УДК 327:172 DOI: 10.24412/1817-9568-2021-1-142-157

О ПРИНЦИПАХ ГЛОБАЛЬНОЙ ЭКОЛОГИЧЕСКОЙ СПРАВЕДЛИВОСТИ

Коаччи Фабио,
МГИМО МИД России,
Факультет управления и политики,
кафедра мировых политических процессов,
Аспирант и преподаватель;
Университет Мачераты (Италия),
Кафедра политологии, коммуникации и международных отношений,
Аспирант и Ассистент преподавателя,
Мачерата, Италия,
ORCID: 0000-0002-4504-6067,
E-mail: f.coacci1@unimc.it

Статья поступила в редакцию 14.11.2020, принята к публикации 30.12.2020

Для цитирования: Коаччи Ф. О принципах глобальной экологической справедливости // Научный журнал «Дискурс-Пи». 2021. № 1 (42). С. 142–157. doi: 10.24412/1817-9568-2021-1-142-157

Аннотация

Экологический вопрос привлекает все большее внимание в различных областях, от точных наук до моральной, социальной и политической философии, международных отношений и глобальных исследований. В этой статье предпринята попытка обсудить нормативную основу для решения серьезной проблемы ухудшения состояния окружающей среды. У статьи двоякая цель: с одной стороны, она стремится показать, что разработка глобальных норм для борьбы с деградацией окружающей среды вызывает глубокие споры как с теоретической, так и с практической точки зрения; с другой стороны, она пытается преодолеть последние препятствия, создавая принципы экологической справедливости, основанные на фундаментальном научном открытии, согласно которому человеческая жизнь на Земле возможна только при соблюдении определенных естественных равновесий Земли, таких как баланс между кислородом и углекислым газом (основная доля продукции которого связана с деятельностью человека). Новизна основной статьи основана на анализе принципов глобальной экологической справедливости, регулирующих деятельность человека, в свете биологических границ Земли, определенных биологами. Соответственно, подход, принятый в этой статье, направлен на объединение естественных и со-

циальных наук посредством междисциплинарной попытки связать нормативную теорию с научными данными из точных наук. После краткого изучения антропологических и культурных корней современного экологического кризиса в данной статье проводится сравнительный анализ двух различных принципов глобальной экологической справедливости, т. е. исторического принципа «платит загрязнитель» и временного эгалитарного принципа «равная доля для всех». Таким образом, в статье рассматриваются основные недостатки этих концепций, заявляется о приоритете научно доказанной актуальности восстановления равновесия между человеческой деятельностью и биологическими пределами Земли над политическими проблемами, которые ставят под угрозу их реализацию.

Ключевые слова:

окружающая среда, правосудие, деградация окружающей среды, чрезмерная эксплуатация природных ресурсов, глобальная экологическая справедливость, исторические принципы, эгалитарные принципы временного среза, экологическое равновесие, природное равновесие.

UDC 327:172 DOI: 10.24412/1817-9568-2021-1-142-157

ON THE PRINCIPLES OF GLOBAL ENVIRONMENTAL JUSTICE

Fabio Coacci,

MGIMO University,
School of Governance and Politics,
Department of World Politics,
Lecturer and PhD Student;
University of Macerata (Italy),
Department of Political Science, Communication and International Relations,
Assistant Lecturer and PhD Student,
Macerata, Italy,
ORCID: 0000-0002-4504-6067,
E-mail: f.coacci1@unimc.it

Article received on November 14, 2020, accepted on December 30, 2020

To cite this article: Coacci, F. (2021). O principax global'noj e'kologicheskoj spravedlivosti [On the principles of global environmental justice]. *Scientific journal "Discourse-P"*, *1*(42), 142–157. doi: 10.24412/1817-9568-2021-1-142-157

Abstract

The environmental question is increasingly gaining attention in different fields, from exact sciences to moral, social and political philosophy, international relations and global studies. This article seeks to discuss the normative ground to cope with the crucial challenge of environmental degradation. The aim of the article is twofold: on the one hand, it seeks to show that the elaboration of global norms to cope with environmental degradation is deeply controversial according to both theoretical and practical resistances; on the other hand, it tries to overcome the latter hurdles founding the principles of environmental justice on the basic scientific finding that human life on Earth is possible only respecting specific natural equilibria of the Earth such as the balance between oxygen and carbon dioxide (whose main share of production derived from human activity). The main article's novelty relies on the analysis of principles of global environmental justice ruling the human activity in the light of the biological limits of the Earth defined by biologists. Accordingly, the approach adopted in this article seeks to bridge natural and social sciences through the interdisciplinary attempt to connect the normative theory with scientific evidence from hard sciences. After a brief examination of the anthropological cum cultural roots of the contemporary ecological crisis, this article carries out a comparative analysis of two different principles of global environmental justice, i.e. the historical principle "the polluter pays" and the time-slice egalitarian principle "an equal share to everyone". Thus, the article reviews the main shortcomings of these conceptions claiming the priority of the scientific proven urgency to restore the equilibrium between the human activity and the Earth's biological limits over the political problems which jeopardize their realization.

Keywords:

environment, justice, environmental degradation, overexploitation of natural resources, global environmental justice, historical principles, time-slice egalitarian principles, ecological equilibrium, balance of nature.

Introduction

In 2020, the 22nd August was the Earth Overshoot Day, that is the date when the humankind has used more from nature than our planet can renew in the entire year[1]. After that date, we face the deficit by liquidating stocks of ecological resources generated in millennia and accumulating waste to the expense of future generations which are obviously unable to express their will. The overpopulation of the Earth and the overexploitation of natural resources are the main cause of many issues related to the Earth's health from which depends the human life on it. To make it clearer how the environmental degradation is linked to the human activity it is possible to think about the carbon dioxide production, which causes global warming and climate change which, in turn, are the reasons of issues such as floods, desertification, hurricanes

[1] In 2020 there has been a slight improvement in the exploitation of natural sources due to the less global consumption caused by the pandemic. Indeed, in 2019 the Overshoot Day was on the 29th of July.

which, for sure, represent a relevant harm for human life. That is the reason why, the environmental justice is considered as one of the last frontiers of work in global justice, and, more generally, in moral, social and political philosophy and international relations (Singer, 2004). The cruciality of the issue and the interests at stake urge the elaboration of a comprehensive theory of global environmental justice[2] which has not been conceived yet.

Therefore, this article seeks to widen the debate on normative principles of environmental justice, along with their application at global level, recalling the findings on the human impact on the Earth's health coming from exact sciences and taking into account the role of the main actors responsible for the ecological crisis. To pursue this aim, the article starts with the analysis of some scientific evidence on the gravity of the ecological crisis for humankind and its historical and anthropological roots. Secondly, two different conceptions of principles of environmental justice are analyzed and critically assessed. The critical review will be carried out *vis-à-vis* the normative power of the obligation of humankind to respect the ecological balances of the Earth which are crucial for its life. This obligation is founded on the scientific findings on the specific ecological conditions according to which the survival of the humankind on the Earth is possible and the several serious risks related to their human-driven alterations (Intergovernmental Panel on Climate Change, 2007; Meadows et al., 1972, 2004). In fact, hard natural sciences, such as physics and biology, has widely shown the growing relevance of this crucial issue which, in turn, is now urgently calling for normative and ethical solutions from philosophy and social sciences.Finally, the article will draw few suggestions for an equal and sustainable distribution of ecological assets and, thus, to implement the global environmental justice.

1. The ecological crisis and its anthropological roots

Humanity is facing chronic and unprecedented environmental problems, and many of them are of human origin. That is also confirmed by the United States military which, commenting a report on abrupt climate change prepared for the Pentagon by the Global Business Network (Schwartz, Randall, 2004), have declared that «the issues of adjustment to climate change constitute a far more severe threat to national and international security than does terrorism itself» (Brennan, Lo, 2015). Issues related to environmental degradation, such as drought, changing weather patterns, the expected massive environmental migration, health decline associated with various forms of pollution, raise crucial questions about environmental justice (Shrader-Frechette, 2002) which must provide the right means to let humanity face environmental degradation and climate change properly.

A theory which inspires the inception of the present-day philosophical cum cultural-historical analysis of the human impact on environment and boosts the research about environmental justice is Lynn White's work (1967). In his lecture, which later became an article published in the journal "Science", titled *The historical roots of our*

[2] Hitherto, the focus of academia has been put on the area of international environmental justice which can be misleading since it may lead to the interpretation of the environmental justice just as a matter of internal affair of the state or of the relation between nations rather than a global topic which involves every individual as inhabitant of this planet (Singer, 2004).

Ecological Crisis, White argued that the Judeo-Christian tradition ought to be considered the philosophical and cultural source of the modern environmental crisis. White asserts that Judeo-Christian anthropocentric belief has inspired the human dominion towards nature and the consequent humankind's overexploitation, and destruction, of the environment. The structure of White's theory can be simply sum up as follow: Christianity led to anthropocentrism that is the cause of environmentally damaging behaviour therefore the origin of the environmental crisis ought to be found in Christian ethics[3]. Even though White's theory can be considered totalizing – since it makes a reductive interpretation of the Judeo-christian ethics and demonstrates an excessive simplification of the relation between humanity and nature, which has been affected by different sundry and complex factors (Moncrief, 1970) – for sure his work can be assessed as a valid effort which raised the attention towards the environmental crisis and underlined the human responsibility for the environmental degradation.

The last three decades of studies on environmental ethics have been mostly spent analyzing and clarifying the *evaluative thesis* (of non-anthropocentrism) along with the *psycho-behavioural thesis* (of non-anthropocentrism) (Brennan, Lo, 2015). The first theory claims that natural non-human things have intrinsic value regardless of any use they have for the others while the second one can be considered a prosecution and implementation of the first one. Indeed, it advocates that people who believe in the *evaluative thesis* are more likely to behave in respect of the environment (i. e. behave in beneficial ways, or at least not in harmful ways, towards the environment) than those who do not. Assuming that the *psycho-behavioural thesis* is true, it can be useful to provide a rationale for both the diagnosis and solution of environmental problems and to give practical justification to the disciplines of environmental ethics and justice themselves (Brennan, Lo, 2015). Therefore, these theses can be extremely useful to drive a sustainable pattern of human behaviour toward the environment and to inspire a comprehensive theory of global environmental justice.

However, these theories seem to collide with the recent orthodox economic paradigm, affecting human choices on consumption and production. According to that paradigm, non-human things acquire value according to their scarcity and, therefore, to the one assigned to them by humans. This apparent contrast is underlined by the paradox of the value or diamond-water paradox[4] which questions why water is cheaper than diamonds even though it is much more indispensable for the human life. This paradox points out the assumption that natural non-human things have intrinsic value but, in socioeconomic exchanges, what is more important is the subjective value assigned to them by humans. Therefore, the evaluative thesis and the mainstream eco-

[3] Other three important theories, i. e. ecofeminism, deep ecology, and new animism, seem to share with White's theory the view of anthropocentrism as the hearth of the problem of environmental destructiveness (Brennan, Lo, 2015).

[4] The diamond-water paradox relies on the observation that articles or goods critical to life (such as water) are very cheap, whereas others which have no bearing on human existence (such as diamonds) are very expensive. As Smith (1776) argues, even though life cannot exist without water and can easily exist without diamonds, diamonds are, pound for pound, vastly more valuable than water. From the economic point of view, this paradox is explained by the law of supply and demand and the marginal-utility theory (The editors of Encyclopedia Britannica, 2018).

nomic theory, the capitalist theory, just give a different interpretation of the conception of value. The first one gives more importance to basic natural non-human things, which are intrinsically essential for human life, while the second one to the relative scarcity of natural non-human things. However, the latter consideration is becoming obsolete since the Ecological Footprint, i.e. the index which measures the impact of human society on the environment, has clearly proved that those natural non-human things essential for the human life, as the atmospheric capacity to absorb gases, water, field, cleaned air, are getting scarce in absolute terms. A wise proverb from native Americans eloquently sums up the human attitude toward the attribution of value to natural things: «When the last tree is cut down, the last fish eaten, and the last stream poisoned, humanity will realize that it is impossible to eat money» (Simpson, Speake, 2008). Indeed, even though facts and figures (see figures 1 and 2) show that humanity is overexploiting natural resources with all the related negative consequences, basic natural non-human things are considered still abundant resources with a relatively low value.

The dates of past Earth Overshoot Days, as calculated with the National Footprint and Biocapacity Accounts 2019 Edition, are:		
December 29, 1970	**October 23, 1987**	**September 1, 2004**
December 20, 1971	**October 15, 1988**	**August 25, 2005**
December 10, 1972	**October 11, 1989**	**August 19, 2006**
November 26, 1973	**October 11, 1990**	**August 14, 2007**
November 27, 1974	**October 10, 1991**	**August 14, 2008**
November 30, 1975	**October 12, 1992**	**August 18, 2009**
November 16, 1976	**October 12, 1993**	**August 7, 2010**
November 11, 1977	**October 10, 1994**	**August 4, 2011**
November 7, 1978	**October 4, 1995**	**August 4, 2012**
October 29, 1979	**October 2, 1996**	**August 3, 2013**
November 4, 1980	**September 29, 1997**	**August 4, 2014**
November 11, 1981	**September 29, 1998**	**August 5, 2015**
November 15, 1982	**September 29, 1999**	**August 5, 2016**
November 14, 1983	**September 23, 2000**	**August 1, 2017**
November 6, 1984	**September 22, 2001**	**July 29, 2018**
November 4, 1985	**September 19, 2002**	**July 29, 2019**
October 30, 1986	**September 9, 2003**	**August 22, 2020**

Figure 1 – The human overexploitation of natural resources by year. Source: Earth Overshoot Day/Global Footprint Network (https://www.overshootday.org/)

Therefore, a theory of global environmental justice, along with the main paradigm on which the economic systems ought to be founded, must be based on the measure of the intrinsic value of natural non-human things and, thus, on the evaluative and psycho-behavioural theories.

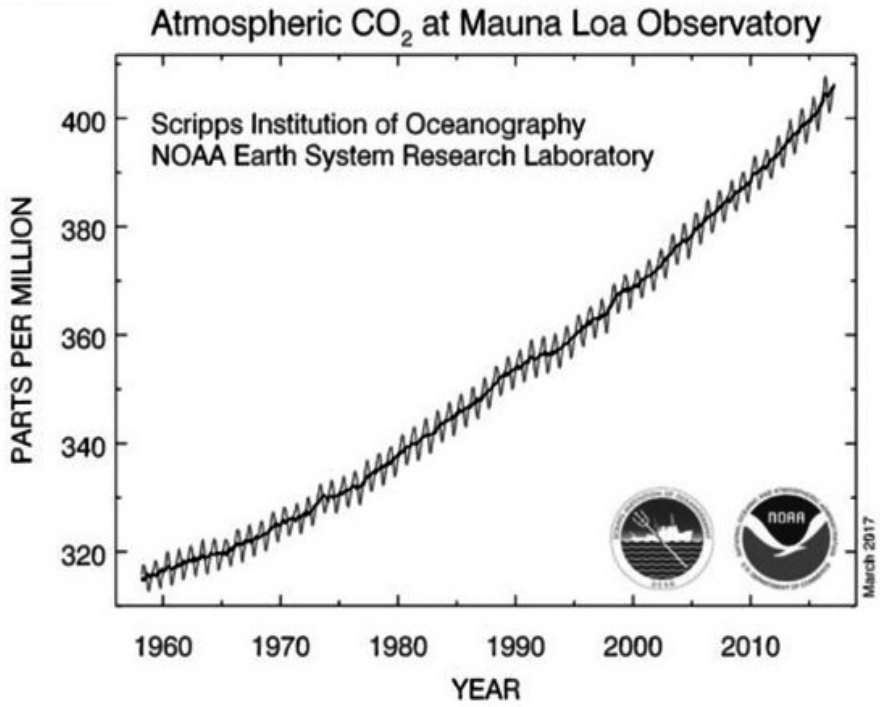

Figure 2 – Trends in atmospheric carbon dioxide. Source: NOAA Earth System Research Laboratory (https://www.esrl.noaa.gov/)

However, a noteworthy shortcoming related to the *psycho-behavioural thesis* is the problematic assumption that if people believe they have a moral duty to respect nature or believe that natural things are intrinsically valuable, then they really will act in more environmental-friendly ways (Brennan, Lo, 2015). Differently to White's theory, the *psycho-behavioural thesis* has not been empirically tested by social scientists therefore it needs interdisciplinary studies, as this article[5], to be proved. So far, regarding the human attitude toward the environment, it is possible to state that the scientific data shows that humanity has a consistent responsibility for the environmental degradation and the current socio-economic system urges a drastic change which can be prompted by a theory of global environmental justice, along with a revision of the current mainstream economic paradigm.

The environmental issue has been progressively growing over the time according to the worsening of the Earth's health. As Singer (2004) argued «there is no

[5] This article tries to make a partial contribution to investigate the origins of human environmental pathologies and to understand the extent to which belief systems and worldviews, as the socioeconomic ones, drive attitudes and behaviour. Indeed, adopting social science methods and empirical facts along with an interdisciplinary approach, this work also examines the human attitude toward the environment, above all in relation to the preservation of the natural conditions which allow the human life in this planet.

greater reason in favor of global action than the damaging impact of human activities on our environment» – a fact which has repeatedly underlined and empirically proved by the findings of hard natural sciences. Accordingly, a theory of global environmental justice must rely on all the current and potential environmental damages caused by humanity and the urgency to restore the balance between human activity and the environmental equilibria of the Earth.

The expert of environmental justice, David Schlosberg (2007), speaks about ecological justice[6] going beyond the simply equitable distribution of environmental goods and bads, which, by the way, remains present and central in the debate. According to this scholar, the distributional paradigm is almost always tied with recognition (Fraser, Honneth, 2003; Taylor, 1992; Young, 1990), political participation and/or capabilities (Nussbaum, 2011; Sen, 1984) in addition to equity questions. Furthermore, environmental justice movements showed the possibility of employing a variety of notions of environmental justice simultaneously in a comprehensive political context (Schlosberg, 2007). Distribution, recognition, capabilities, and participation in environmental decision-making, are conceived as dimensions of environmental justice which cannot be pursued in isolation. In addition, Schlosberg argues that environmental justice concerns not only individuals but also collectivities, i. e. social groups and ecological systems. In this sense, he elaborates a broad, integrated, multifaceted sketch of a theory of environmental justice that can be applied to both relations regarding environmental risks in human populations and relations between human communities and non-human nature. Indeed, he argues that individual organisms and natural systems are entitled to a fair share of essential goods, to recognition as part of an extended community, to the development and enjoyment of capabilities for flourishing, and to some measure of inclusion in political processes, such as human proxies for nonhuman nature. Therefore, environmental justice prompts the human species to organize their activity within the constraints imposed by natural systems, which have the same, unless even more, rights to access to the goods essential for their survival (which is essential for the survival of the human species itself).

2. Two principles of global environmental justice: a comparative analysis

White's theory which looks at the anthropocentrism as the main cause of the recent environmental crisis helps to understand the behavioural model behind the human responsibility for the ecological crisis while *evaluative* and *psycho-behavioural* (of non-anthropocentrism) theses contend the need to attribute more importance to the intrinsic value of natural non-human things and claim to behave according to their ecological use. Moreover, other experts of environmental justice, as Singer and Schlosberg, underline the urgency of a global action to make the Earth's health recover and to ensure the fair distribution of the environmental goods and bads along with people's political inclusion, capabilities and recognition. Therefore, the arguments so far analyzed represent a solid theoretical framework to discuss principles of global environmental justice.

[6] Schlosberg builds from the discourse of the environmental justice movement to extend justice to our relations with the natural world – in his own terminology, he moves from *environmental* to *ecological* justice (Schlosberg, 2007).

Since our atmosphere has a limit related to the quantity of greenhouse gases it can absorb without suffering damage, Singer (2004) argues that «total global emissions must fall within this limit». Therefore, human being must take the limit of the atmosphere as the main constraint to the pollution the humanity can afford to produce. Indeed, as human activity has caused changes in the Earth's climate that increase the likelihood of threats to human interests[7], Peter Singer (2004) and Simon Caney (2005) hypothesize, to some extent and with different views, the option to make the polluters pay for the environmental degradation in order to tackle the effects of the ecological crisis, such as global warming and climate change.

Even though both Singer and Caney agree on basing their arguments on the scientific evidence that human societies have contributed to the ecological crisis and its harmful effects on the Earth's health (Singer, 2004), they have different approaches of environmental justice in response to the environmental issues. Indeed, they diverge in the interpretation and application of the founding principles of environmental justice, such as the *Polluter Pays* principle.

Analyzing principles which are based on fair distribution, Singer resumes the distinction sketched out by Robert Nozick (1984) between "historical" principles and "time-slice" principles. An historical principle looks not only at the present situation, but also to the past events which have led to this situation, to establish whether a given distribution of goods is just or unjust. If the parties have been entitled by a fair and originally justifiable acquisition for what they have, the present distribution can be considered just. Otherwise, rectification and compensation are necessary to ensure a just distribution. By contrast, a time-slice principle focuses merely on the present situation and argues that a just distribution must fulfill some principles of fairness, regardless of any preceding occurrences which have determined how the current situation came about.

An example of historical principle is the *Polluter Pays* or *You Broke It, Now You Fix it* principle. In order to explain this principle, it is necessary to discuss briefly its historical starting points and the main concepts related to the use of resources and the property. According to John Locke's work *Second Treatise on Civil Government*, "the Earth and all that is therein is given to men for the support and comfort of their being" so that the Earth "belongs to mankind in common" (Locke, 1980). Therefore, it is possible to consider the environment, and specifically the atmosphere, as a common good that lets the human life therein and for which humankind is responsible. However, in human society, parts of the Earth and natural resources can become private property. Indeed, the mix between our labour and the land and its products make possible the legitimate appropriation of what is held in common as long as "there is enough and as good left in common for the others" (Locke, 1980). Therefore, people are allowed to acquire resources and parts of the Earth but this acquisition must not violate the same rights by the others and it must not harm people's opportunity to enjoy a common good as the atmosphere. Indeed, the use of a common good cannot be infinitive and careless as the "tragedy of the commons" (Hardin, 1968) clearly demonstrates. Another example by Singer clarifies better the importance of the sustainable usage of an essential good:

[7] "With increasing evidence of global warming, coastal communities come under threat from rising sea levels, droughts become more frequent leading to food shortages, and diseases, such as malaria and cholera, become more widespread" (Caney, 2005).

"Imagine that we live in a village in which everyone puts their wastes down a giant sink. No one quite knows what happens to the wastes after they go down the sink <…> Some people consume a lot, and so have a lot of waste, while others, with more limited means, have barely any, but the capacity of the sink to dispose of our wastes seems so limitless that no one worries about the difference. As long as the situation continues, it is reasonable to believe that, in putting waste down the sink, we are leaving "enough and as good" for others, because no matter how much we put down it, others can also put as much as they want, without the sink overflowing. <…> If the sink is, or appear to be, of limitless capacity, it would justify allowing everyone to put what they want down the sink <…> Now imagine that conditions change, so that the sink's capacity to carry away out wastes is used up to the full, and there is already some unpleasant seepage that seems to be the result of the sink's being used too much. This seepage causes occasional problems. <…> Several respected figures in the village warn that unless usage of the sink is cut down, all the village water supplies will be polluted. At this point, when we continue to throw our usual wastes down the sink we are no longer leaving "enough and as good" for the others, and hence our right to unchecked waste disposal becomes questionable. For the sink belongs to us all in common, and by using it without restriction now, we are depriving others of their right to use the sink in the same way without bringing about results none of us wants. <…> The use of the sink is a limited resource that needs to be shared in some equitable way" (Singer, 2004).

Obviously, this example is a representation of the issues linked to the ecological crisis caused by the pollution. Indeed, the sink can be easily replaced by the atmosphere into which humankind pour its waste gases. As already mentioned, according to scientific evidence, the capacity of the atmosphere to absorb gases without harmful consequences is limited so its use cannot be justified saying that people are leaving "enough and as good" for the others. Thus, atmosphere is a finite common resource and a shortage of such an important resource should push humanity to find a way to allocate equally and justly this ecological asset on which different parties have competing claims. Indeed, in line with unequal usage of resources proved by the Ecological Footprint analysis, the average US citizen uses more than fifteen times as much of the global atmospheric sink as the average Indian (Singer, 2004). It's clear that humanity is overexploiting the atmospheric capacity to absorb emissions and an unfair distribution of the usage of it persists, and even progressively worsens, since people living in developed countries pollute much more than the poorest ones depriving them of the opportunity to develop along the same path experienced by rich countries. According to Locke's assumption, this unequal appropriation of a finite resource as atmosphere cannot be justified since the 'rich' use the capacity of the global atmospheric sink at the expense of others, and even of themselves, as the negative consequences of pollution are pervasive. Accordingly, people living in the richest countries are averagely the worst polluters and, in compliance to the *Polluter Pays* principle, they must reduce their production of gases and compensate the worst off for using more, over the time, than their fair share of the finite capacity of the atmosphere. Furthermore, according to the same principle, people living in developed nations[8] must

[8] Since it is almost impossible to trace back the share of individual responsibility for the pollution, we are obliged to base this evaluation on nation-based research. A measure

rectify and compensate for their past wrongful appropriation of the use of atmosphere on which their current prosperity is based. The other definition of the same principle, *You Broke It, Now You Fix it*, clearly describes an apparently just way humanity must cope with the harm related to the ecological crisis. In fact, "if we believe that people should contribute to fixing something in proportion to their responsibility for breaking it, then the developed nations owe it to the rest of the world to fix the problem with the atmosphere" (Singer, 2004). By the way, even though this argument sounds intuitively just, it hides some limitations. Indeed, regarding the *Polluter Pays* principle, Singer does not give proper importance to the fact that as the community was not aware about the finiteness of the sink, in the same way humankind had not been completely aware about the limit of the atmosphere's capacity to absorb gases in the past centuries. Moreover, he is approximate in the practical assessment of the individual responsibilities and the related fair compensation.

Caney provides a different interpretation of the *Polluter Pays* principle, underlying its critical points and going to some extent beyond it. In order to efficiently restrict Caney's argumentation to pursue the aim of this article, the following discussion will focus on two crucial questions of environmental justice to improve the interpretation of the *Polluter Pays* principle: "Who is the polluter?" and "What if someone did not know that performing a certain activity (such as burning fossil fuels) was harmful?" (Caney, 2005).

As for the theoretical aspects related to the *Polluter Pays* principle, Caney makes a distinction between individuals and groups since pollution is caused both by individual and collective actions. Indeed, people pollute as individual and as part of a class. For instance, "If an industrial plant releases a high level of carbon dioxide into the air, we cannot pick out specific individual costs that result from that particular actor and that particular action" (Caney, 2005). According to Caney's argument, the "macro-version", which establishes an indirect link between actions of groups and a certain level of pollution, seems to represent a more valid interpretation of *Polluter Pays* principle than the micro-version, which establishes a direct link between agent's actions and pollution suffered by the others. This is because Caney believes that individual responsibilities for global warming cannot be precisely assessed since it is impossible to "trace specific burdens back to earlier individual acts" (Caney, 2005) but this problem can be solved since the groups' actions include this increase in individual global warming. However, public policies and actions to tackle pollution and global warming must be directed to both individuals and groups to be more effective.

In response to the first question, Caney identifies the polluters in four categories, each of which are responsible for global warming to different extent: Individuals, economic corporations, States and global and international regimes and institutions (Caney, 2005).

- Individuals pollute as far as they use electricity for heating, cooking, lighting, televisions, and computers and they drive cars and take different kinds of transport

---

of the world carbon emissions from 1950 to 1986 found out that United States, with about 5 percent of the world's population at that time, was responsible for 30 percent of the cumulative emissions, whereas India, with 17 percent of the world's population, was responsible for less than 2 percent of the emissions (Hayes, Smith, 1993).

to travel. For this reason, it is reasonable to argue that everyone should ideally pay for the compensation of his or her share of atmosphere.

• Economic corporations are responsible for global warming to the extent that they produce greenhouse gas emissions consuming fossil fuels and bringing about deforestation. According to the Carbon Majors Report (Griffin, 2017), 100 companies have been responsible for 71% of global industrial emissions and 25 corporate and state-owned entities have accounted for 50% of the world's greenhouse gas emissions since 1988.

• States are considered the main unit of analysis since the bulk of environmental research is carried out at national level or, as for the international and global level, keeping the State as the main agent.

• Global and international regimes and institutions establish patterns of development and make an impact on the relations between individuals, corporations and States. In this way, they affect their decisions and activities which determine the distribution of the usage of the atmosphere and worsen or improve the causes of the ecological crisis.

Concerning the second question, the *Polluter Pays* principle lacks to evaluate the case in which polluters could not have known that certain activities were harmful. However, the advances in science have allowed always more accurate evaluations of the harm created by pollution caused by specific human activities. Therefore, it might be said that this problem is more related to far past pollution than to the recent era. This is the line of Peter Singer who believes that the objection of ignorance is inapplicable for post-1990[9] emissions since it has been known for a considerable period that fossil-fuel consumption and deforestation cause global climate change (Singer, 2004). According to this view, the greenhouse emission that took place before 1990 should be left unaddressed or attributed to developed countries. Moreover, ignorance may not be considered an excuse in favor of a stricter standard of liability to prevail, as far as developed countries reaped the benefits of their early industrialization. Nevertheless, nowadays, the progress in technology makes certain activities more elaborate and complex to be evaluated and there is still slight uncertainty about the level of danger of some substances. For instance, there is a controversy about the sustainability of electric vehicles since, according to a 2012-Norwegian study (Owano, 2012), their life cycle and electricity fuel produced by fossil-burning factories may make electric cars more harmful than conventional vehicles. The issue of indeterminacy of the dangerousness of specific human activities cannot be underestimated but it can be balanced by the compensation of those activities which are proved to be polluting. However, the problem of greenhouse emissions produced in a time when people were still unaware about their harm for the atmosphere remains unsolved. Thus, Caney maintains that "an unqualified *Polluter Pays* principle is unfair on those people who were high emitters of greenhouse emissions but who were excusably ignorant of the effects of what they were doing" (Caney, 2005). Another counterargument, which can provide a response to this objection, is the supposition that before 1990 there were reasons to suppose that greenhouse gases were harmful so that they should have adopted a cautious approach and their responsibility is linked

[9] In 1990 the intergovernmental Panel on Climate Change published its first report clearly identifying the hazards associated with emissions (Houghton, et al., 1990; IPCC, 2001).

with their lack of wise foresight. The objection of ignorance can be rejected only accepting that ignorance is not a justification for environmental harmful activities and resting on the cautious principle.

Moreover, Caney points out that even though *Polluter Pays* principle is intuitively just and acceptable in theory, its exact and efficient implementation is questionable in practice. His view of global environmental justice rest on three main arguments: (a) we can only permissibly emit greenhouse gases within a certain range, (b) we must compensate other if we exceed this range, and (c) the most advantaged states have a duty to create global institutions to discourage non-compliance (Caney, 2005). For Caney, polluters must be held accountable and they must be forced to comply. Furthermore, Caney agree with Singer on the fact that different countries must be treated differently since they are differently responsible for climate change. Indeed, poor States are permitted higher emissions than the global rich countries because the least advantaged States must not shoulder the burden of the reparation of the environmental degradation for which they are less responsible.

Beside the *Polluter Pays* principle and Caney's arguments of environmental justice, it is worth to discuss a time-slice principle of egalitarianism by Singer which refers only to the current situation and can enrich the theory of a global environmental justice, that is the egalitarian principle of *an equal share for everyone* (Singer, 2004). Indeed, according to this principle everyone should have equal right to part of the atmospheric capacity to absorb gases and, therefore, none have a greater claim to part of it than the others. To this end, it is necessary to understand what total level of carbon dioxide emissions is acceptable. Considering emissions at the global level, to stabilize them at their present level the allocation per person should be about 3,67 tons per year (Singer, 2004). If we compare the basic equitable entitlement with the actual per capita emissions of key countries it is evident the unfair distribution of the common resource of the atmospheric capacity to absorb emissions. Data from the World Bank show that in 2014 Qatar carbon dioxide emissions were 45,4 per person, United States emissions were 16 tons per person per year, Australia had 15,4 tons per capita and Italy had 5,3 tons per person while Ethiopia, Madagascar, Mali, Niger, Rwanda, South Sudan accounted for 0,1 tons per capita[10]. If we have a look to regional emissions per capita, the inequality gets even more evident. North America accounted for 16,4 tons per person, European Union for 6,4 tons per person while South Asia had 1,5 tons per capita and Sub-Saharan Africa 0,8 tons per person. This means that according to the equal distribution of annual carbon dioxide emissions North American and European countries must reduce consistently their emissions to fall within the threshold while South Asian, and even more, Sub-Saharan African countries are allowed to increase their emissions as long as they do not overcome the limit. Therefore, the environmental egalitarian principle seems to represent a just, acceptable principle to cope with the ecological crisis since it provides solid normative ground to elaborate policies and actions to tackle the current unequal distribution of a common resource as the atmospheric capacity to absorb emissions, and it constitutes a valid effort for the stabilization of the carbon emissions.

[10]Data from Carbon Dioxide Information Analysis Center, Environmental Sciences Division, Oak Ridge National Laboratory, Tennessee, United States (World Bank, 2014).

Conclusion

Over the past 50 years, humans have changed ecosystems more rapidly and extensively than in any comparable period in human history, largely to meet rapidly growing demands for food, fresh water, timber, fiber, and fuel. This has resulted in a substantial and largely irreversible loss in the diversity of life on Earth (Millennium Ecosystem Assessment Board, 2005). Experts of environmental justice, along with the majority of the scientific community, underline the urgency of a global action to make the Earth's health recover and to ensure the fair distribution of the environmental goods and bads along with people's political inclusion, capabilities and recognition. This article has stressed the point that the ecological crisis can jeopardize the survival of the human species on this planet and, thus, urges to be tackled collectively and to be put at the core of the global political agenda. The current debate on the principles of global environmental justice relies mainly on the work of Peter Singer and Simon Caney, which are considered the pioneers in the field of normative theories of environmental justice, however a comprehensive theory of global environmental justice has not been yet conceived and there are many aspects of the topic not yet explored. This article has tried to tackle one of them, i. e. the justification of a theory of global environmental justice ruling human behaviour in the light of the priority of the obligation to respect the Earth's biological equilibria which, evidence from exact science says, are crucial for the life of the human being on this planet. After the analysis of the historical and anthropological causes of the ecological crisis and the critical assessment of the elements of environmental justice sketched out by the above-mentioned authors, the findings of this article can be summed up in the following three points (all of them drawn on the urgency of a drastic reduction of the human impact on the Earth's health): (a) since anthropocentrism is one of the anthropological reason of the human responsibility for the ecological crisis the *evaluative* and *psycho-behavioural* (of non-anthropocentrism) theses offer an alternative behavioural model which, attributing the appropriate importance to the intrinsic value of natural non-human things, can make humankind cope with the ecological crisis; (b) any conceptions of environmental justice ought to rest on the solid assumption that the global distribution of resources, such as the atmosphere, and the related burdens and benefits, ought to be established within the ecological limits drawn by the hard sciences; (c) a comprehensive theory of global environmental justice ought to combine the equal and sustainable distribution of the scarce ecological assets (*an equal share for everyone*) the with fair compensation for past unequal use of them (*polluter pays principle*) taking into consideration the practical feasibility of the normative principles outlined.

These elements of a theory of global environmental justice can help to envision political recommendations and to conceive sustainable patterns of behaviour and development to cope with the most relevant issues related to the environmental degradation. Accordingly, further investigations ought to be directed toward the assessment of the benefit and burden related to the distribution of the ecological assets, such as the atmosphere, in relation to the biological limits which humankind must not overcome. Another line of research is represented by the analysis of the best practical application of the normative principles of global environmental justice and their potential to resolve the ecological crisis. Moreover, the points sketched out by this article and, more generally, the debate on a theory of global environmental justice, can

also help to raise awareness about this crucial issue and inspire virtuous individual attitudes and actions which can foster the recovering of Earth's health. In fact, even though regions in the world differ in endowments availability and natural resources management, and each culture has its own approach toward the environment, the harm generated by the ecological crisis affects the whole humanity. The gravity of this crucial issue has been widely underlined by the studies coming from hard sciences, now it is the time for social scientists from all over the world to learn from these lessons and develop and foster social pattern of sustainable behaviour along with clear normative norms of environmental justice.

References

1. Brennan, A., Lo, Y. (2015). *Pathologies of Environmental Crisis – Theories and Empirical Research*. Stanford Encyclopedia of Philosophy.
2. Caney, P. (2005). Cosmopolitan Justice, Responsibility, and Global Climate Change. *Leiden Journal of International Law, 18*(4), 747–775.
3. Earth Overshoot Day. (2020). *Past Earth Overshoot Day*s. Retrieved October 15, 2020, from http://www.overshootday.org/
4. Fraser, N., & Honneth, A. (2003). *Redistribution Or Recognition? A Political-philosophical Exchange*. New York: Verso.
5. Griffin, P. (2017). *Carbon Major Reports*. London: Carbon Disclosure Project. Retrieved November 4, 2020, from https://b8f65cb373b1b7b15feb-c70d8ead6ced550b4d987d7c03fcdd1d.ssl.cf3.rackcdn.com/cms/reports/documents/000/002/327/original/Carbon-Majors-Report-2017.pdf?1499691240
6. Hardin, G. (1968). The tragedy of the commons. *Science, 162*(3859).
7. Hayes, P., & Smith, K. (Eds.). (1993). *The Global Greenhouse Regime: Who Pays?* United Nations University Press. Retrieved November 7, 2020, from http://archive.unu.edu/unupress/unupbooks/80836e/80836E00.htm
8. Houghton, J.T., Jenkins, G.J., & Ephraums, J.J. (Eds.). (1990). *Scientific Assessment of Climate Change – Report of Working Group I*. Cambridge University Press.
9. Intergovernmental Panel on Climate Change (IPCC). (2007). *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press.
10. Locke, J. (1980). *Second Treatise on Civil Government*. C.B. Macpherson (Ed.). Indianapolis: Hacket.
11. Meadows, D.H., Meadows, D.L., & Randers, J. (2004). *Limits to growth: The 30-year update*. Chelsea Green Publishing.
12. Meadows, D.H., Meadows, D.L., Randers, J., & Behrens, W. (1972). *The limits to growth*. New York: Universe books.
13. Millennium Ecosystem Assessment Board. (2005). *Ecosystems and Human Well-being: Synthesis. Island Press*. Washington DC: Island Press.
14. Moncrief, L.W. (1970). The cultural basis for our environmental crisis. *Science, 170*(3957), 508–512.
15. Nozick, R. (1984). *Anarchy, State and Utopia*. New York: Basic Books.

16. Nussbaum, M. (2011). *Creating Capabilities*. Cambridge: Harvard University Press, Cambridge (US).

17. Owano, N. (2012). *When green turns toxic: Norwegians study Electric Vehicle life cycle*. Retrieved November 8, 2020, from https://phys.org/news/2012-10-green-toxic-norwegians-electricvehicle.html

18. Schlosberg, D. (2007). *Defining Environmental Justice: Theories, Movements, and Nature*. New York: Oxford University Press.

19. Schwartz, P., & Randall, D. (2003). *An Abrupt Climate Change Scenario and Its Implications for United States*. Global Business Network.

20. Sen, A. (1984). *Resources, Values and Development*, Cambridge: Harvard University Press.

21. Shrader-Frechette, K. (2002). *Environmental Justice: Creating Equality, Reclaiming Democracy*. Oxford: Oxford University Press.

22. Simpson, J., & Speake, J. (2008). *The Oxford Dictionary of Proverbs* (5th ed.). Oxford: Oxford University Press.

23. Singer, P. (2004). *One World, The ethics of globalization*. New Haven: Yale University Press.

24. Smith, A. (1776). *The wealth of Nations*. London: W. Strahan and T. Cadell.

25. Taylor, C. (1992), The Politics of Recognition. In A. Gutmann (Ed.), *Multiculturalism: Examining the Politics of Recognition*. Princeton: Princeton University Press.

26. The Editors of Encyclopaedia Britannica. (2018). Austrian School of economics. Retrieved October 27, 2020, from https://www.britannica.com/topic/Austrian-school-of-economics

27. White, L. (1967). The historical roots of our Ecological Crisis. *Science, 155*(3767), 1203–1207.

28. World Bank. (2014). *CO2 emissions (metric tons per capita).* Retrieved November 8, 2020, from https://data.worldbank.org/indicator/EN.ATM.CO2E.PC

29. Young, I.M. (1990). *Justice and the Politics of Difference*. Princeton: Princeton University Press.