

# Theoretical and methodological bases of Critical Bioethics facing the challenges of the Anthropocene

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## Abstract

Critical Bioethics proposes a theoretical and methodological foundation starting from self-criticism about the field of bioethics itself, as well as the production of knowledge and technology as a whole, seeking to identify how ethical discourses are often used to hide agendas and interests that go contrary to what is expected from any bioethical production: the defense of health and life in its broadest aspect. This work presents an introduction, through an investigation of a theoretical and reflective nature, the main elements of Critical Bioethics, its insertion in the debate with other approaches in the area and its methods of methodological application. By considering some challenges related to the emergence of socio-environmental conflicts, and in dialogue with productions from studies on the Anthropocene and criticisms of the Capitalocene, the article concludes with an initial proposal for expanding its theoretical corpus.

**Keywords:** Bioethics. Critical Theory. Biopolitics. Dangers to the Environment.

## INTRODUCTION

The constitution of the field of Bioethics, in the early 1970s, reflects two major historical processes whose first impacts were perceived in the individual, collective and global dimensions of health: on the one hand, the appearance of the first consequences of climate, environmental and ecological changes that began in the context of the industrial revolution; on the other hand, the emergence and uncertainties related to research involving human beings and new reproductive, pharmaceutical and genomic biotechnologies.

The emergence of these two processes in the health field parallels the establishment of what Michel Foucault<sup>1</sup> called biopower; that is, as a specific form of rationalization of the

political government of human vital circuits, also initiated in the late context of the industrial revolution. Foucault's reflections on biopower appeared in the mid-1970s, shortly after Van Rensselaer Potter presented, in 1971, bioethics as an interdisciplinary theoretical proposal aimed at investigating the ethical parameters necessary to face new risks to health, human life and to planetary survival itself<sup>2</sup>.

In that period, the development of bioethics occurred in two major theoretical strands: "Global Bioethics" and "Clinical Bioethics". The first aspect, identified by Potter himself, focuses on conflicts related to the planetary demographic transition which, in the 1970s, pointed to the rapid increase in

both the quantity and longevity of the human population on the planet in a parallel movement of worsening of social and environmental problems.

According to Potter, such problems were related to the fundamentalism of the sacredness of the dollar, that is, to an irresponsible form of expansion of unregulated capitalism that was the cause of serious global problems that would worsen in the following decades, such as climate change and widespread misery. The confluence between profound demographic changes and the expansion of unregulated capitalism was already pioneered by Potter as the greatest threat to the survival of planetary civilization due to anthropogenic causes<sup>3</sup>.

It turns out that, by defending bioethics as a vital space for the ethical regulation of economic growth and scientific development with the aim of protecting planetary survival, the American Van Potter violated non-negotiable aspects of ethical-political discourses from both the liberal and conservative spectrum of his country. This is because, on the one hand, it considered that market fundamentalism based on the “sacredness of the dollar” (that is, on discourses that centralize profit as the ultimate purpose of social organization) reproduced a morality incompatible with the adequate survival of planetary civilization, a reason which would require major global economic decisions to be tested and standardized in terms of “bioethical” values.

However, considering the consequences of demographic transitions that were associated with the increase and aging of the global population, Potter also defended the need for more effective voluntary population control, criticizing religious discourses that prohibited the advancement of reproductive health policies in the world, such as the regulation of abortion and the expansion of contraceptive family planning policies. To these discourses, defined as fundamentalisms supported by the “sacredness of life”, the author also proposed

a confrontation, directing bioethics as a field to regulate religious values that put planetary survival at risk<sup>3</sup>.

For these reasons, Potter's proposals for global bioethics were not widely publicized until the early 1990s, when his propositions began to be recovered by European and Latin American authors. In the context of continental European bioethics, the field was characterized by marking the global dimension through its interface with Human Rights, a space in which bioethics was consolidated in great dialogue with philosophical and ethical-political references such as Dignity, Integrity and Responsibility<sup>4</sup>.

In Latin America and the Caribbean, in addition to also incorporating Human Rights references, bioethics was characterized by reinforcing a space for ethical-political construction, emphasizing the collective dimension of health in both the region's typical social problems, such as inequalities, hunger, misery, exclusion, as well as consideration of the geopolitical determinations that underlie the region's serious social conflicts<sup>5</sup>.

Such perspectives, however, are relatively recent and non-hegemonic in bioethics, since, especially in the USA, a more reductionist approach to bioethics persists, focused on the clinical and individual dimension of ethical problems located in research centers and hospitals, and whose resolutions would be resolved by pre-determined ethical principles<sup>6</sup>.

Principlist bioethics is the basic approach to clinical bioethics. It emerged in the 1970s in the United States, by Tom Beauchamp and James Childress, configuring itself as an ethical theory based on the four principles of autonomy, beneficence, non-maleficence and justice<sup>6</sup>. Although principlism is an important dimension of bioethics, the reduction to a perspective focused on individuals and clinical institutions hides the social, political, economic and cultural determinations of ethical conflicts that affected human and non-human life. It is for this reason that when

resuming the global perspective of Potter's bioethics, the bioethics produced in Latin America did so in an emphatically critical way to the field itself<sup>5</sup>.

Therefore, the objective of this work is to synthesize some of the main theoretical and methodological bases of a new Latin American current of bioethics, called Critical Bioethics, which has been established in the last ten years through the collaboration of several

authors, as well as to indicate proposals for its application in the context of worsening global ethical conflicts.

In particular, the aim is to apply it in the analysis of problems related to the Anthropocene, defined as a new geological period marked by irreversible human interventions in the Earth System, which has led to unprecedented risks to the survival of countless forms of life, including human life.

## METHODOLOGY

This is theoretical research that used as a primary source the main productions on Critical Bioethics<sup>7,8,9,10,11,12</sup>. Theoretical research, in the sense proposed by Pedro Demo<sup>13</sup>, is the type of investigation aimed at reconstructing theories, concepts, ideals, controversies with the aim of improving theoretical foundations of an area. As a form of basic research, theoretical research does not imply immediate intervention in reality, but creates the conditions for subsequent intervention.

In bioethics, these interventions can be found in normative productions, in institutional spaces of deliberation, in the formal and

informal educational process, in reports of ethical violations, in the organic composition with social and political movements, among other actions that invariably start from previously established theoretical and conceptual foundations.

In this way, an exhaustive research was carried out on the works published on "Critical Bioethics" since 2012, whose central elements were identified in light of the limits of traditional clinical bioethics and Latin American studies in the area. In analyzing the results, these elements were discussed from perspectives related to studies on the Anthropocene.

## RESULTS

The research results are demonstrated in three topics. The first and second present a contextualization of Critical Bioethics in relation to the theoretical currents of bioethics, especially the Latin American strands and other approaches that are commonly referred to as critical approaches. The third summarizes the theoretical corpus - including the main concepts, references and methodological aspects - of what is substantially called "Critical Bioethics".

### ***Critical Bioethics: background in the Latin American context***

Although the existence of a theoretical and

methodological corpus of "Latin American bioethics" may be questioned, it is possible to affirm that there is a common ethical-political identity. This identity results from the sharing of problems that affect the health and life of the region's population and that are directly related to the processes of European colonization and enslavement, as well as to the recent processes of political, economic and military domination exercised by the United States in the region<sup>14</sup>.

In this regard, according to Mainetti, the fact that the US has directly supported most of the military coups in the region has meant that Latin American bioethics has consolidated

itself with a politicized profile, “more like a political or social reform movement” than an academic discipline restricted to the health area<sup>14</sup>.

In a work that identified the specificities of the discussion on vulnerability in bioethics in Latin America, the politicized characteristic was found in different authors from the region. Such texts mark the discussion about vulnerability in a very different way from principlist bioethics. This occurs because, in addition to the susceptibility to suffering and the risks that affect specific groups, the concept of vulnerability in regional bioethics is related to the social dimension of ethical conflicts, in which the impacts of social inequalities stand out<sup>15</sup>.

In line with the politicized perspective of Latin American thought, Cunha and Lorenzo developed a theoretical and methodological foundation for bioethics called “Critical Bioethics”, specifically focusing on understanding the global problems that affect the area<sup>8,9</sup>. Before presenting it in detail, it is important to distinguish it from other theoretical approaches that also carry the banner of “critical bioethics”.

#### ***Adjective approaches to critical bioethics***

According to Lorenzo, the adjective “critical” has been used in different productions in the field of bioethics. Some of them, produced mainly in English-speaking countries, consider the adjective critical as a way of contrasting empirical studies in the field of bioethics with studies of a critical-philosophical nature<sup>12</sup>.

In Latin America, the adjective “critical” has been used in bioethics to characterize productions that start from an ethical-political problematization of social reality and that propose the primacy of historicity in determining ethical conflicts, as well as their unequal and unfair effects among the most vulnerable in the context of the global capitalist economy.

It is from this perspective, for example, that Garrafa and Porto<sup>16</sup> presented Intervention Bioethics as a way of advancing from *neutral bioethics to a critical, socially committed bioethics* and that Miguel Kottow<sup>17</sup> proposed Re-

flective Bioethics as a critical approach that consists of revealing injustices and awakening from resignation.

Unlike these two approaches, in the formulation of Critical Bioethics this last word is not just an adjective that qualifies its epistemic location, but is understood as a noun, that is, as a specific identification that links the foundation of bioethics to two main theoretical aspects: the Critical Theory of the Frankfurt School and Studies on Coloniality produced in Latin America and the Caribbean.

#### ***Substantive approach to Critical Bioethics***

Critical Bioethics was initially announced by Lorenzo in 2012, when he suggested bringing bioethics studies closer to the Critical Theory of the Frankfurt School as an analytical component to investigate power relations in bioethical conflicts, specifically indicating an approach to deliberative proposals by Habermas<sup>7</sup>.

In 2014, in Cunha's doctoral thesis, supervised by Lorenzo, the methodological and ethical-political difficulties of Habermas' reconciliatory references were demonstrated<sup>9</sup>. In its place, a formulation for Critical Bioethics was proposed that emphasizes the first generations of Frankfurt Critical Theory, especially Horkheimer and Marcuse and the first works of Robert Cox, a Canadian author in the field of international relations influenced by Critical Theory.

Furthermore, seeking to reduce the limitations of the Eurocentric biases – albeit critical – of the Frankfurt school, dialogues with Studies on Coloniality were added to Critical Bioethics, produced by authors from Latin America, such as Henrique Dussel, Laura Rita Segato and Flor do Nascimento. These studies start from a denunciation of the epistemic dominance of modern rationality based on an ideal of European whiteness that continues to have concrete repercussions on the hierarchization of knowledge, powers and lives themselves in the capitalist management of the world.

In this way, instead of Habermas's proce-



dural approach to discourse ethics, which is strongly supported by a modern rationality - and which, therefore, is incapable of perceiving the effects of its own colonial hierarchization - a dialectical methodology was proposed for Critical Bioethics<sup>9</sup>. This approach is based on the confrontation between theses and antitheses of ethical discourses, starting from the unveiling of the material and subjective contradictions found in the historical and structural processes in which such ethical discourses are reproduced. This methodology was inspired, above all, by the propositions of Brazilian sociologist Pedro Demo<sup>18</sup>.

Thus, in Cunha's methodological approach to Critical Bioethics<sup>8,9</sup>, the focus is not necessarily the definition of consensus established in an arbitrary form of communicative rationality in the Habermasian sense, but the unveiling of discursive conflicts and contradictions that, on the one hand, exclude people who are not subject to the colonial standard from bioethical deliberation. of modern rationality and who, on the other hand, use bioethical discourse to legitimize processes that are opposed to what, as already indicated, should be the basic commitment of bioethics: the defense of life and health in their maximum expansion and depth; and not just the life and health of certain groups that are historically privileged due to their ethnic-racial and political-economic conditions.

In summary, in this formulation, Critical Bioethics can be defined as studies that start from a dialectical problematization about bioethical production seeking to verify, on the one hand, how the discourses in this field are focused on legitimizing the hegemonic interests of biopower (especially the interests that overlap with health and life). At the same time, Critical Bioethics proposes new syntheses that centralize the defense of the health and lives of people and groups that are being relegated to the greatest damage and suffering caused by the expansion of global capitalism<sup>9</sup>.

In this way, Critical Bioethics is also linked

to the original perspective of bioethics itself, repositioning it as an area concerned with health that includes hospital and clinical dimensions, but which goes beyond, contextualizing ethical conflicts to a global dimension, such as was the "science of survival" proposed by Potter<sup>2,3</sup>.

It was to better understand the process of global organization of politics and economy that Critical Bioethics, from Cunha's perspective, began to adopt among its references the works of Cox that explain the structuring of the so-called "World Order", consolidated in the 20<sup>th</sup> century by starting from the formation of a new hegemonic transnational civil society<sup>19</sup>. According to Cox, this world order is the result of the concentration of wealth within and between countries that forms a very specific type of "global governance without government", which he called the "great nebula"<sup>19</sup>.

According to Cox, the 'nebula' governance structure of the world order determines the modes of social reproduction of life based on the constitution and dominance of different formal and informal spaces of influence of global political and economic governance (such as OECD, International Monetary Fund, World Bank, United Nations), in addition to other more discreet spaces, such as restricted meetings, international clubs, spaces for links with criminal factions and organizations, closed fraternities, etc. Cox specifies that this exclusionary and illegitimate world order favors groups that have simultaneous instrumental control over three forces:

1. material capabilities, represented by financial resources and means of production;
2. ideas, represented by intersubjective notions that perpetuated collective habits, behaviors and images that legitimized power, including their own scientific and moral ideas; and
3. institutions, including the various apparatuses of central countries and international non-governmental organizations responsible for articulating ideas and material capabilities, with a view to stabilizing and perpetuating the

world order<sup>9</sup>.

By linking Cox's diagnosis to Critical Bioethics, Cunha and Lorenzo<sup>8,9</sup> elucidate how bioethics productions act to legitimize or question ideas, ideologies, intersubjective notions that are expressed in the forms of principles, rules, norms, moral devices, etc., and which act as one of the forces in the processes of determining health and disease, or even life and death, in the context of the current world order.

In this way, Critical Bioethics can understand, following Cox, how the current world order structures the division of people in the world into three fundamental groups, defined according to their possibilities of access to biotechnological benefits produced from the dominant political and economic matrix:

1) The first group are the “integrated”, that is, the members of internationalized civil societies who exercise their own power in the context of the “nebula” and who enjoy the maximum benefits of economic and scientific development, while being exposed to the minimum damage that results. of this process;

2) the second group are the “precarious”, workers or groups of people with low and medium income who access secondary benefits from global production and who suffer difficulties and disabilities dependent on fluctuations in the current order;

3) the third group are the “excluded”, those who are completely rejected from the processes of political and economic organization of the world, outside the mechanisms of production and consumption, being totally exposed to poverty, hunger, lack of housing<sup>9</sup>.

It turns out that, as Flor do Nascimento warns<sup>20</sup>, It is essential in bioethical discussions not to abstract from comprehensive categories that are often hidden in notions such as “vulnerable”, “excluded”, etc. Therefore, it is necessary to identify precisely who are the subjects who are precarious and excluded in the context of the “great nebula” of the world order. Due to the inherent defects of Eurocentric rationality that permeate Cox's thinking, it

was not possible to address the issue within the framework proposed by him.

So, it was also for this reason that Critical Bioethics emphasized the incorporation of contributions from Studies on Coloniality, which brought to the framework a look at the “modern/colonial world-system” with much deeper historical roots than those found in the approach Cox review.

This is because, while Cox placed the structuring bases of the current world order in the context of the Enlightenment, Dussel<sup>21</sup> analyzed the formation of the “World-System” following the colonization of the Americas, when Europe began to obtain the “comparative advantage” that would allow it to control the entire planetary system of political, economic and cultural ordering. This European base remained active until it was overcome in the 20th century by the United States, whose colonial management mechanism, far from being modified, was updated and strengthened in the form of a new ‘coloniality’.

As highlighted by Nascimento<sup>20</sup>, this form of coloniality maintains the ethnic-racial hierarchies of the process of colonization of life, marking the processes of exclusion and precariousness of people's lives based on their proximity or distance from the colonial, white, Euro-American standard. From this perspective, decolonial studies demonstrate that the advent of modern rationality was not due to a supposed intrinsic cultural superiority, based on the biological advantages of the ‘white race’, or the religious graces granted by the ‘Christian faith’. European colonial ideology attempted to justify the process of colonization and enslavement based on racial and spiritual superiority, however, the way in which this process took place was the result of a need to establish management mechanisms over the American colonies whose conquest was only occasionally led by European nations<sup>19,20</sup>.

Therefore, Studies on Coloniality allow Critical Bioethics to deepen the self-criticism of its own field, since the rationality that sustains

the productions of bioethics is also the instrumental result of a dialectical process that opposed colonizers (Euro-American whites) and colonized (non-white people). In this case, the former represent progress, the new, development, the center of the world, and the latter, backwardness, the archaic, stagnation and the periphery that would need to be 'modernized', "normalized".

The synthesis of these different currents that underlie Critical Bioethics allows us to define it as a theoretical and methodological reference for investigations in bioethics that demonstrates, based on concrete problems typical of applied ethics, how the governance mechanisms of the 'great nebula' affect health and the lives of vulnerable populations, based on the consideration of the effects of coloniality on the ethnic-racial division of the world, dialectically situating it as a tool for biopolitical clashes.

The statement regarding biopolitics is possible because, in the propositions of Critical

Bioethics, while biopower is understood in the sense of Foucauldian control, that is, as a way of managing life that was established in the most advanced stages of modernity, biopolitics is assumed in the emancipatory sense proposed by Hardt and Negri. According to these authors: "*Biopower is located above society, transcends, as a sovereign authority, and imposes its order. Biopolitical production, in contrast, is immanent to society, creating social relations and forms through collaborative forms of work*"<sup>22</sup>.

In this way, biopolitics is positioned as a way of confronting biopower itself as long as it is assumed as a task of the global "crowd", that is, by what Hardt and Negri consider as a body constituted by the network of "singularities" of people and groups who share the "common" in relation to the consequences of biopower, that is, for all of us who "*share life on this planet, share capitalist regimes of production and exploitation, share dreams of a better future*"<sup>22</sup>.

## DISCUSSION

As presented, one of the main arguments of Critical Bioethics is that in the dialectical tension between biopower and biopolitics, bioethics situates itself in two antagonistic ways: a) as an instrument of biopower, when aimed at legitimizing colonial life management systems, facilitating, for example, the disposition of human bodies for the exploitation of certain clinical research industries, as has already been insistently denounced by several authors in the field<sup>5,7,8,10,11</sup>, or b) in contributing to biopolitical confrontations, as do authors, especially Latin Americans, who use bioethics both as a platform to denounce the unethical acts of established powers, and to promote citizenship, fundamental rights, inclusion or social emancipation<sup>9,12,14,16,17,20</sup>.

The proposals of Critical Bioethics, from a biopolitical perspective, were tested consider-

ring the health agenda included in the Sustainable Development Goals (SDGs)<sup>9</sup>. The results showed that, in general, the ethical arguments used to justify the inclusion of health topics in the SDGs are mere discursive resources to legitimize, above all, the maintenance of commodified economic structures in global health. In this way, the objectives and targets of the SDGs reproduce both the hierarchies of the world order, as identified by Cox, and the ethnic-racial hierarchies identified in decolonial studies.

The methodology proposed by Critical Bioethics also allowed us to verify that the SDGs hid a major setback in the understanding of health as a human right under the responsibility of States, at the same time that it reduced this right to a minimalist approach, focused on the concept of "Universal Health Coverage"<sup>9</sup>.

However, based on the analysis proposed

in this work, a critique can be made of Critical Bioethics itself, insofar as it is noted an important absence, in the current state of its art, of reflections and references that allow it to explicitly verify the socio-environmental dimension of bioethical conflicts.

In this sense, it may be important to incorporate into Critical Bioethics studies the interdisciplinary contributions of Studies on the Anthropocene, which has been repositioning the theme of the survival of human and non-human life at the center of its productions. Studies on the Anthropocene, especially in its critical aspect of the so-called Capitalocene, encompass contributions from different areas, such as anthropology, geology, biology, philosophy, among others.

These studies correspond to a series of theories, research, propositions or movements, very different from each other, that emerged from the 2010s onwards, such as: the conference “The Thousand Names of Gaia: From the Anthropocene to the Age of the Earth”, held in Rio de Janeiro, in 2014<sup>23</sup>; the publication of the book “The Fall of Heaven – words of a Yanomami shaman”, by Kopenawa and Albert<sup>24</sup>; the series of conferences by Bruno Latour at the “Gifford Lectures” since 2013<sup>25</sup>; the publication of the Encyclical *Laudato Sí*, by Pope Francis in 2015<sup>26</sup>, the publication of Jason Moore's books on the Anthropocene and Capitalocene<sup>27</sup>, the publications of ecofeminist authors such as Anna Tising<sup>28</sup> and Donna Haraway<sup>29</sup>, in addition to the important contributions of Brazilian anthropologists Deborah Danowski and Eduardo Viveiros de Castro<sup>30</sup>.

Although without much echo, these risks to survival, associated with the “Gaia uprising” denounced by Latour<sup>25</sup> or to the “Cries of the Poor and the Cries of the Earth” warned by Pope Francis<sup>26</sup>, had already been pointed out by different Bioethics authors since the 1970s, especially in Potter's approach.

However, these problems have only come to be considered more emphatically in recent years, especially when the risks to survival

have been determined by empirical studies, such as those summarized by the UN Intergovernmental Panel on Climate Change, as well as by papers published in journals of great impact, such as the special issue of Nature journal<sup>31</sup>. In this issue, nine biophysical processes of the Earth System were identified that, in the process of being overcome, will lead to unbearable environmental changes for planetary life. These biophysical processes are: 1) climate change; 2) ocean acidification; 3) stratospheric ozone depletion; 4) use of fresh water; 5) loss of biodiversity; 6) interference in global nitrogen and phosphorus cycles; 7) changes in land use; 8) chemical pollution; 9) atmospheric aerosol rate<sup>31</sup>.

Among the countless debates about the Anthropocene era, it is possible to identify several antagonistic ethical perspectives, from those that are more naive, that seem to believe in some unexpected salvation through technology, to those that are more catastrophic, that point to the inevitability of the process of mass extinction in the short term. Dialogues also appear with proposals for ethical, political and cultural confrontation, about the ontological bases that “brought us here”, including overcoming modern Euro-American rationality.

In the latter case, these are interdisciplinary propositions from the social and human sciences, or even theology, as is the case with the presentation of the “Common Home” in Pope Francis' *Laudato Sí*, which point to an alternative worldview of inhabiting the world. These worldviews, which are not homogeneous among themselves, lead to a new way of understanding and relating to life. In Davi Kopenawa and Bruce Albert, for example, the “end of the world” is understood simultaneously as a scientific, political and spiritual event, whose “experience” demands a profound resumption of indigenous knowledge, as well as criticism of the ideals of progress and development established by what the Yanomami call “commodity peoples”<sup>24</sup>.

In any case, whatever the approach – naive,



fatalistic or critical – the fact is that bioethics as a whole has not consolidated a robust theoretical interface or a consistent dialogue with studies on the Anthropocene and the critique of the Capitalocene. Given the references presented in this work, it is understood that Critical Bioethics can be an appropriate theoretical and methodological front for this necessary work in the future.

With the incorporation of these studies, possibilities for Critical Bioethics research emerge, aiming to investigate, for example, how the natural wealth and biodiversity of the poorest countries are monopolized by agribusiness production or international mining, favoring the integrated people of the great nebula, while precarious and excluded groups,

especially the indigenous populations of the forests and the people black people from the outskirts of large cities are subject to environmental damage and poverty. This serious bioethical conflict of a global nature is just one example of countless problems that can only be adequately observed from a critical and interdisciplinary perspective on the socio-environmental dimensions that permeate “Gaia”, the “Common Home”.

Finally, these suggestions indicate the relevance, or even the need, for dialogue between different theoretical currents and categories so that today's bioethical conflicts, which are marked by global complexities and interdependencies, can be understood and faced in a more decisive way.

## CONCLUSION

This work synthesized the main theoretical and methodological aspects of Critical Bioethics, placing it in the field of Latin American productions in the area and presenting examples of its application in research in the area of global health.

By recognizing some challenges regarding the socio-environmental emergence within the scope of Critical Bioethics, and adding to its theoretical corpus, albeit in a preliminary way, the contributions of studies on the Anthropocene and Capitalocene, the call is made for

researchers from different areas to take part in the process of continuous construction of Critical Bioethics.

By opening up dialogue with other interdisciplinary productions, simultaneously recognizing the “Gaia” uprising and listening to the “Cry of the Earth” and the “Cry of the Poor”, it is hoped that Critical Bioethics can contribute to the strengthening of biopolitical struggles which, according to studies on the Anthropocene, will invariably intensify in socio-environmental contexts during the coming decades.

## CREdiT author statement

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