Climate disasters and the difficult human/nature relationship

Desastres climáticos e a difícil relação homem/natureza

Catástrofes climáticas y la difícil relación entre el hombre y la naturaleza

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ABSTRACT
Environmental disasters are concrete examples of the difficult coexistence between man and nature and expose the fragility of ecosystems and the urgent need to rethink the development model of contemporary society. With a socio-political approach, the text analyses the relationship between man and nature and the environmental tragedies caused by global warming, denouncing the development process of industrialised societies and questioning the environment destroyed by the diversity of human actions. It discusses extreme weather events that have resulted in major environmental disasters, both in Brazil and in other countries, and provides quantitative data on the victims of these disasters. It reveals the unequal distribution of income and space that exposes the most vulnerable populations to the rigours of climate change and argues that man's predatory relationship with nature is the driving force behind environmental degradation and is based on the unethical interests of the market. He concludes on the importance of urban planning, the projection of more humane spaces and obedience to environmental protection laws.

Keywords: environmental disasters, vulnerable population, impacts, climate changes.
RESUMO
Os desastres ambientais são exemplos concretos da difícil convivência entre o homem e a natureza e expõem a fragilidade dos ecossistemas e a urgência de repensar o modelo de desenvolvimento da sociedade contemporânea. Com uma abordagem sociopolítica, o texto faz uma análise sobre a relação Homem/Natureza e as tragédias ambientais causadas pelo aquecimento global, denunciando o processo de desenvolvimento das sociedades industrializadas e questionando o ambiente destruído pelas diversidades das ações humanas. São abordados os eventos climáticos extremos que resultaram em grandes catástrofes ambientais, tanto no Brasil quanto em outros países e são fornecidos dados quantitativos sobre as vítimas desses desastres. Revela a desigual distribuição de renda e de espaços que expõe as populações mais vulneráveis aos rigores das mudanças climáticas e argumenta que a relação predatória do homem sobre a natureza é o motor da degradação ambiental e tem sua base de sustentação nos interesses pouco éticos do mercado. Conclui sobre a importância do planejamento urbano, a projeção de espaços mais humanos e a obediência às leis ambientais de proteção ao meio ambiente.

Palavras-chave: catástrofes ambientais, população vulnerável, impactos, alterações climáticas.

RESUMEN
Las catástrofes medioambientales son ejemplos concretos de la difícil convivencia entre el hombre y la naturaleza y ponen de manifiesto la fragilidad de los ecosistemas y la urgente necesidad de repensar el modelo de desarrollo de la sociedad contemporánea. Con un enfoque sociopolítico, el texto analiza la relación entre el hombre y la naturaleza y las tragedias medioambientales provocadas por el calentamiento global, denunciando el proceso de desarrollo de las sociedades industrializadas y cuestionando el medio ambiente destruido por la diversidad de acciones humanas. Analiza los fenómenos meteorológicos extremos que han provocado grandes catástrofes medioambientales, tanto en Brasil como en otros países, y ofrece datos cuantitativos sobre las víctimas de estos desastres. Revela la distribución desigual de la renta y del espacio que expone a las poblaciones más vulnerables a los rigores del cambio climático y argumenta que la relación depredadora del hombre con la naturaleza es el motor de la degradación ambiental y se basa en los intereses poco éticos del mercado. Concluye sobre la importancia de la planificación urbana, la proyección de espacios más humanos y la obediencia a las leyes de protección del medio ambiente.

Palabras clave: desastres medioambientales, población vulnerable, impactos, cambio climático.

1 INTRODUCTION

Since the dawn of time, man has sought to transform nature and make use of it, and this relationship has been the driving force behind environmental degradation. However, it is only since the last four decades that the problem has received attention, perhaps because the personal and economic damage that afflicts many regions is more visible. As a result, since 1972 the subject of the environment has been addressed at world conferences, resulting in the creation of
national and international protection organisations, specific laws, and curricular subjects. Part of this awakening was the publication of the document "The Limits of Growth", which alerted the world to crucial problems that highlighted the contrasts between the prevailing economic model and the environment. Problems such as energy, sanitation, pollution of ecosystems, health and population growth began to occupy the agenda of discussions on the limits of the globe, but this debate, which is obligatory in intellectual circles, in practice has not been able to involve the population and, as a result, the process of the wear and tear of natural resources is not understood, making the picture of the current reality frightening.

It is unquestionable that this mobilization has produced changes in the field of consciousness and created a new "social paradigm", but the changes are still insufficient and the concept of sustainability, which affirms the need for interaction between man and nature, the need for a balance between giving and taking, between preserving and enjoying, seems unattainable. This nascent environmental awareness, which is beginning to call the capitalist model into question, is not enough to overcome the mystifying power of the system, whose imperative is to constantly increase profitability. As a result, it is also unable to disseminate knowledge of the problems affecting current and future populations. The resulting cultural alienation has harmful effects on nature and on man himself, creating a gap between the restricted world of science and society.

Profound transformations in the environment and also in society are evidence of the deterioration of nature as a result of the process of development at any cost. Its effects can be felt in all kinds of ways, involving activities such as the excessive production of rubbish, the use of pesticides, the destruction of forests, green areas, and bodies of water in cities, the extinction of fauna and flora, atmospheric pollution, contamination of water tables, soil contamination, energy imbalance and many others. Just to highlight one of the most damaging transformations, it is worth mentioning the accelerated process of urbanisation whose intense effects even go beyond the limits of cities, as they segregate populations into ghettos of poverty, implying social injustice and, therefore, unsustainability. There is a great imbalance of space and opportunities, and the flow of benefits has been directed, favouring the already privileged.

This article discusses the relationship between man and nature and the main causes of the environmental disasters stimulated by extreme climate change that are plaguing the world and challenging governments, affecting social groups to varying degrees. Without discarding the
importance of the technical approach, the aim here is to move the debate towards a social and political approach, since these are phenomena internal to the very dynamics of societies that are multiplying and claiming mainly the most vulnerable populations. Despite this, the discussions are not yet consistent enough to change behaviour and stimulate efficient public policies.

2 HOW IT ALL BEGAN

At the beginning of man's history on Earth, the manipulation of the resources available in nature did not constitute degradation, because by respecting the natural cycles of production, nature was able to renew itself and replenish its losses. History tells of prehistoric peoples who lived in harmony and balance with each other and with nature, and it is reasonable to conclude that the core of the environmental problems of this "civilised" world lies in the relationship that human beings establish with the environment to which they belong. In fact, this relationship of belonging can only be felt because of the unequal nature of relationships. Egalitarian societies were and still are formed in an integrated way with nature. An example of this are the thousands of ethnic groups that inhabit territories with "[...] conserved natural characteristics, where alterations for human use have been made in such a way as to allow the dynamics of ecosystems to remain balanced" (Mendonça, 2005, p. 59).

The initial integration between man and the environment has been divided, and humanity has gradually lost its links with the mother nature from which it originated. This phenomenon, which is the result of the development of productive forces, has had important consequences for both the quality of human life and the environment, as well as interfering with the quality of knowledge production. Many misconceptions, from the point of view of this analysis, have arisen from the dissociation between nature and society and the consequent fragmentation of knowledge, a fact that has been denounced by many who see the world in transformation and, consequently, understand nature in its historical process.

It was at the end of the 18th century that technology played an important role in the process of producing goods and depredating nature. The period that history has called the industrial revolution was marked by the significant contribution of energy as a lever for economic growth based on the use and exploitation of natural resources, allowing for the acceleration of production and the accumulation of capital. This is a fact of great relevance; with the technology
of the electric motor, the use of oil as an energy source intensified, production increased, the irrational consumption of natural resources and the race for accelerated industrial development created wealth and, at the same time, produced collective and unequal impoverishment (Valois, 2007).

This change in itself, in addition to the contribution it has made to the technology factor, has added more fuel to the process of production and depredation of nature. "All the advances of the last two centuries, whether of a commercial, political or social nature, are linked in some way to the transformations and power derived from fossil fuels" (Rifkin, 2003, p.4). Waste, pollution of ecosystems, destruction of forests, waters and biodiversity and the depletion of energy resources are making living conditions on the planet increasingly difficult and calling for urgent behavioural and political changes.

Not coincidentally, it was also in the 18th century, with the start of industrialisation, that environmental issues began to be debated. Issues such as the depletion of natural resources, pollution and loss of quality of life have long been part of environmentalist discourse, but it was only in the second half of the 20th century that concern about these problems became more explicit, although the discourse of "sustainability" was driven by the continuity of domination: the environment became "environment"; limits to development came to be understood as "sustainable development", raw materials and energy became "natural resources", labour power is now called "human resources" and, finally, there are no longer class conflicts but "generational conflicts" (Rodrigues, 2005).

We can see that the dominant ideology has changed the type of discourse, but it cannot change the history that imposes its presence on every bit of the environment, on every process of transforming raw materials and energy, and on all the men and women who give their labour power to continue living in a developing world.

2.1 CLIMATE PHENOMENA AND CITIES

Those who disbelieve or are biased claim that extreme weather phenomena have always existed and have been responsible for the migration of many peoples across continents. Although this is an indisputable fact, the destructiveness of the present day is unprecedented in history. Discussing this implies evaluating the adaptive capacity and management of cities because they
are now the main drivers of anthropogenic impacts on the climate. It seems unequivocal, as stated in the AR6 Report of the Intergovernmental Panel on Climate Change (IPCC, 2023), that human influence has warmed the atmosphere, oceans, and land, with rapid and widespread changes in the atmosphere, oceans, cryosphere, and biosphere. Increases in greenhouse gas (GHG) concentrations have been observed that are unequivocally caused by human activities. In the previous report (AR5) these increases had already been recorded, showing that GHG concentrations reached annual averages of 410 ppm for CO2, 1866 ppb for CH4 and 332 ppb for N2O from 2011 to 2019. The land and ocean have absorbed an almost constant proportion (globally around 56 per cent per year) of CO2 emissions from human activities over the last six decades (IPCC, 2023).

On the other hand, it seems obvious that the 70 per cent of the earth's surface occupied by the oceans will have an influence on the planet's climatic conditions, interfering with the distribution of heat through sea currents and the circulation of the atmosphere. This is because the solar radiation that falls on the surface of the sea is released into the atmosphere in the form of vapour and transforms into clouds which, completing the cycle, precipitate in the form of rain. Under these conditions, the condensation of the hot water vapour generated by the sea is at the origin of the formation of climatic events such as hurricanes, cyclones, and tropical storms, which spread their effects over the continents. As the planet gets warmer due to the increase in the temperature of ocean waters, it's only natural that some of these phenomena become more frequent and damaging. This is why these climatic phenomena must be reciprocally related to the rise in the temperature of ocean waters.

With regard to Brazil, it's also impossible to ignore the enormous climatic diversity of the national territory, with emphasis on geographical aspects, the territorial dimension, the relief, and the dynamics of the air masses. Given all these natural, social, and political relationships, it is natural that factors such as rainfall, humidity, temperature, and wind speed make the country a complex system, which implies different ways of interpreting environmental problems.

In addition, when we look at cities, we see an increase in social inequalities, aggravated by the concentration of income and economic policies that favour this imbalance. The perverse side of this pattern of development has an impact on relations between man and nature, revealing the unsustainability of the model that is already pointing to a point of no return. This preamble is intended to demonstrate that the connections between the development process and climate
change are decisive and cannot be ignored.

And it's not just about population growth, the social problems this creates or the unequal distribution of income. This mismatch between cities and nature also takes into account the involvement of governments (considering the three branches of government), private initiative and civil society. Good governance practices are essential for the creation and implementation of inclusive public policies, income distribution and the participation of non-exploitative green capital, capable of reducing greenhouse gas emissions and achieving the objectives of the Paris Agreement (COP 21). In this case, precautionary and preventive principles must be observed when drawing up these public policies so that extreme weather events such as floods, droughts, cyclones, tropical storms, etc. are assessed as risks and the population is warned (Wedy, 2018).

However, the average citizen knows little about the effects of urbanisation on the climate of cities, despite the fact that many scientific studies show the close relationship between disordered urban growth and climate problems, which often result in major environmental disasters. Considering that contemporary man chooses to live in cities due to a lack of opportunities in his place of origin, we need to better understand and relate the pressures this imposes on cities, which have become, as Freire (2008) puts it, the "stage for the spectacle of exclusion".

There is a very close relationship between the accumulation of capital and the destruction of nature, which is observed mainly in cities. This is a fact that deserves our reflection given its relevance considering that most of the world's population lives in cities. Excessively urbanised spaces suffer the effects of soil sealing; concrete advances over green spaces, bodies of water and areas that are important for urban-environmental sustainability; deforestation, buildings and vehicles have become the icons of pollution; inequality in the distribution of income and space are all related and are the main culprits behind serious climatic events that reduce the quality of life of individuals, if not deprive them of what little they have managed to acquire over the course of their existence.

Although there are many causes of these catastrophes, there are also many ways of trying to minimise these impacts. To begin with, a lack of interest in scientific knowledge seems to be at the centre of many difficulties, because getting to know nature, studying the phenomena that occur in it and seeking solutions does not seem to be a very simple task, but it is certainly absolutely necessary if new knowledge is to be added to the knowledge we have today about
phenomena in the soil, water or air. There are no homogeneous phenomena, be they species, populations, or behaviours. Heterogeneity is the rule.

It is therefore understood that there is a varied and complex set of problems caused mainly by human activities and mediated by the chemistry of soil, air, and water. In order to understand the complexity of these relationships, the inherent concepts of the different sciences related to the specific phenomena are not enough; another look is needed, a change of perspective that leads to a new development model. As Marques (2007) states, this is a political issue of a planetary nature, which justifies and conditions environmental studies to an interdisciplinary perspective, in the same way that science education needs to be linked to the construction of citizenship within a critical context.

In the particular case of Brazil, as with other developing countries, it will be necessary to overcome the barrier of toxic economic growth at any cost, not least because the costs are mounting and risk becoming irreversible. Aiming for productivity simply by focusing on economic growth has had a profound impact on individuals, especially the most vulnerable. In addition, it has hurt and is still killing our water resources, polluting the air, contaminating water and soil with harmful chemicals, and allowing many lives to be lost to climate disasters. The very economic objective of development is frustrated when floods and droughts impact economies and cause serious damage to city infrastructure. This is the reality of congested cities, with populations concentrated in unsuitable areas, precarious infrastructure, and accentuated urban poverty, which leads us to question what has really grown, the cities or poverty?

It should also be remembered that there is a new debate on development, "new developmentalism", which proposes a strategic and deliberate discussion on the subject, and which rejects the misconception of growth based on increasing demand. In Brazil, however, where development issues are still tied to market forces, and in the other Latin American countries that have lived through the colonial experience, we are still ideologically dependent on the colonisers and in this sense, it is difficult to debate a "new developmentalism" with social and climate justice. (Bresser-Pereira, 2006)

The consequence of this is a huge challenge for city managers who need to rely on effective public policies. This difficulty is magnified when we focus on our reality, where 80 per cent of the national population is concentrated in unplanned cities with a growing population, contributing to the degradation of the natural environment and worsening global problems. "The
3 FATALITY OR NEGLIGENCE?

Hurricanes, earthquakes, and storms, as well as local phenomena such as landslides, floods, and severe droughts, among other climatic phenomena, have increased in frequency and intensity in recent times, allowing us to deduce that they are not exclusively the result of natural climate variability. More than just an accident, these events attest to the absence of housing policies, the decision to replace natural vegetation and block river courses for property speculation; the disposal of production waste, and many other natural and social causes that combine to turn climatic events into major environmental disasters.

Highlighting some environmental events that took place outside Brazil, Kroll-Smith (2013) recalls two catastrophes that hit the American continent a century apart: the earthquake that swept through the city of San Francisco in 1906 and Hurricane Katrina (2005).

The earthquake that swept through San Francisco in 1906 and Hurricane Katrina (2005), both of which were of major proportions, highlight the association between human activities and global warming. Regarding the earthquake, in the author's words, "the ground opened up fractures and the earth liquefied, reduced to a soft mass. The most vulnerable structures of rigid stone and brick walls collapsed with the greatest of ease, while wooden and steel structures held up better". Fires destroyed more than 80 per cent of the city of San Francisco and the measures taken to combat them proved to be misguided. In addition to the loss of thousands of lives, most of the deaths were of the working poor, people who lived in unsuitable and unhealthy housing, shacks, houses, or flats that were poorly built. They were helpless victims in the face of the earthquake's subterranean force. (Kroll-Smith, 2013, p. 2012)

One hundred years later, on 28 August 2005, Katrina changed the history of the city of New Orleans in the United States forever, with winds that reached 280 km/h. In this respect, also according to Kroll-Smith (2013), the catastrophe tore away the epidermis of urban society and exposed the primitive machinery of political and class power. Katrina had far more demographic and political precedents than climatic ones. The city, surrounded by water on three sides and below sea level, where the Mississippi River and Lake Pontchartrais flow, was unable to withstand the winds. The city's dams (levees), built 100 years ago with low-quality materials,
collapsed in the storm, leaving a trail of victims (1,836 direct deaths) and incalculable financial
damage. As happened 100 years ago, most of the victims were poor and black.

The causes of the city's destruction involve issues of levee maintenance, administrative
negligence and, according to Avelar (2007), deliberate and criminal negligence. Katrina taught
the world a lesson that probably hasn't been learnt yet, because the impacts affect all social
groups, but not everyone suffers in the same way and vulnerable populations feel the effects of
environmental catastrophes more acutely.

With thousands of victims, the catastrophe of such gigantic proportions made visible a
population abandoned and victimised not only by Katrina and the floods, but also by the social
isolation in which they were already living. (Torres, 2021)

Due to the connections that climate disasters present between the natural and the social,
with costs that include human and resource losses, many environmental geologists defend the
idea that "there are no natural disasters". In fact, even if we try to measure the cost of these
tragedies, it is difficult to relate the complexity of factors such as the type of risk, location,
duration, size, vulnerability of the affected population and the aftermath of the tragedy, which
involves repair, reconstruction, and increased vulnerability. "The difference between who lives
and who dies is, to a greater or lesser extent, a social calculation." This analysis does not mean
denying the natural process. Climatic events such as hurricanes, earthquakes, droughts, and
floods are natural accidents, but when they translate into urban catastrophes, it becomes clear
that natural causes are not entirely divorced from social ones (Smith, 2022). Figure 1 below gives
an overview of the number of people affected or killed annually by climate-related disasters
The climate-related disasters are becoming more frequent around the world, mainly due to a steady increase in the number of floods and storms. Floods alone accounted for 47 per cent of all climate-related disasters (1995-2015), affecting 2.3 billion people, the majority of whom (95 per cent) live in Asia. In 2023, the drought that hit Indonesia affected 18.8 million people from June to September. In the same year, an earthquake of catastrophic proportions struck Turkey and the Syrian Arab Republic, claiming 56,683 lives, and affecting around 18 million people. Worldwide, according to Emergency Events Data (EM-DAT), there were a total of 399 disasters related to natural hazards that resulted in 86,473 fatalities and affected 93.1 million people, not to mention economic losses totalling 202.7 billion dollars (UNISDR, 2015; EM-DAT, 2023).

3.1 LESSONS THAT BRAZIL HAS NOT YET LEARNT

As far as Brazil is concerned, periods of rain and drought alternate due to the great climatic diversity. There are three types of climates in the country: equatorial, tropical and temperate, with the equatorial climate mainly covering the Amazon rainforest region, with a lot of heat and a lot of rain. The tropical climate is also hot but with less regular rainfall and varies according to the region. The coldest region is the south of Brazil, where the temperate climate prevails, with temperatures that can reach below zero degrees in winter.

Lately, the planet's climate has been changing due to anthropogenic activities such as the emission of greenhouse gases through fires, deforestation, the burning of fossil fuels and the decomposition of rubbish, all of which contribute to climate change. As a result of these changes,
everyday Brazilians have had to live with floods, droughts, torrents and landslides, events classified as hydro-meteorological because they involve excess and scarcity of water. They occur at a certain time of year, which is different for each geographical region given the immensity of the territory and its regional climatic diversity. Most cases result in tragedies with large numbers of people affected.

In 2011, in Brazil alone, around 890 people died as a result of natural disasters caused by extreme events. What exacerbates the situation is the fact that the majority of deaths resulting from these disasters occur among low-income populations. Due to their living and housing conditions, these populations are more exposed and vulnerable to extreme weather events that trigger environmental disasters. However, in addition to natural climatic events, other factors are co-responsible for the impacts on these populations. Poor administration, misguided investments, intense and unplanned urbanisation, changes in land use and the management of natural resources are all factors that contribute and interact to determine the greater or lesser impact of the disaster. Between 1995 and 2015, an average of 70 to 163 events triggering deaths and material damage were recorded, placing the country among the ten most affected by disasters of this type, per population (Nobre e Marengo, 2018; UNISDR, 2015).

Continuing the escalation of failures, between 2013 and 2022, according to Agência Brasil (2023), storms, floods and flash floods affected 5,199 Brazilian municipalities, which represents 93 per cent of the total of 5,570 municipalities. Within this timeframe, the increase in the number of deaths resulting from these disasters from 2019 onwards stands out, as reported by Correio Brasiliense (2022). (Figure 2)
Table 1 shows the number of deaths due to environmental disasters in Brazil between 1948 and 2022. The table shows that the state of Rio de Janeiro stands out as an example of lessons that should not be learnt. Rich in natural beauty, the state of Rio de Janeiro frequently faces episodes of flooding, landslides, heatwaves, etc. that particularly affect socially vulnerable urban populations located in areas susceptible to climate threats.

Table 1 – Mortality/year from environmental disasters in Brazil

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Source - Remigio and Noia, 2024; Da Silva, 2015 (adapted by the authors)

Particularly in 2011, the state of Rio de Janeiro suffered heavy rains that caused landslides...
in seven municipalities. According to Busch and Amorim (2011), the event was classified by the
UN as the eighth largest landslide in the world in 100 years and compared to major global
catastrophes such as the one that hit New Orleans in 2005 in the United States.

We reached 2023 with a record number of hydrological and geohydrological disasters
across the country. Rio Grande do Sul stands out for having suffered environmental calamities
with fatal damage: at the beginning of June (2023) a cyclone hit the state resulting in 16 deaths;
in September of the same year, another cyclone killed another 54 people and in November,
despite being considered mild, the rains claimed 5 lives. A total of 75 people lost their lives as a
result of environmental tragedies that could have been avoided (Brasil, 2024; De Assis, 2024).

With the difference of a few months, we see a repeat, on an increased scale, of the impact
of the tragedy that hit and is still hitting the state of Rio Grande do Sul with consequences that
have not yet been fully quantified. In 2024 alone, more than 800 mm of rain fell on the state,
resulting in the flooding of 458 municipalities in Rio Grande do Sul (90 per cent of the cities).
The figures show the vulnerability of spaces and housing, inadequate agricultural practices, the
lack of appropriate urban infrastructure for rainwater run-off and, no less seriously, the
unpreparedness of the public administration to deal with information released by previous
surveys that indicated an increase in rainfall in the state of between 5% and 10% (Agência Brasil,
2024; Wedy and Soares, 2024).

The partial data shows the appalling picture of the catastrophe (Table 2).

<table>
<thead>
<tr>
<th>Environmental tragedies in Rio Grande do Sul (2024)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tragédia ambiental no Rio Grande do Sul (2024)</strong></td>
</tr>
<tr>
<td>Pessoas afetadas</td>
</tr>
<tr>
<td>Nº de mortos</td>
</tr>
<tr>
<td>Nº de desaparecidos</td>
</tr>
<tr>
<td>Nº de pessoas desalojadas</td>
</tr>
</tbody>
</table>

Source - Brazil Agency, 2024

Environmental scientists agree that the environmental disasters in Rio Grande do Sul are
not fuelled by rain alone (there are no environmental disasters). What really fuelled the impacts,
becoming the main driving force behind the tragedy, were the problems of public management
of urban protection spaces and equipment, as well as intensive land occupation.
4 METHODOLOGY

This is a descriptive-explanatory study whose qualitative-quantitative approach made it possible to describe the reality of environmental phenomena as they relate to human behaviour and the market. The use of this approach makes it possible to combine qualitative evaluation with an empirical basis and thus extract the desired knowledge.

Documentary and bibliographical research was carried out in periodicals and on official news websites. The data extracted from the literature was systematised, categorised and summarised to support the discussion and conclusions of the study. The numbers of victims were collected, put together in tables and graphs and then analysed qualitatively and quantitatively.

5 RESULTS AND DISCUSSIONS

The results are presented throughout the text based on the data collected and the analyses carried out during the study. Tables and graphs were used to highlight the main findings, which were interpreted in the light of existing literature, highlighting similarities and differences between environmental events and disasters in Brazil and abroad.

The study had some limitations linked to the lack of official information, but its value as an initial step towards possible guidelines for future research is undeniable. The data analysis and discussion were based on solid evidence capable of contributing to the advancement of more consistent environmental policies.

6 CONCLUSIONS

The climate imbalance translated into the objectification of nature and the aggressiveness of the economy against the natural environment are diseases of modern industrial society and have increased the severity of catastrophes. We are living through a socio-environmental crisis without precedent in human history, despite the frequent debates in the search for common solutions. We are concerned about the unethical advances of the market over spaces, the degradation of these spaces and the realisation that, within the capitalist system of production, there is no formula to solve or minimise the impasse between economic growth, environmental
preservation, and social inclusion. Worse than this concern is also the apprehension about the naturalisation of environmental catastrophes that make people insensitive and also immobilise them.

Investment in prevention, although urgent, requires a commitment that shifts the interests of economic groups towards human-environmental choices, which is difficult because these interests have no ethical limits and environmental conservation, and people's well-being are not goals that are compatible with market profits. In line with this perspective, a feeling of indignation arises at the seriousness of the tragedy and the number of people affected. Urban planning, the design of built and unbuilt spaces and, above all, the importance of actions that reflect the relationship between man and nature, the way in which humanity relates to water, how it lives with it, how it incorporates it into its activities and how it respects its natural movements, are of the utmost importance. (Veloso and Elali, 2024)

This work sought to gather data on environmental catastrophes, most of which is scattered in articles and the media, to help us understand the complex interaction between man and nature. It is difficult to list all the causes of these tragedies, which involve, among other things, the violation of environmental protection laws, the lack of maintenance of drainage systems and protection against flooding, the denialism about the climate crisis that considers environmental standards to be obstacles to development, the dismantling of these standards by the legislative houses, property speculation, agribusiness that is always eager for increasing profits, livestock farming, mining and polluting industries. The events are not unpredictable, these are not natural tragedies.

There are no good predictions for the future either unless the right measures are taken. Global warming will result in a greater occurrence of extreme weather events, as the evaporation of warm ocean waters will result in more rainfall. The warmer atmosphere is also able to retain more water vapour without condensing, thus keeping the humidity concentrated. The result will be extreme rains and droughts and affected populations from north to south, especially those invisible to the eyes of the market.

Urban planning is fundamental to ensuring the sustainable development of cities, promoting the creation of more humanised spaces, and improving people's quality of life. Through proper planning, it is possible to design urban environments that meet people's needs, with green areas, living spaces, accessibility, and adequate infrastructure.
In addition, respect for environmental protection laws is essential to guarantee the preservation of natural resources and the sustainability of cities. Complying with these regulations helps to conserve biodiversity, reduce pollution and mitigate the impacts of urban activities on fragile ecosystems.

Thus, by integrating urban planning with the design of more humanised spaces and compliance with environmental laws, it is possible to build more sustainable, fair and equitable cities, promoting the well-being of citizens and protecting the environment for future generations.
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