Vivekananda Journal of Research
An official Journal of **Vivekananda Institute of Professional Studies-TC**, Delhi, India

ORIGINAL RESEARCH ARTICLE
Published on 15 September, 2026
www.vjr-vips.com

Artificial Intelligence: A Path to Ecocidal Consequences

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ABSTRACT

The current technological paradigm of the twenty-first century is often defined as Artificial Intelligence (AI). This field is described as a panacea of economic development, social innovation, and sustainable development, with discourse often focusing on efficiency and transformative capacity. Nonetheless, the prevailing narrative of the equivalence of technological sophistication and sustainability tends to mask the material, ecological, and labor-intensive basis needed to sustain AI systems, and hide a growing ecological footprint. The growth of AI relies on massive data centres that use gigawatts of electricity and substantial amounts of freshwater, intensive mineral extraction for semiconductor production, and a significant increase in electronic waste. As AI systems proliferate, they simultaneously contribute to a growing trend of damage to the global environment, which could amount to ecocide.

Governance frameworks typically focus on ethical principles such as fairness, transparency, privacy, and accountability; however, these concerns often tend to overshadow the more significant political and ecological consequences of the rapid growth of AI. Despite the rapid expansion and permeability of AI, its potential to cause ecocide remains unexplored. This article examines how the escalating sophistication of tools in the form of AI has the potential to produce environmental harms that meet the threshold of ecocide. The intention of the authors, instead of providing definitive proof, is to be accountable for, and delineating the responsibility ought to be taken into consideration by the designers of such algorithmic technologies.

ARTICLE INFO

DOI:
10.61081/vjr/16v1i110

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Keywords
Ecocide, Artificial Intelligence, Mining, Ecology

How to cite:
Pandey, S., Shaw, A. (2026). Artificial Intelligence: A Path to Ecocidal Consequences. Vivekananda Journal of Research, 16(1), 87-96

INTRODUCTION

The credibility of the information economy in emerging discourse is deeply rooted in the extractivist practices surrounding data and digital technologies. Data is frequently characterized as the "new oil" of the 21st Century, which is a metaphor that captures both its immense economic value and the power dynamics embedded in its extraction and use. As technological systems advance and grow more sophisticated and permeate diverse sectors such as education,

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healthcare, defence, and governance, the reach of data-driven algorithmic tools has become both unavoidable and highly consequential.

Artificial Intelligence (AI), the focus of this change, is often portrayed as an intangible, cloud-based, and "clean" technological innovation. These algorithmic tools are conceptualised as a weightless layer that can ensure efficiency, automation, and unprecedented advances in global productivity. The mainstream conceptualization of AI is synonymous with an all-inclusive solution provider to climate change, optimization of energy grids, transformation of healthcare, and facilitation of scientific discoveries that have been considered a utopian notion in the past. However, behind this rhetoric lie material consequences and ramifications in more than one area, particularly in terms of ecological impacts. The growing sophistication of technologies combined with innovation, especially algorithmically driven, has shed light on a number of ramifications, including but not limited to the amplification of social inequalities, discriminatory outcomes, creating systemic biases, and exacerbation of issues related to accountability and transparency. These new forms of data extractivism are not fundamentally different from "old" forms of extractivism, particularly when linked to the acquisition of material and energy needed for the functioning of digital technologies and infrastructures, as well as the large social and environmental impacts that are the result of the massive growth in the volume of data processing, storage, transmission and the related cycles of consumption and waste in the 21st century.

Responses to the harms associated with algorithmic tools and artificial intelligence have primarily focused on the so-called "ethification phenomenon" aimed at embedding ethical considerations in AI systems. In simpler terms, this means the entrenchment of normative frameworks of privacy, fairness, accountability, transparency, and similar values in AI. While these interventions are important, they are often at the cost of neglecting deeper ethical questions related to the large amounts of ecological labour and material harms that come with the production, deployment, and disposal of AI technologies. These broader issues engage not only the ecosystems of the present but also the future sustainability of the environments and communities that are all part of the digital systems cycle. Modern-day algorithmic tools are built and developed on complex global networks of code, carbon, cobalt, copper, and numerous other resources, all of which not only have the potential but even contribute significantly to the wider ecological crisis. Furthermore, every "training run" consumes megawatt-hours of electricity and millions of litres of water. Every leap in performance requires larger GPU clusters, which in turn require more land, more metals, more cooling, and a more continuous supply of non-renewable resources. The Paris Agreement has delimited global temperature rise to well below 2 degrees Celsius, and ideally to 1.5 degree Celsius. With AI's intensifying role in every domain, its role in intensifying the impacts of climate change, such as biodiversity decline, drought, coastal flooding, and threats to food and water security, must be taken into consideration.

We argue that far from being weightless and harmless, AI is built upon heavy, extractive, and resource-intensive infrastructures and that AI is not a clean revolution, it is an ecological transformation with planetary implications. Every AI model relies on vast quantities of minerals, metals, rare earth elements, water, and energy. And the contention of the authors is that failing to confront these environmental harms is unethical. This article provides an epiphany from the perspective of ecology to explore the kinds of structural and systemic changes that would be required for AI to genuinely qualify as "ethical". The existence of technology and its own advancement have not been neutral forces in bringing us to the current ecological emergency. And it will surely not play a neutral role in shaping our responses to it in the future.

Simultaneously, the legal and ethical concept of ecocide has gained unprecedented global attention. Ecocide is increasingly discussed as a potential fifth international crime under the Rome Statute, along with genocide, crimes against humanity, war crimes, and aggression. It connotes severe, widespread, and long-term environmental destruction perpetrated with knowledge of its consequences. While the conceptualization of the same initially was limited to address

issues like deforestation, chemical pills, nuclear contamination, and industrial disasters, the rapid expansion of AI poses significant concerns, such as: Could AI lead to conditions that meet the threshold of ecocide? Or could the environmental harms generated by the AI Industry become actionable? Or can AI be repurposed as a tool to expose, prevent, or prosecute ecocide?

This article considers the ecological dimensions of modern global economic systems, where digital technologies and Artificial Intelligence are considered principal drivers of growth and a supposed solution to the climate crisis. Such narratives require reconsideration of understanding and assessment of ecological implications. The article identifies the environmental violence that is embedded in AI systems. In this respect, while scholars of political ecology have been concerned with making explicit the political, social and economic dimensions of environmental crises often seen as 'natural and apolitical', this study focuses attention on the burgeoning literature that places the conceptual focus on technology, data, the digital economy and e-waste as important sites of ecological disruption.

The article goes on to assess how AI can be paradoxically used to equip the means for environmental protection, monitoring, and enforcement.

Herein, the main purpose of the authors is not to present AI as a technology that is by essence destructive, but rather to highlight the need for urgent ecological governance, legal accountability, and ethical design frameworks that will acknowledge the fact that AI is a deeply material and environmentally consequential technology. An ecocide framework provides one possible path towards such accountability, particularly in an age where technological infrastructure is moving up to a planetary scale.

Contextualizing the Term 'Ecocide'

In its most basic formulation, the term "ecocide" constitutes prefix "Eco" and suffix as "cide". The term "eco" is derived from the Greek work "oikos" which refers to the environment and man's relation to it. "Cide" is derived from the Latin verb "caedere" also means "kill". Read together, the term broadly refers to the destruction or devastation of the environment in a manner that threatens or extinguishes the conditions necessary for life. Despite clarity in literal meaning of the terminology, there lies no unanimity in the consensus of the definition of the term "ecocide", let alone the "ecocide" being criminalized under the International Law be it in or as a part of the classic Multilateral Environment Agreement ("MEA") or as a fifth crime under the jurisdiction of the International Criminal Court.

The idea to connotate and classify 'ecocide' as an international crime emerged decades ago and is not a novelty. and it dates back to 1970s. Its roots can be traced back to the early 1970s, emerging in response to the large-scale environmental destruction that occurred during wartime. The term gained prominence when the US military deployed 'Agent Orange', a toxic herbicide, as a tool of chemical warfare in Vietnam. This caused catastrophic and long-lasting ecological devastation. It was the plant biologist Arthur Galston who first invoked the term 'ecocide' to describe it as "willful, permanent destruction of environments in which people can live in a manner of their choosing". (Draft Code of Offences Against the Peace and Security of Mankind, 1954) This articulation highlights the foundational moral and legal intuition behind ecocide: that environmental destruction can be so severe that it warrants treatment as an international crime.

Initial attempts to embed environmental protection within international criminal law surfaced during the drafting of the 1954 Draft Code of Offences Against the Peace and Security of Mankind (Magnus, 2013, p. 189). However, reflecting the priorities of the post-World War II criminal tribunals, the Draft Code did not include environmental crimes beyond the existing Nuremberg principles. (ILC, 1995)

It was not until 1995, during the revision process of the Draft Code, that the International Law Commission recognized the need for criminal liability and thus initiated the idea of criminalising offences against the environment at international fora. However, during the second reading, the Chairman of the International Law Commission unilaterally removed the provision of mass environmental degradation entirely as a separate provision, sans any recorded justification or debate.

Therefore, as an offshoot of the ILC's Draft Code (Kemp, 2013, p. 714), the final and the current position of environmental protection remains a far cry from the other provisions included in the Statute. ('Guidelines on the Protection of the Natural Environment in Armed Conflict Rules and Recommendations Relating to the Protection of the Natural Environment Under International Humanitarian Law, With Commentary, 2020) , in 2021, a panel of experts working with the Stop Ecocide Foundation drafted a text for the crime of ecocide (IEPLDE, 2021). At present, Article 8(2)(b)(iv) of the Statute "prohibits intentionally launching an attack in the knowledge that such an attack will cause widespread, long-term and severe damage to the natural environment which would be clearly excessive in relation to the concrete and direct overall military advantage anticipated." This provision is considered to be limited and restrictive in scope, applicable only during armed conflict and imposing stringent proportionality requirements.

Given the absence of consensus on what constitutes ecocide, the common parlance in which the term is used or referred to as "severe, widespread, or long-term damage to the environment caused by human activities, carried out with knowledge of the substantial likelihood of such harm". In common understanding, the term "ecocide" refers to acts that destroy ecosystems, endanger species, undermine ecological integrity, or disrupt the environmental conditions necessary for life. The most influential contemporary articulation is the proposed amendment to the Rome Statute of the International Criminal Court which stipulates Ecocide as "unlawful or wanton acts committed with knowledge that there is a substantial likelihood of severe and either widespread or long-term damage to the environment being caused by those acts." The definition embeds several key legal thresholds that determine whether environmental harm rises to the level of ecocide. These can be categorized as follows:

i. The environmental damage that is caused is of a severe nature, constituting adverse changes, disruptions, or harms to the environment, including that of soil, air, water, climate, and habitats.
ii. The damage is not limited to a specific geographical area but crosses boundaries that affect the ecosystems of not one specific region or country.
iii. The damage caused is of a long-term nature, thereby being irreversible and cannot be mitigated within a reasonable period. Examples may include radioactive contamination, groundwater depletion, and extinction of species.
iv. Although the goals of the act may differ, the act is committed recklessly with a conscious disregard for the environmental harm. This, in other terms, is also known as the Wanton Acts.
v. Lastly, the knowledge that the act has a substantial likelihood of causing ecological harm, thus meeting the knowledge standard to constitute ecocide.

Sans the consensus on the connotation and the definition of the term "ecocide", for the purpose of the article, the potential of AI to constitute Ecocide is comprehended from the various tests like Scale Test, Duration Test, Irreversibility Test, Knowledge Test, and Disproportion Test. Together, these tests provide an analytical framework for assessing whether AI-driven environmental impacts may rise to the level of ecocide.

a. The Scale Test examines the geographical, ecological, and systematic reach of the harm committed by the act. This test does not concern itself with an isolated incident, but it is concerned with the damage that affects the ecosystems in their entirety, species' population or biomes. In the analysis of ecocide, the scale test is crucial from the perspective that if the impact is local, it is more commonly treated as that of environmental damage, but if the impact is considered to be vast, it is considered to be ecocide.
b. The Duration Test: To label an act as ecocidal, the duration test is significant, focusing on the temporal persistence of the damage caused. Examples include radioactive waste, radiation, soil contamination from arsenic or mercury mining, and groundwater depletion.
c. The Irreversibility Test constitutes harm as an irreversible harm, meaning that no reasonable mitigation can restore previous conditions. Examples of the irreversibility test include the extinction of species, the destruction of

wetlands, the permanent loss of soil fertility, and the depletion of freshwater resources.

d. The Knowledge Test examines if the perpetrators of the act had the knowledge of the risks. The test does not focus on the perpetrators' intent. The perpetrator may have actual knowledge or constructive knowledge.

e. The Proportionality Test includes the aspect of whether environmental harm, even if it is for development, outweighs any justification for the same.

These tests become significant in comprehending and mapping the potential of AI to constitute Ecocide. However, it first becomes imperative to understand the underlying forces driving the rapid amplification and sophistication of technology, particularly in the context of rising consumerism.

The Inevitability of Advancing Technology and Overconsumerism: Implications for the Environment

The warnings put forth by the scientists have become increasingly alarming, with extensive literature indicating that the sixth extinction of species is underway, evidenced by the loss of more than 69% of species population since 1970 (Living Planet Report 2022– Building a Nature- Positive Society. Technical Report, 2022). Climate Change (Summary for Policymakers. In: Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, 2022) is agreed to be a real phenomenon and can be unequivocally attributed to human activities. This forms a central driver of this ecological decline. In common understanding, it is accepted that environmental disasters are rooted in overconsumerism, expressed in the forms of industrialisation, technologization and relentless pursuit of new development paradigms. It is widely recognised that to save the planet, the aggregate use of material resources by humanity must be capped, but the dominant story is that of unbridled growth. Consumerism picks up pace with technological development, and, in this context, human agents increasingly overstep planetary boundaries, thus compromising the chance of flourishing life on Earth (Will Steffen, 2015). These trends are inextricably linked to the overexploitation of natural resources, a key feature of modern economic systems. Neocolonial extraction still provides profits for the wealthy, fueling mass production and a culture of hyper-consumption that some scholars have called over-consumerism. The sophistication of technology, rather than improving these patterns, often facilitates an increased throughput of materials, energy, and commodities. To understand how the paths of technologization, overconsumption, and ecocide build up like a virtual tinderbox, it becomes imperative to understand the raison d'être and perceived inevitability of technologization by nation-states.

In the specific area of artificial intelligence, technologization has become a strategic imperative for nation-states. As technology becomes a more significant determinant of economic competitiveness, national security, and geopolitical influence, states around the world are becoming increasingly aggressive in their efforts to enhance their technological capabilities and achieve technological sovereignty. In an age of profound interconnectivity and innovation-driven order, countries that do not keep up risk lagging on the geopolitical, military, economic, and strategic fronts. This inexorable movement towards technological acceleration is further supported by the logics of deterrence, which is felt in the fears of dependency, vulnerability to external control, opening to information warfare, and increasing asymmetries of global governance. Consequently, technologization has gone from a policy preference to an existential necessity for states.

Moreover, the combination of over-consumerism and rapid technological development has exacerbated ecological danger as each new wave of innovation increases the consumption of materials, the need for energy, and the volume of waste generated at rates that exceed the earth's ability to regenerate. Also, with each new technological innovation, consumerism rises in parallel, accelerating demands for devices, data services, and digital infrastructures – thereby compounding resource extraction, energy use, and environmental degradation.

From Infrastructure to Impact: Mapping AI's Ecological Footprint

The digital economy across the world is contributing significantly to environmental degradation and may thus potentially lead to ecocide. The Information and Communication Technology Sector emits massive global carbon emissions, depending on the estimate, and its physical infrastructure for devices and batteries requires intensive mining operations that destroy local habitats and the surrounding environment far beyond the regional boundaries. This section analyses the extent to which algorithmic tools in the form of development of AI may be considered culpable in producing harms that meet ecocidal threshold.

The advancement of technology in the form of AI, especially large-scale computational models, carries profound computational and, therefore, environmental costs. As argued by Emily Bender, Timnit Gebru, Angelina McMillan-Major, and Shmargaret Shmitchell (Emily M. Bender, 2021) such models demand immense computing power, thus resulting in substantial carbon emissions and resource consumption. Similar arguments have also been built upon by other authors (2016, October 2016) (Joler, 2018) (Emma Strubell, 2019). Although estimates may differ, one of the studies indicate cost of training a single large-scale AI model can produce emissions comparable to that of multiple trans-Americal flight (Emma Strubell, 2019). The harms are known and already severe and are also likely to grow more in utter severity. Given the extensive body of academic research documenting the environmental impacts of AI and its computation (Emily M. Bender, 2021) (Calo, October, 2016), the argument that developers, corporations, and governments remain unaware of the potential harms is unpersuasive. Technologization in the form of AI is no longer a "buzzword" but a deeply entrenched reality shaping economic, political, and social systems. Accordingly, the foreseeability of environmental consequences is well-established, meeting a key component of ecocidal analysis.

Computing itself is best understood as a bricolage of materials, processes, infrastructures, policies and more (Goldstein, March, 2022). These systems extend into nearly every aspect of human and non-human life, reflecting and amplifying global asymmetries (Nick Lally, Computational Parasites and Hydropower: A Political Ecology of Bitcoin Mining on the Columbia River, March, 2022) distributed across global processes of production, consumption, and waste in almost every part. Computing through the development of Artificial Intelligence is based on intensive infrastructure (Goldstein, March, 2022). The rise of AI does not occur in isolation but is enabled by vast resource-intensive infrastructures: data centres, semiconductor fabrication facilities, global supply chains, mineral extraction zones, and energy-hungry computational clusters. The metals used and the potential of its contribution towards environmental damage is massive in a number of ways across various lifestyles – right from material extraction and exploitation of, for example cobalt and coltan in the Democratic Republic of Congo (Cramer, November, 2012), greenhouse gas emissions from Information Communication Technology (Charlotte Freitag, September, 2021), energy cost of training algorithms (Emily M. Bender, 2021), or the increased consumption of consumer products and associated packaging and logistics enabled by computing platforms (Steffen Lange, 2023) - technologization has a large and global, if difficult to precisely measure (Udit Gupta, July 2022), environmental footprint. The following table outlines the key metals and minerals used in AI systems and associated technological infrastructures, leading to environmental impact:

Environmental Harm in AI Systems: Mapping the Path to Ecocide

With the continuous advancement and adoption of AI, mining activities are likewise expected to expand in scale and intensity. The Mining corporations and the developers strategically position themselves as drivers of technological progress, particularly in the development of Artificial Intelligence, to gain superiority in the global race for technological supremacy. The mining of critical minerals necessary for artificial intelligence and computing infrastructure is often cast as an irreplaceable part of modernity, digital development and a low-carbon future, with proponents pushing initiatives characterized by the appellation "Green AI".

Table1: Shows the key metals and minerals used in AI systems and associated technological infrastructures.

Category	Key Materials	Major Pollution leading to Environmental Damage
Semiconductors and Microelectronics	Boron, Silicon, Phosphorous, Cobalt, Copper, Gallium, Germanium, Arsenic, Indium phosphide, Palladium, Silver, Gold, Europium, Yttrium, Tungsten	a) Toxic mining tailings b) Heavy metal pollution c) Acid mine drainage d) Radioactive and rare earth waste (especially from europium and yttrium) e) Air pollution f) High Carbon Emissions
Data Storage (HDDs, SSDs, Memory Chips)	Lithium, Silicon, Manganese, Praseodymium, Neodymium, Samarium, Gadolinium, Dysprosium, Platinum, Gold	a) Severe natural resources like groundwater depletion and contamination b) Toxic sludge and radioactive waste c) Airborne particulate pollution d) Mercury and cyanide pollution e) Toxic e-waste
Essential Process Gases that enable manufacturing of semiconductor	Neon, Helium, Arsine, Krypton	a) Ecological Hazards b) Emissions from natural gas fields c) Carbon emissions d) Neon Production
Displays, LEDs and Optical Components	Europium, Terbium, Yttrium, Indium, Gallium, Cerium, Platinum group metals	a) Toxic waste streams b) Soil depletion and contamination c) High Chemical Pollution d) Air emissions
Connectivity, Wiring and Circuit Boards	Magnesium, Chromium, Nickel, Copper, Yttrium, Silver, Terbium, Gold, Lanthanum, Cerium, Europium	a) Hexavalent chromium pollution b) Contamination of Water c) Toxic Solder Fumes d) Deforestation e) Radioactive and rare earth waste
Power Supply and Batteries	Lithium, Graphite, Manganese, Cobalt, Nickel	a) Destroys freshwater ecosystem b) Toxic metal dust c) Severe Soil Contamination d) Graphite dust smog e) Acid rain f) Leaching of heavy metals into soil
Optics, Imaging and Advanced Materials	Graphite, Copper, Germanium, Indium, Praseodymium, Neodymium, Holmium	a) Dust and particulate emissions b) Heavy metal soil and water pollution c) Radioactive waste d) Toxic acid effluents e) Chemical Solvent Pollution

Table 2: Shows environmental Impact of AI and there relevance to Ecocide.

Environmental Impact of AI	Description (from source)	Relevance to Ecocide	How it Meets Ecocide Thresholds
High Energy Consumption and CO_2 Emissions	Training and running of AI models emits large amounts of CO_2 inference also consumers significant electricity. The usage of AI through different means and modes also requires battery usage and electricity consumption	Enables climate-forcing emissions that cause long term harm	a. Contributes to Climate Change, biodiversity loss, heat stress. b. Harms are severe, global, long lasting c. Companies are well aware of these impacts thus are forseeable of the harms.
Air Pollution from the Fossil Fuel Energy	Increased demand on coal or gas plants causing particulate emissions	Direct Health and ecosystem damage contributing to environmental decline	PM2.5 Pollution leads to premature deaths, loss of species, and toxic air. Impacts in this instance are also widespread and forseeable.
Data Centres of AI require extreme water consumption	Data centres require massive water usage for cooling thus amplifying water scarcity and polluting the same	Intensively depletes the essential ecological resources, affecting both the communities and the ecosystems.	This destroys aquatic habitats and causes long-term ecological imbalance. Furthermore, it is sited mostly in water-stressed regions, thus leading to wanton disregard.
Water Use in Chip Manufacturing	Fabrication of semiconductors requires enormous volumes of ultrapure water.	This intensifies hydrological stress through extraction of water resources from the local ecosystems	This leads to depletion of local rivers and groundwater, and impacts are severe and structural, and not isolated per se.
Extraction of Resources like Rare Earth Minerals (e.g., Cobalt and Lithium)	Mining the hardware of AI is linked to toxic pollution, displacement, soil, and water destruction.	This contributes to direct and massive ecological devastation and is a classic example of extractivist harm that is relevant to ecocide.	Mine tailings poison rivers and destroy habitats. The damage contributed through these mining is immense and irreversible along with being widespread. The industries are very well aware of the supply-chain impacts, and the category of both foreseeability and knowledge element is met to meet the threshold of ecocide.
E-Waste and Toxic Disposal	Old servers and devices produce polluting agents like lead, mercury, cadmium	This creates several zones of pollution categorized into soil, water, and health damage.	The toxic contamination of these wastes persists for decades and is a long-term indirect damage to the environment.
High-Cost Precision Agriculture Displacing Small Farmers	AI-driven agriculture creates land consolidation and ecological monocultures	This reinforces environmental degradation through the industrialization of agriculture by utilizing AI-based tools.	This amplifies soil depletion, loss of biodiversity, overuse of water, and the consequences are both known to the industries and the companies and are also forseeable.

Developers routinely engage in practices that constitute a form of greenwashing and project an image of themselves as vanguards of materials that are considered essential to the advancement of humanity.

These narratives help to marginalise communities of people fighting against extraction that is outside of the paradigms of technological progress and sustainability, and, at the same time, obfuscate the degree of ecological damage that is occurring - damage that may be approaching the threshold of ecocide. This section provides a critical analysis of the intersection between the environmental consequences of AI development and how these may contribute to, or even promote, ecocidal consequences.

Concluding Remarks

The path of artificial intelligence (AI) development has shifted from theoretical speculation or utopian idealisation to actual practical application. In the current digital world, AI has an unprecedented impact on the human and non-human world. As a result, nation-states seek out active geopolitical, economic and strategic advantages. The goal of "international prestige" and "deterrence" provides significant state investment in technological sophistication. This impetus is predicated upon the acquisition of strategic capabilities as well as precision defence applications, control of critical infrastructure and pervasive influence across societal systems. Moreover, widespread deployment of AI is seen as giving political authority and recognition from other countries around the world, hence positioning leading states as principal actors in the international system.

Advanced capitalist states, which already have a favourable position, are aiming to monopolise AI technologies, and this has a structural disadvantage for developing countries and low-income countries. The technological competition is rooted in strategic fears about the centralization of AI capabilities in a handful of states, which may help to create large asymmetries in power, economic power, and security.

While international competition has helped speed up technological advances, and will likely do so in the future, it has generally ignored the large ecological consequences of AI. Latent environmental effects, from the resource-intensive nature of AI infrastructure, from data-centres to computational clusters. Although the full extent of these effects is not quantifiable, the potential for serious environmental damage, including contributing to ecocide, cannot be dismissed.

Within the current, dominant worldview of modern capitalism, dominated by Western paradigms, nature is often viewed as an external resource that has no innate value and is therefore open for extraction. The perception that AI development simply sucks up soil or water does not consider the ecocidal potential that is embedded in computational activities. The prevailing paradigm assumes that resources are plentiful and non-depletable, thereby obscuring the environmental impacts of AI development. Researchers, consumers and governments need to rethink computing and AI infrastructure as systemic contributors to environmental damage, potentially ecocidal in outcome.

Therefore, careful consideration must be given to the distribution of harms resulting from computational technologies and AI development, so that they are managed in a way that supports planetary sustainability. This is essential in order to avoid the reclassification of the present "Anthropocene" epoch as an epoch of the "Computocene", a supposed epoch dominated by algorithmic and computational forces. Environmental harms of AI, however modest, distributed, direct or indirect, need to be recognized as real and potentially catastrophic, regardless of whether or not they meet the stringent criteria of severity, scale or duration under ecocide law. The unthoughtful continuation of current technological practices creates the potential of accelerating environmental degradation to unprecedented levels, making sustainable governance and accountability in AI development an urgent need.

REFERENCES:

1. J. S. (2013). *Climate Change Remedies: Injunctive Relief and Criminal Law Responses.* Sun Press 2013.
2. 2016, K. C. (October 2016). There Is a Blind Spot in AI Research. *Nature*, 311-313.
3. (2020). *'Guidelines on the Protection of the Natural Environment in Armed Conflict Rules and Recommendations Relating to the Protection of the Natural Environment Under International Humanitarian Law, With Commentary*. International Committee of Red Cross ('ICRC').
4. Calo, K. C. (October, 2016). There Is a Blind Spot in AI Research. *Nature*, 311-313.
5. Charlotte Freitag, M. B.-L. (September, 2021). The Real Climate and Transformative Impact of ICT: A Critique of Estimates, Trends, and Regulations. . *Patterns*.
6. Cramer, B. W. (November, 2012). Man's Need or Man's Greed: The Human Rights Ramifications of Green ICTs. *Telematics and Informatics*, 337-347.
7. (1954). *Draft Code of Offences Against the Peace and Security of Mankind (1954).* ILC, Yearbook of the International Law Commission: Vol II.
8. Draft Code of Offences Against the Peace and Security of Mankind. (1954). *Yearbook of the International Law Commission, Vol II*. International Law Commission.
9. Emily M. Bender, T. G.-M. (2021). On the Dangers of Stochastic Parrots: Can Language Models Be Too Big? *In Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency* .
10. Emma Strubell, A. G. (2019). Retrieved from arXiv: https://doi.org/10. 48550/ARXIV.1906.02243
11. Goldstein, E. N. (March, 2022). A Political Ecology of Data. *Environment and Planning E Nature and Space*, 3-17.
12. IEPLDE. (2021, June). *Commentary and Core Text*. Retrieved from Stop Ecocide Foundation: https://static1.squarespace.com/static/5ca2608ab914493c64ef1f6d/t/60d1e6e604fae2201d03407f/1624368879048/SE+Foundation+Commentary+and+core+text+rev+6.pdf
13. ILC. (1995). Yearbook of the International Law Commission Part II. *UN Doc A/CN4/SERA/1954/Addl, p.30*.
14. Joler, K. C. (2018). Retrieved from http://www.anatomyof.ai
15. Kemp, G. (2013). Climate Change, Global Governance and International Criminal Justice. In C. R.-S. Oliver C. Ruppel, *Climate Change: International Law and Global Governance Climate Change: International Law and Global Governance: Volume I: Legal Responses and Global Responsibility (Nomos Verlagsgesellschaft mbH 2013)* (p. 714).
16. (2022). *Living Planet Report 2022– Building a Nature-Positive Society. Technical Report.* Switzerland: WWF, Gland.
17. Magnus, J. S. (2013). *Climate Change Remedies: Injunctive Relief and Criminal Law Responses.* Sun Press.
18. Nick Lally, K. K. (March 2022). Computational Parasites and Hydropower: A Political Ecology of Bitcoin Mining on the Columbia River. *Environment and Planning E: Nature and Space*, 18-38.
19. Nick Lally, K. K. (March, 2022). Computational Parasites and Hydropower: A Political Ecology of Bitcoin Mining on the Columbia River. *Environment and Planning E: Nature and Space*, 18–38.
20. Steffen Lange, T. S. (2023). Digital Reset: Redirecting Technologies for the Deep Sustainability Transformation. *Oekom Verlag*, 323-327.
21. (2022). *Summary for Policymakers. In: Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.* IPCC 2022.
22. Udit Gupta, Y. G.-H.-Y.-J. (July 2022). Chasing Carbon: The Elusive Environmental Footprint of Computing. *IEEE Micro*, 37–47.
23. Will Steffen, *. K. (2015). PlanetaryBoundaries:GuidingHumanDevelopment on a Changing Planet. *Science*.