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Research Paper

Eco-anxiety, uncertainty, communication and climate urgency

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Abstract: This work initially addresses some relationships between uncertainty, environmental and disaster communication, and climatic urgency as contributing elements to eco-anxiety. Some people experience daily bouts of grief and despair, others show sudden panic attacks. Eco-anxiety can be defined as “chronic fear of environmental catastrophe”.

The local effects of climate change are more relevant at the individual level, impacting more people than the general phenomenon of global warming, especially when the direct effects are combined with the news broadcast in the media. Although the news of natural disasters is common, why are some reluctant to understand it? It is a phenomenon called psychological distance, by which terms such as climate change and global warming are conceived on a large scale, but are not related to the consequences they have on a personal level.

Perceiving how a majority does not take action in the face of the climatic emergency and the environmental catastrophe is, for other people, an added stressor. It's about passivity anxiety. Anxiety, sadness, worry and obsessions occur in people for various reasons related to the destruction or vulnerability of the environment. What will we do with the masks, gloves and other types of protection elements that have become everyday objects? Single-use barriers used and discarded by a large part of the world's population that are going to have a great impact on the planet.

Few are the brands that propose the biodegradable version of these articles, some of which are compulsory; other interests prevail over those of the environment. Today we are witnessing a generation that attends scared of the uncertainty for the future. In the last fifty years, the warnings of the scientific community have been ignored to take real action, while world governments look the other way.

Keyword: eco-communication, uncertainty, digital technologies, climate change, eco-anxiety

Introduction:

This work seeks to relate problematic aspects of today's society such as global warming, deforestation, the increase in the world population, fuel consumption, diseases and viruses, the climate crisis, in the midst of a culture of hyperconsumption, the catastrophe of public health with citizen perceptions and eco-anxiety.

On the other hand, it initially raises some relationships between social uncertainty, environmental and disaster communication, and climatic urgency as contributing elements to eco-anxiety. Some people experience daily episodes of pain and despair, and others may experience sudden panic attacks.

The challenges posed were ambitious and were hardly described, but they illustrate their extension, their complexity and the attention that governments and citizens must pay to them. Probably this agenda loaded with challenges will accompany humanity in the next fifty years.

Between climate and biodiversity crises, the way we meet and communicate, the natural world we know is changing. Human creativity, the increase in technological capacity, accessibility and connectivity have allowed a proliferation of content, platforms and consumption of digital visual media, which allow our societies to be hyper-informed, although much of the news disseminated is not true.

On the other hand, we are witnessing diverse citizenships, some that express conformism and disinterest in the few

goods that democracy is bringing us, and others that are more active, fragmented, that demand more active and personalized public policies in various fields (Quiroga, 2021). On the one hand, governments, regardless of their size, seek to strengthen these processes by promoting good environmental governance in the face of the growing demand from citizens to participate in decision-making that affects their environment, and on the other hand, publicity and the transparency of government acts constitutes a fundamental pillar in democratic institutions, whose institutional quality rises to the extent that citizens can receive complete, truthful, adequate and timely information.

Good environmental governance has a communion between strategic environmental agendas, government management, public communication and citizen participation. Governments must seek to strengthen their communication processes and interaction mechanisms, given the growing demand of citizens for information and participation (Quiroga, 2021).

In terms of information, as expressed in "The Public Service Media and Public Service Internet Manifesto", we need to have a public broadcasting service financed with public funds, independent of the government, and accessible to all, which provides reliable information and analysis of issues that are of common interest, makes programs that reflect the diversity and complexity of contemporary life.

In the years 2020-2021, the world has once again faced a global crisis: a pandemic crisis, accelerating climate change, deep and persistent social inequalities, growing political

polarization, and an infodemic crisis where much misinformation is being spread online. The dominant forms and uses of digital technologies and the Internet endanger democracy. The Internet and these emerging technologies are undermining the indispensable resources of reliable information, deep analysis, rational debate, and diversity of representation that allow us to fully understand the challenges we face.

Although the public service media can simply move to the platforms operated and controlled by the digital commercial giants, it does not appear to be a sufficient option. It is necessary to establish a public service channel on YouTube or Facebook that supports the cultural centrality of the digital specialty, since public service media requires a public service Internet.

1. Climate, Climate crisis and Covid

Biologists from the University of Hawaii and the Muséum National d'Histoire Naturelle in Paris have detected that the Earth is experiencing the Sixth Mass Extinction if the disappearance of invertebrates is taken into account. Scientists rely on the data from the research they have carried out and have published in the scientific journal *Biological Reviews*, where they also report that this extinction is due entirely to human action (Cowie, Bouchet, and Fontaine, 2022).

Robert Cowie, the lead researcher on the report, said "species extinction rates have increased dramatically and declines in abundance of many animal and plant populations are well documented, but some deny that these events amount to mass extinction." This data in his opinion, "is based on a biased view of the crisis

that focuses on mammals and birds and ignores invertebrates, which of course constitute the vast majority of biodiversity" (Cowie 2022, p. 4).

Every time we are possibly closer to knowing and perceiving an interrelation between the climate, the climate crisis and the Covid. Climate change would have influenced the emergence of SARS-CoV-2 and its passage from animals to humans (Beyer, Manica and Mora, 2021). According to this work, global warming and the increase in greenhouse gases have caused changes in the vegetation of the Chinese province of Yunnan over the last century. These modifications have allowed bats to extend their habitats and live in new territories. Its presence is associated with a greater number of coronaviruses.

Possibly if the reduction of greenhouse gas emissions is not accelerated, health systems could be overwhelmed to deal with the foreseeable increase in the incidence of diseases that are taking place. Therefore, curbing the effects of climate change will help suppress the occurrence and re-emergence of zoonotic diseases. These are most likely due to intensive agriculture, the international trade in exotic animals, and increased human encroachment on wildlife habitats.

2. Warming and deforestation accelerated by two key trends

The last decade was the warmest on record. Scientific data on global warming and its origin have widely referenced at least three consequences that affect the generation and spread of pandemics:

- The deterioration of habitats, ecosystems and extinction of animal and plant species.

- The melting of glaciers and permafrost, which releases dangerous pathogens that are in permanent hibernation.
- The high pollution of the atmosphere, which affects the greater spread of viruses and mortality.

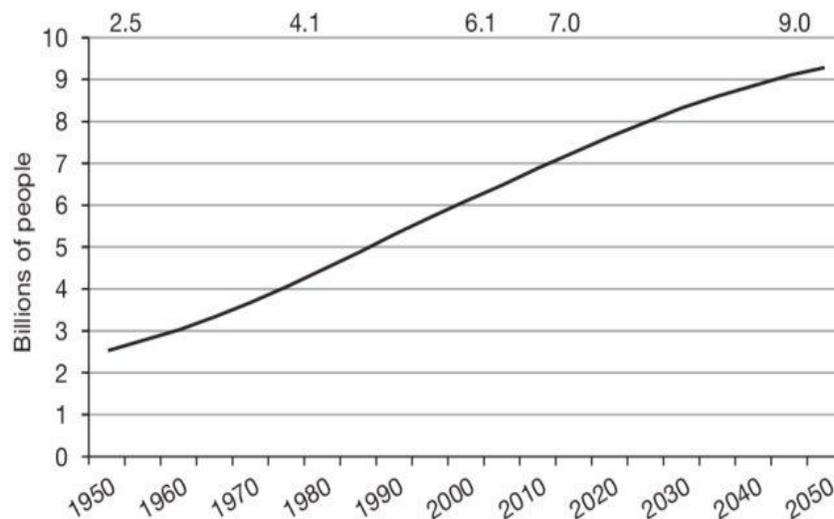
In Argentina, the hottest week of the year was recorded between January 10 and January 16, 2022.

3. World Population

Overpopulation is one of the main causes of most of the world's problems. Whether it's food shortages, lack of clean water, or energy shortages, every country in the

world is affected or will be. Any particular country can maintain its own welfare by importing food and goods from abroad, but this will not be permanent or unlimited. The number of inhabitants is increasing in all countries and the world population threatens to increase in the coming decades to 8 or 10 billion. Our planet can offer a quality of life comparable to that enjoyed in the European Union to no more than 2,000 million people. Since 1950, the growth of the world population has been remarkable.

Figure 1 World population growth 1950-2050 (WPP, 2012)



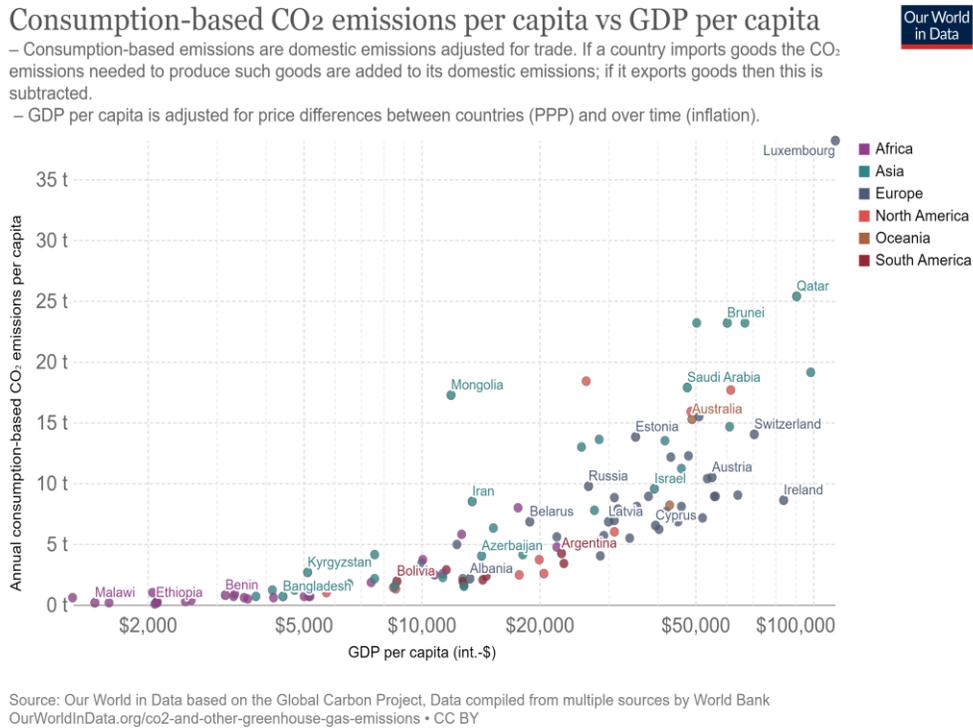
Source: UN World Population Prospects, The 2010 Revision, medium variant

4. Fossil fuel consumption

The world faces two energy problems: most of our energy production still produces greenhouse gas emissions, and hundreds of millions lack access to energy altogether. The energy issue that receives the most attention is the link

between energy access and greenhouse gas emissions. But the world has another global energy problem that is just as big: hundreds of millions of people completely lack access to sufficient energy, with dire consequences for themselves and the environment.

Figure N° 2 Consumption-based CO2 Emissions



Fossil fuel consumption has increased in the last two decades.

5. Deforestation

Deforestation refers to the decrease in forest areas around the world that are lost to other uses, such as agricultural farmland, urbanization, or mining activities. Since 1960, deforestation has been negatively affecting natural ecosystems, biodiversity and climate. The Food and Agriculture Organization of the United Nations estimates the annual rate of deforestation to be around 1.3 million km² per decade.

Multiple factors, whether human or natural, cause deforestation. Natural factors include natural forest fires or diseases caused by parasites that can lead to deforestation. However, human

activities are among the main causes of global deforestation. According to the Food and Agriculture Organization (FAO), the expansion of agriculture caused about 80% of global deforestation, with the construction of infrastructure such as roads or dams, along with mining and urbanization, the remaining causes of deforestation. According to the FAO, agriculture causes around 80% of deforestation. And how does agriculture cause so much deforestation? According to the same report, 33% of deforestation caused by agriculture is a consequence of subsistence farming, such as local peasant farming in developing countries. Commercial or industrial agriculture (extensive crops and cattle ranching)

causes about 40% of forest loss, in search of space to grow food, fiber or biofuels (such as soybeans, palm oil, beef, rice, corn, cotton and sugar cane). Livestock is responsible for about 14% of global deforestation. In 2019, a football field-sized area of primary rainforest was lost every 6 seconds, the clearances being particularly extensive in Brazil, where land in the Amazon was the hardest hit.

6. Bats and infections

Bats are claimed to be the main carriers of the coronavirus. Many recent viral infections are attributed to wild bats.

Examples of such infections include:

- MERS
- SARS
- Ebola
- Magbur virus
- hendraviruses

Bat bites, their saliva on partially eaten fruit, and hunting bats for food are all potential ways to get infections.

However, bats do not seem to harbor more viruses than other animals. Claims of diseases caused by bats are often based on ill-founded speculation. Promises to predict future pandemics are diverting billions of dollars to virus hunting that is biased against bats and could be better spent on other public health priorities. Bats have an undeniable history of living with humans without causing disease outbreaks. There is also a long history of exaggerating exceptionally damaging diseases against bats. Fear of bats leads to intolerance and killing.

There are no confirmed cases of transmission of SARS-CoV-2 from bats to humans. SARS, MERS, SARS-CoV-2 and Ebola have not been isolated from a bat, nor have they been shown to be transmitted from bat to human, despite frequent speculation and intense information seeking in this direction.

7. Digital technologies

Digital technologies are also contributing to environmental degradation, in a context of climate emergency and pandemic.

In the context of current globalization, no industrial, commercial or service policy, as well as social policy, will be successful if it does not address the need to incorporate the principles of sustainable development as guides for economic growth. It is no longer possible to take advantage of natural resources and produce to the maximum without considering the environmental impact generated. In these times it is necessary to adopt appropriate environmental management methods in response to the drastic changes in the production systems of the industries; of the commercialization channels for the products and in the distribution networks of the services (Peñaloza Acosta, Arévalo Cohén and Daza Suárez, 2009).

First, as a rapidly expanding set of infrastructure and devices that consume scarce resources, use energy and generate waste. Second, as the main driver. Most phone emissions are generated in production. Greenhouse gas emissions from a smartphone have these numbers: 80% production, 16% customer use, 3% transportation, 1% recycling.

Figure N° 3 (Modelo de iPhone 8,64B)

Greenhouse Gas Emissions for iPhone 8—64GB model



Environmental Report | iPhone 8 | September 2017

In addition, the key moments in the life cycle of a smartphone: material, production and assembly, transportation of the finished product, energy consumed in use and data storage, accelerated replacement and availability cycles, and increased volumes of waste from both devices such as packaging.

8. Internet Traffic

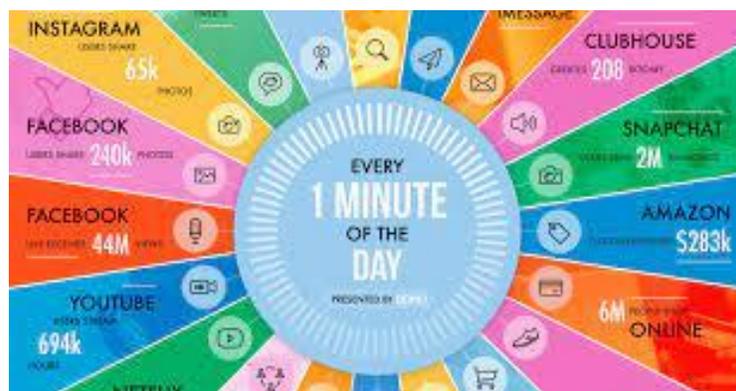
The increase in many digital activities was motivated by the lockdowns and restrictions caused by the coronavirus pandemic. Internet traffic grew due to the practice of teleworking, education in

digital media, streaming, video calls or online shopping are some of the activities that have grown the most and have influenced this growth.

In our daily lives, not many things may happen in a minute. But when measuring the depth of Internet activity that occurs at once, it can be extraordinary. Currently, there are about five billion Internet users around the world.

This annual infographic from Domo captures how much activity occurs in a given minute and how much data users generate. To put it mildly, there is a lot.

Figure N° 4 One minute of Internet



One minute of internet

At the heart of the world's digital activity are the everyday services and applications that have become staples of our lives. Collectively, these produce unimaginable amounts of user activity and associated data.

These are just some of the key figures of what happens in a minute:

- Amazon customers spend \$283,000
- 12 million people send an iMessage
- 6 million people buy online
- YouTube users stream 694,000 videos
- Facebook Live receives 44 million visits
- Instagram users share 65,000 photos
- Tiktok users watch 167 million videos

As these facts show, big tech companies have a huge influence on our lives. That influence is becoming hard to ignore and attracting more and more media and political attention. And some see this attention as a plausible explanation for why Facebook changed its name, disassociating itself from the old one in the process.

9. Metaverse, Artificial Intelligence and Blockchain

Faced with these urgencies and key issues of the societies of the present that will inscribe the future as human beings, as academics and global citizens we should pay attention to three things: the Metaverse, artificial intelligence and the Blockchain.

Technological leaders, led by Mark Zuckerberg, seek to create a parallel and virtual world, where we can be who we really want to be and without physical barriers to try any kind of experience. The metaverse will propose to be an extension of our own lives, but on the Internet. The virtual will have a presence, it will no

longer be only auditory and visual. The paradigm of science fiction will be real.

Virtual worlds or metaverses are fictitious constructions in which participants interact through avatars created by themselves trying to reproduce participation or real life in a virtual metaphor environment without space-time limitations. However, their use in the educational context has been proposed since their appearance since they can be used as a different learning space to test new forms of social relationship.

Since the nineties in American universities, virtual worlds and research in the use of three-dimensional environments to improve skills and learning begin to be implemented. Since 1994, with the appearance of the VRML language (Virtual Reality Modeling Language) it is possible to manipulate virtual environments and advances have been generated that have allowed improvements in research through modeling, the development of 3D virtual classrooms and changes in the perception of the subject, as well as in communication processes. Mark Zuckerberg, in October 2021 stated "Today I think we look at the Internet, but I think in the future you will be in the experiences".

Artificial intelligence can be described as systems that think rationally to carry out their complex task resolution processes. Artificial intelligence (AI) is progressing rapidly and can encompass anything from Google's search algorithms to IBM's Watson and autonomous weapons. While various definitions of artificial intelligence (AI) have emerged in recent decades, John McCarthy offers the following definition in his 2004 article: "It is the science and engineering of

making intelligent machines, especially intelligent computer programs. It is related to the similar task of using computers to understand human intelligence, but AI doesn't have to be limited to methods that are biologically observable."

The blockchain is a distributed database that is shared between the nodes of a computer network. As a database, a blockchain stores information electronically in a digital format. Blockchains are best known for their crucial role in cryptocurrency systems, such as Bitcoin, in keeping a secure and decentralized record of transactions. Blockchain guarantees the fidelity and security of a data record and builds trust. A blockchain gathers information in groups, known as information sets. Blocks have certain storage capacities and, when filled, they are closed and linked to the previously filled block, forming a chain of data known as a blockchain.

10. Carbon emission of the equivalents of a Bitcoin transaction

Bitcoin uses more energy than Argentina. According to Digiconomist's Bitcoin Energy Consumption Index, a single Bitcoin transaction can consume up to 1,752.79 kilowatt hours (KWh) of electrical energy on average to complete. This is equal to the amount of energy consumed by 1.2 million VISA transactions. A single Bitcoin transaction has a carbon footprint greater than 100,000 hours of YouTube videos. The biggest argument against Bitcoin in the market right now is that it consumes too much energy. And, now we know how much.

According to Digiconomist's Bitcoin Energy Consumption Index, a single Bitcoin transaction can consume up to 1,752.79 kilowatt hours (KWh) of electrical energy on average to complete. This is equal to the amount of energy consumed by 1.2 million VISA transactions. VISA powers around 42% of the global credit market, making it one of the world's largest payment providers, along with Mastercard, Discover and American Express. And even your carbon footprint is smaller. Bitcoin's carbon footprint, the amount of greenhouse gases generated by mining the cryptocurrency, is the equivalent of watching 138,762 hours of YouTube or, going back to VISA, 1.8 million transactions.

In the span of a year, the amount of energy consumed by Bitcoin mining is about the same as in all of Sweden. But unlike Sweden, where almost half of the energy produced comes from renewable sources, Bitcoin platforms are currently in countries where the main source of electricity generation is burning fossil fuels like coal. If bitcoin were a country, it would be among the top 30 energy users worldwide. According to the report, if Bitcoin were a country, it would account for 3.2% of total energy consumption in the US.

11. Hyperconsumption

Hyperconsumption (Lipovetsky, 2006) has been built into a hegemonic parameter of modern societies and is the modern and Western representation of happiness as it has been built in the consumer society. Faced with an uncertain and threatening future (precariousness, unemployment, fragility of human ties), the society of hyperconsumption offers unbeatable

goods: momentary moments of tranquility and happiness. Lipovestky (2006) speaks of "paradoxical happiness" to the idea that the society of hyperconsumption permanently highlights images of happiness, of well-being as opposed to the chaotic, stressful and sad reality of our society.

Hyperconsumption has the following characteristics. It's about buying more goods, more often in an advertising-saturated culture with built-in persuasions. There is full 24-hour availability for online shopping, credit is instant and compulsive buying is encouraged, goods are quickly replaced by continually searching for the next innovation. The good is understood as an expression of the self and of the good life and from citizens we pass to consumers as a central social identity.

"Hyper-consumption" (Lipovetsky, 2006), still called "consumerism" (Bauman, 2007), "coordinates (...) social integration, social stratification and the formation of the human individual" (Bauman, 2007, p 47). The consumption of liquid modernity displaced the articulating role that work fulfilled in society as producers of solid modernity (Bauman, 2007).

12. Fast food: a public health catastrophe

The fast-food business and the synergies between health and the environment are recently being exposed. McDonald's has suffered catastrophic brand damage over the past two decades, as the tide turns against the fast-food industry and its giant brand, due to criticism over health, labor and the environment. McDonaldization, McJobs, McJunk, McLibel are all common currency to describe the low

wages, precariousness, slick marketing and poor food, cultural imperialism, and the force of economic homogenization that McDonald's represents. The practices of transnational corporations affect the health of the population through their production methods, shaping the social determinants of health (Anaf, Baum, Fisher, et al., 2017).

There have been actions by the company, recent moves by the brand to make their Happy Meals healthier. However, McDonald's most important strategy in recent years is its particular way in which the brand builds an enchanted sensory experience, perfect and complete, almost immersive. It's hard to order those carrot sticks or green veggies, in a place that smells like delicious French fries and has touch screen menus that highlight great strawberry sundaes. The food industry in general and consumers in particular need strong regulatory frameworks imposed by national states to help avoid or mediate negative impacts on health.

13. Reimagine public provision

These technologies have arrived at this time to accompany human development and its proper and responsible use; it is possible by promoting critical digital literacy among users (Quiroga, 2020). However, the center must be placed on the new forms of power that underlie neoliberalism, on the freedom of the contemporary subject, on the new techniques of domination and control of society that characterizes as a hedonism of control. Critical media literacy should propose the study of the phenomena that occur in digital communication not as isolated events, but rather must be interpreted in a broader social, economic and cultural context (Quiroga, 2020).

13.1 The Public Service Media and Public Service Internet Manifesto

Since its publication, the Manifesto has attracted more than a thousand signatures from scholars around the world, including Noan Chomsky and Jurguen Habermas. Public Service Media and Public Service Internet is a manifesto that has ten principles in its introduction. They are: democracy and digital democracy require public service media and we call safeguarding the existence of Public Service Media, calls for an Internet that improves democracy, requires public service media to become public, service platforms in Internet that help promote opportunities and equality in society. The manifesto calls for the creation of legal, economic and organizational bases for this type of platform. Public service media content is distinguished from commercial media and company data, it is directed at citizens, not consumers.

Internet public service platforms realize fairness, democracy, participation, civility, dialogue and participation on the Internet. The Public Internet Service requires new formats, new content and intense cooperation with the creative sectors of our societies.

Public service media must continue to be supported and funded so that they have the resources they need to carry out and further develop their mandate. In addition, the public Internet service requires sustainable financing based on mechanisms such as the license fee, the Nordic model of public service fee, and transnational financing mechanisms. The Public Internet Service promotes equality and diversity. This Public Internet Service offers opportunities for public debate, participation, and the advancement of

social cohesion. The Public Internet Service is a driver of change in the creation of new content and services while creating a sustainable ecosystem for media innovations. Finally, the public service media and the Internet public service contribute to a democracy, sustainable, fair, just and resilient society.

14. Climate change and citizen perceptions

Effects of Climate Change

Climate change can only be tackled through global cooperation on unprecedented levels. Countries have an obligation to question economic models, invent new industries and recognize the moral responsibility that rich nations have with the rest of the world, giving a moral and unavoidable value to nature. It is necessary to create a stable and healthy world where resources are shared equally.

The local effects of climate change are more relevant at an individual level, they impact more people than the general phenomenon of global warming, especially when the direct effects are combined with the news broadcast in the media. Although the news about natural catastrophes is common, why do some resist to understand it? This is a phenomenon known as psychological distance. Terms such as climate change and global warming are conceived on a large scale, are perceived as distant, and are not related to the consequences they have on a personal level.

Perceiving how a majority does not take action in the face of climate urgency and environmental catastrophe is, for other people, an added stressor. It is anxiety in the face of passivity. Anxiety, sadness, worry and obsessions occur in people

for various reasons related to the •
destruction or vulnerability of the
environment.

15. Eco-anxiety

Some people experience daily episodes of grief and despair, others show sudden panic attacks. Eco-anxiety can be defined as “chronic fear of environmental catastrophe”.

Stress is the body's reaction to the demands of the world. Stressors are events or conditions in your environment that can trigger stress. The body responds to stressors differently depending on whether the stressor is new or short-term, acute stress, or the stressor has been around for a longer time, chronic stress.

Also known as the fight or flight response, acute stress is the body's immediate reaction to perceived threats, challenges, or fears. The acute stress response is immediate and intense, and in certain circumstances, it can be exciting.

Stressors found in our environment are called environmental stressors. Everyday life is full of environmental stressors that cause small irritations, for example, the loud noise of your alarm or extreme temperatures are also environmental stressors and can cause discomfort. Other common environmental stressors include:

- Noise
- Crowding
- Air quality
- Colors
- Tornadoes and other natural disasters
- War and other man-made disasters
- Light

Insects

Academia tends to associate extreme temperatures, crowding, and noise with higher levels of discomfort and aggression. Studies are showing that crime rates are highest during those hot summer days. It is believed that the different colors can increase or decrease your stress levels. Exposure to light can improve your mood and decrease fatigue, while prolonged exposure to darkness can interfere with sleep patterns and lead to symptoms of depression.

Environmental stressors are stimuli in our environment that cause stress. Some common environmental stressors are war, temperature, noise, and crowds.

There are few brands that offer the biodegradable version of masks, gloves and other types of protection elements, some of which are compulsory; other types of interests prevail over those of the environment. This scenario is one of many likely to generate anxiety in people who are more sensitive to ecology.

Today we are witnessing a generation that perceives uncertainty scared by the future. The warnings of the scientific community have been ignored in the last fifty years, to take real actions, while world governments look the other way. It is time to become aware of the risks involved in the climate crisis, the technological challenges and risks where governments must fundamentally assume an active attitude and citizens must demand and ensure the progressive transformations that societies need.

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