resolved to **suspend the permits for exploration and exploitation until**

the requirements for a mine that guarantees sustainable development and the protection of the environment are met, for which an agenda is negotiated that seeks to harmonize the values in conflict.

Resolution: For being the course of action that respects the system of reference it is the most acceptable rational course. The selected course of action respects the level of the principles and as so is the correct action. With regard to the consequences that arise for the multinational company that sees its interests affected, this course of action allows us to act in favor of the greater good, or at least in favor of the least harm possible. AGA, or any other mining company, can conduct studies that allow the innovation of a new type of mine that is viable for the adequate exploitation of Gold.

2. DISCUSSION AND CONCLUSIONS

Although the visions regarding the environment are controversial, they share in a concern with life. The proposals oscillate between egoistic and altruistic postures. The ethical compromise proceeds from the human being; nevertheless, its importance with regard to other beings differs according to the way that the interaction is considered. When the relationship is explained as a human-nature duality, subject-object, the vision is anthropocentric. If the relationship is one of unity with nature we are within a biocentric vision. When this unity deals with the environment we have an ecocentric vision.

We argued the necessity for understanding contingent nature of life. We saw that at the basis of environmental conflicts there exists a controversial way to value biodiversity and the environment. In bioethical committees accommodates the exposition of different visions

with the purpose of making consensual decisions. It is through the deliberative process that plural participation is possible in current multicultural societies.

Upon investigating which are the crucial points that a methodology must understand to analyze the environmental problems and conflicts, the principal elements identified that intervene in the decisions of ethical character were the situation agents, conflicts, actions, and consequences.

As much in the situation as in the agencies, the role of identifying the vulnerability was highlighted: an ethical base of the preoccupation for other living humans and non-humans. We are sensitized also for the environment and even for objects that have been excluded arbitrarily from the collective existence.

Identifying the conflictive structure permits the appreciation of the plurality of values that are involved in its situation. It also orients the definition of practices of duties/obligations of the actors in conflict. The inductive process of identifying values as locators situates us in different contexts.

The actions and decisions can serve as deontological fundamentals as well as theological fundamentals. The principals are only ethical criteria established to guide decision-making. The conflicts between distinct liberties or expressions of the inhabitants shift the attention in aristotelic terms to the *internal goods*, matters of dignity, common wellbeing, quality of life, benefits and utility to the populations and actors involved.

The prudence is set apart as a virtue that orients in a correct manner collective decisions and actions. It invites us at every moment to search an intermediate path that attempts to minimize conflicts and harmonize the prin-

cipals and consequences in the search for an optimal course of action. With the proposed methodology we seek to reach a post conventional moral judgment that assumes a critical capacity that is reflexive and at the same time sensible and emotive.

Finally we conclude that the approach of bioethical criteria in complex and diverse realities is a work in progress. The exposition of these minimums in complex and diverse realities is an incomplete task that calls politicians, academics, managers, and other decision makers in relation to environmental conflicts. We stand before the emergence of a new field that unites knowledge and practices that are still to be defined.

Acknowledgment

We are thankful for the discussions around the necessity of a methodology for environmental problems in which participated professors and students of the Bioethics Doctorate, in particular to Chantal Aristizábal. Also to Marcela Escobar Gómez and Arturo Liévano, for their collaboration in the translation and final review of the document.

References

1. ALBRECHT, Glenn *et al.* «Solastalgia: el dolor causado por el cambio ambiental». *Australasian Psychiatry*. Vol. 15 N. ° 1 suppl., 2007.
2. ARISTÓTELES. *Ética Nicomaquea*. Bogotá, D. C.: Ediciones universales, 1994.
3. BEAUCHAMP, T. y CHILDRESS, J. *Principios de ética biomédica*. Barcelona: Masson, 1999.
4. BLACKSTONE, William. Citado por VELÁZQUEZ, Manuel. *Ética de los negocios. Conceptos y casos*. México: Pearson Educación de México. 2006.
5. BOOKCHIN, Murray. *La ecología de la libertad: el surgimiento y disolución de la jerarquía*. Palo Alto, CA: Cheshire, 1982.

6. CAPRA, Fritjof. *La trama de la vida. Una nueva perspectiva de los seres vivos*. Barcelona: Anagrama, 1998.
7. CORTINA, A. «El estatuto de la ética aplicada hermenéutica crítica de las actividades humanas». En FERNANDEZ, G. *El giro aplicado. Transformaciones del saber en la filosofía contemporánea*. (Comp). Buenos Aires: Ediciones de la Universidad Nacional de Lanús, 2002.
8. CORTINA, A. y MARTÍNEZ, E. *Ética*. Madrid: Akal, 2001.
9. D'EAUBONNE, Françoise. *La Féminisme ou la mort*. Paris: Pierre Horay, 1974.
10. DÜWELL, MARCUS, REHMANN-SUTTER, CHRISTOPH, MIETH, DIETMAR (Eds). *The Contingent Nature of Life. Bioethics and the limits of Human Existence*. New York: Springer, 2008.
11. EBBESEN, Mette. «Two different approaches to principles of biomedical ethics: a philosophical analysis and discussion of the theories of the american ethicists Tom I. Beauchamp and James F. Childress and the danish philosophers Jakob Rendtorff and Peter Kemp». En TYLER, Pace (Edit). *Bioethics Issues and Dilemmas*. New York: Nova Science Publishers, 2010.
12. ECHEVERRÍA, Javier. *La revolución tecnocientífica*. Madrid: Fondo de cultura económica. 2003.
13. ELDREDGE, Niles. *La vida en la cuerda floja. La humanidad y la crisis de la biodiversidad*. Barcelona: Tusquets, 2001.
14. ESCOBAR, Arturo. *Más allá del Tercer Mundo. Globalización y diferencia*. Bogotá, D.C.: Instituto Colombiano de Antropología e Historia - Universidad del Cauca, 2005.
15. GRACIA, Diego. *Procedimientos de decisión en ética clínica*. Madrid: Triacastella, 2008.
16. HOTTOIS, Gilbert. «Panorama crítico de las éticas del mundo viviente.» *Revista Colombiana de Bioética*. Vol. 1 N.º 1. 2006.
17. JONAS, Hans. *El principio de responsabilidad*. Barcelona: Herder, 1995.
18. LATOUR, Bruno. *Reensamblar lo social. Una introducción a la teoría del actor-red*. Buenos Aires: Manantial, 2008.
19. LEAKEY, Richard y LEWIN, Roger. *La sexta extinción. El futuro de la vida y de la humanidad*. Barcelona: Tusquets, 1998.
20. LEOPOLD, Aldo. *A Sand Country Almanac. And the Sketches Here and There*. New York: Oxford University Press, 1949.
21. MACINTYRE, Alasdair. *Tras la virtud*. Barcelona: Editorial Crítica, 2001.
22. MALIANDI, Ricardo. *Teoría y praxis de los principios bioéticos*. Buenos Aires: Ediciones de la Universidad de Lanús, 2008.
23. MALIANDI, Ricardo. *Ética convergente. Fenomenología de la conflictividad*. Tomo I. Buenos Aires: Las Cuarenta, 1995.
24. MARCOS, Alfredo. *Ética ambiental*. Valladolid: Universidad de Valladolid, 2001.
25. MARTÍN, M.^a Nieves. «Metodología del análisis de casos en ética clínica». [En línea]. [Fecha de consulta 2 de noviembre de 2014]. Disponible en <http://www.institutodebioetica.org/cursioetica/modulo3/Unidad%203%20Análisis%20de%20Casos.pdf>
26. McGRATH, Pam. «The Real World of Ethics Decision-Making: Insights from Research». En TYLER, Pace (Edit). *Bioethics Issues and Dilemmas*. New York: Nova Science Publishers, 2010.
27. NAESS, Arne. *Ecology, Community and Lifestyle. Outline of an Ecosophy*. Londres: Cambridg University Press, 1989.
28. OVALLE, Constanza. «Fundamentos y prácticas de la bioética en conflictos ambientales». *Revista Colombiana de Bioética*. Vol. 7 N.º 2. Bogotá, D.C. Universidad El Bosque, 2012.
29. OVALLE, Constanza. «Un aporte de la educación en bioética a la concepción de ser humano en contextos de mundialización». *Revista Colombiana de Bioética*. Vol. 5, N.º 2. Bogotá, D.C. Universidad El Bosque, 2010.
30. PELLEGRINO, E. «Toward a virtue-based normative ethics for the health professions». *Kennedy Institute of Ethics Journal* (special issue). Vol. 5, pp. 253-277, 1995. En PETRINI, Carlo. «The Rights of Future Generations in Environmental Ethics». En *Bioethics Issues and Dilemmas*. Tyler Pace (ed). New York: Nova Science Publishers, Inc., 2010.
31. POTTER, Van. «Bioética puente, bioética global y bioética profunda». *Cuadernos del Programa Regional del Bioética*, OPS. N.º 7. 1999.
32. PRIGOGINE, Ilya, y STENGERS, Isabelle. *La nueva alianza*. Barcelona: Tusquets, 2000.

33. RAWLS, J. *Teoría de la justicia*. México, D.F.: Fondo de Cultura Económica, 1979.
34. SEN, A. *Desarrollo y libertad*. Barcelona: Planeta, 2000.
35. SIEP, Ludwig. «The Value of Natural Contingence». En DÜWELL, Marcus; REHMANN-SUTTER, Christoph y MIETH, Dietmar (eds). *The Contingent Nature of Life. Bioethics and the limits of Human Existence*. New York: Springer, 2008.
36. SIMONDON, Gilbert. *El modo de existencia de los objetos técnicos*. Buenos Aires: Prometeo, 2008.
37. SMITH, A. *Teoría de los sentimientos morales*. México: Fondo Cultura Económica, 2004. En SEN, A. *Desarrollo y libertad*. Barcelona: Planeta, 2000.
38. SOLBAKK, Jan. «Duda terapéutica y diálogo moral». [En línea]. [Fecha de consulta 12 de febrero de 2014]. Disponible en <http://ecobioetica.org.ar/es/articulos/707/>
39. SOROS, George. *Tiempos inciertos. Democracia, libertad y derechos humanos en el siglo XXI*. Bogotá: Nomos, 2006.
40. TAYLOR, Paul. *Respect for Life. Theory of Environmental Ethics*. New York: Princeton University Press, 1986.
41. WENZ, Peter. *Environmental Ethics Today*. New York: Oxford University Press, 2001.