“World scientists’ warning: The behavioural crisis driving ecological overshoot” report
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INTRODUCTION

Modern humans and numerous species face unprecedented existential threats due to anthropogenic impacts that exceed planetary boundaries. The instability spans areas such as biosphere integrity, land system changes, novel entities like plastics, climate change, freshwater changes, and biogeochemical flows. These interconnected threats pose a catastrophic risk to complex life on Earth, with many scientists fearing it may already be too late to avoid irreversible tipping points. These threats are increasingly recognized as symptoms of anthropogenic ecological overshoot—where human consumption outpaces natural replenishment and waste exceeds Earth's processing capacity.

This paper investigates the behavioral drivers behind overshoot, identifying a deeper crisis termed the 'Human Behavioural Crisis.' Current interventions primarily address symptoms (like climate change) rather than the root cause (maladaptive behaviors), which are insufficient for long-term solutions. The authors propose an interdisciplinary response, focusing on changing social norms around reproduction, consumption, and waste. They highlight the need for collaboration between scientists and practitioners of social and behavioral sciences to drive effective large-scale behavioral change. This approach, unique to humans, could help keep human activities within planetary boundaries and ensure a sustainable future. The paper calls for interdisciplinary collaboration to address this behavioral crisis effectively.

SCOPE

This paper addresses the root causes of ecological overshoot, primarily focusing on socially constructed attitudes and behaviors that drive excessive personal consumption, particularly among the wealthy quarter of humanity, responsible for the majority of excess energy and material use. The aspiration for high-end lifestyles by the impoverished half of the global population further exacerbates this issue, risking severe environmental consequences such as increased greenhouse gas emissions and depletion of resources. The paper acknowledges various factors influencing consumption behaviors, including media and marketing manipulation, which promote maladaptive behaviors detrimental to planetary and social health.

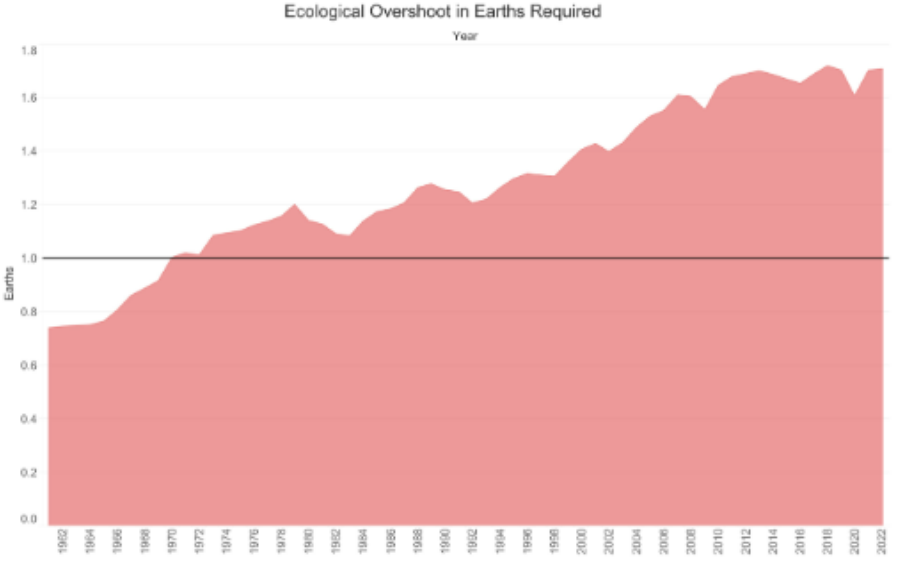
The role of population growth in ecological overshoot is also highlighted, particularly the rapid growth of the middle class in developing countries, which is expected to increase per-capita consumption and ecological footprints. The paper critiques the notion of 'green growth' as insufficient, arguing that current economic norms are incompatible with sustainable practices.

Despite numerous scientific warnings over the past decades about the collision between human demands and Earth's regenerative capacity, there has been a lack of substantial action. This paper advocates for an interdisciplinary response to the human behavioral crisis, emphasizing the need for explicit attention and emergency action to prevent a catastrophic future. The authors call for additional research and concrete measures to address hyper-consumption and promote sustainable behaviors to ensure a habitable planet and civilization.

Human behaviour drives overshoot

Human behavior and cultural practices related to consumption and population dynamics are the primary drivers of anthropogenic ecological overshoot. Historically, exponential human population growth was curbed by negative feedback mechanisms such as resource shortages and disease. However, the advent of fossil fuels has allowed humanity to bypass these natural limits, leading to an unprecedented increase in population and consumption. In just over 200 years, the global population surged from 1 billion to 8 billion, and fossil fuel use increased 1300-fold, driving a 100-fold increase in global consumption.

The paper introduces the term 'behavioral crisis' to describe how previously adaptive human behaviors, now exploited by the industrial economy, have led to ecological overshoot. Marketing and economic systems manipulate these innate behaviors—such as seeking pleasure, acquiring resources, and displaying dominance—for financial gain, resulting in excessive consumption and environmental degradation. These maladaptive behaviors, which were once beneficial for survival, now threaten the stability of Earth's ecosystems and the future of complex life. The paper emphasizes the need to address these behavioral drivers to mitigate ecological overshoot and ensure a sustainable future.



re 1. Ecological overshoot in number of Earths required. Data from Global Footprint Network – June 2023.

Drivers of Overshoot Behavior

Human behaviors that contribute to ecological overshoot are heavily influenced by social, economic, and political norms that exploit psychological predispositions. Three critical drivers of this behavioral crisis are economic growth, marketing, and pronatalism.

1. Economic Growth:

Traditional economics measures progress in terms of monetary value and exchange, often neglecting ecological impacts. This has resulted in a disconnection between the economy and the natural environment, fostering the perception that economic growth can occur independently of ecological constraints. Neoliberal economic policies promote unlimited growth, leading to a 100-fold increase in global gross product and a 14-fold increase in per capita income since the early 1800s. This growth has been largely fueled by a 1,402-fold increase in fossil fuel consumption, contributing significantly to environmental degradation.

2. Marketing:

Originally focused on functional product differentiation, marketing has evolved to manipulate psychological triggers, creating new desires that extend beyond basic needs. Influenced by pioneers like Edward Bernays, modern marketing amplifies and diversifies consumer demands, transforming consumption into a reflection of identity and social status. The use of personal data for targeted marketing has further intensified overconsumption and waste. The wealthiest individuals disproportionately contribute to environmental degradation, necessitating substantial reductions in both fossil fuel and material consumption.

3. Pronatalism:

Cultural and institutional pressures—rooted in patriarchy, religion, nationalism, and capitalism—encourage high fertility rates. Pronatalism glorifies motherhood and large families while stigmatizing contraceptive use and child-free lifestyles. Despite advancements in gender equality, pronatalist values persist, driven by economic and political interests. Media and marketing reinforce these narratives, influencing reproductive decisions. Although some policies have effectively reduced fertility rates, coercive measures often backfire, reinforcing pronatalist norms. Promoting reproductive autonomy and addressing pronatalism are essential for enhancing reproductive rights and ensuring planetary health.

Addressing these drivers is crucial for mitigating ecological overshoot and fostering a sustainable future.

Tackling the Behavioral Crisis

Current interventions to address ecological overshoot often emphasize technological solutions, which may not address the root causes and can sometimes exacerbate the problem. For example, transitioning from fossil fuels to renewable energy requires substantial raw material inputs and may not reduce overall ecological impact. Instead, interventions should focus on transforming human behaviors and social norms. This involves leveraging marketing, media, and entertainment industries to reshape norms around consumption, population, and waste. Marketing principles, such as framing effects, can effectively influence behavior by emphasizing personal benefits rather than sacrifices. Social context and signaling also play significant roles in shaping behaviors and can be harnessed to promote eco-friendly practices.

Repurposing the techniques used by the marketing industry can help reduce consumption and encourage sustainable behaviors. Successful campaigns, like those against 'd*riving under the influence of alcohol,'* demonstrate that behavior change is possible through strategic marketing and advocacy. Furthermore, social network theory suggests that once a belief or value reaches a tipping point (around 25% acceptance), it can rapidly become a widespread norm. A concerted effort using these strategies could accelerate the adoption of sustainable behaviors.

Ethically, the power to influence behavior should not be left to chance or exploited by those with vested interests. It must be guided by natural laws and scientific principles. An interdisciplinary approach is needed to direct and regulate behavior manipulation to align with ecological sustainability, ensuring it serves the collective good and planetary health.

CONCLUSION

Evidence suggests that the ecological overshoot crisis stems from maladaptive human behaviors that have reached unsustainable levels. Focusing solely on resource-intensive interventions, like transitioning to renewable energy, addresses only the symptoms, not the root causes. This approach is not only inadequate but may also exacerbate the problem.

To effectively address ecological overshoot, we must prioritize psychological and behavioral interventions, which are less resource-intensive and potentially more impactful. Key recommendations include:

1. Increased Attention: Recognize the behavioral crisis as a critical point of intervention for addressing ecological overshoot.

2. Interdisciplinary Collaboration: Encourage collaboration between social and behavioral scientists and experts on limits to growth and planetary boundaries.

3. Comprehensive Research: Conduct extensive research to understand the dimensions of the behavioral crisis and develop effective solutions.

4. Multidisciplinary Effort: Initiate a global, emergency, multidisciplinary effort to change consumption, reproduction, and waste norms.

5. Ethical Regulation: Ethically direct, understand, and regulate widespread behavior manipulation to ensure it aligns with ecological sustainability.

Time is of the essence. The degradation of natural systems and the potential for societal breakdown could soon render coherent action impossible. We must act now, using our intact societal systems to shift social norms and address the behavioral crisis, securing a sustainable future for complex life on Earth.

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Have you ever thought about your own behavior in relation to the behavioural crisis driving ecological overshoot? It's easy to overlook the impact of our daily choices on the environment, but even small actions add up.

To help you reflect on how your lifestyle affects the planet, why not take a simple test? It's a quick way to see where you stand and what steps you can take to reduce your ecological footprint.

You can access it here: https://www.footprintcalculator.org/en/quiz/0/food/category