



THE SEVENTH EDITION OF THE GLOBAL ENVIRONMENT OUTLOOK (GEO-7): Charting a course towards a sustainable future in a decade of crisis

The Global Environment Outlook (GEO) is the flagship report of the United Nations Environment Programme (UNEP) providing an integrated assessment of environmental change, the current state of the environment, the effectiveness of policy response and the options for achieving different possible futures in the medium to long term. The Seventh Edition of the Global Environment Outlook (GEO-7) stands as a monumental and authoritative scientific assessment of the state of the global environment, meticulously produced under the auspices of the United Nations Environment Programme (UNEP). Since its inception in 1997, the GEO series has served as the world's pre-eminent science-policy interface, offering comprehensive diagnostics of environmental conditions, trends, and future pathways to achieve sustainable development. GEO-7 arrives at a singularly critical juncture in human history, confronting a world wrestling with the compounding and interconnected nature of the Triple Planetary Crisis: climate change, biodiversity loss, and pollution/waste. The palpable lack of momentum toward realizing the Sustainable Development Goals (SDGs) by their 2030 deadline casts a long shadow, intensifying the urgency for systemic, transformative action. Therefore, GEO-7 is more than a mere assessment; it is a scientifically grounded mandate for change, designed to equip policymakers with the evidence, knowledge, and actionable recommendations necessary to dismantle political and economic barriers and forge a path toward a truly equitable and sustainable future.

1. THE GENESIS AND STRATEGIC IMPERATIVE OF GEO-7

Prior editions of the Global Environment Outlook, particularly GEO-6 in 2019, successfully laid the groundwork by rigorously defining the primary environmental challenges and tracking progress, notably emphasizing the critical need for "societal transformation" to meaningfully address these issues. GEO-7 takes this foundational work and elevates the level of scrutiny and prescription, driven by a heightened sense of global urgency. The report marks a distinct evolution, shifting its primary focus from problem description to solution-oriented, systemic transformation. This edition is strategically structured to fulfil several key objectives: first, to dramatically

enhance the Science-Policy Interface by distilling the latest, most robust scientific evidence into accessible and relevant insights for decision-makers across all sectors. Second, to hone in on System Transformation, providing deep analytical dives into the social, economic, and institutional drivers that perpetuate environmental degradation, proposing concrete interventions within the most environmentally consequential systems. Third, to ensure Coherence with International Frameworks, guaranteeing its findings and recommendations align with and support major global agreements, including the Paris Agreement on Climate Change, the Kunming-Montreal Global Biodiversity Framework (GBF), and various conventions on chemical and waste management.

GEO-7 is poised to be the crucial scientific reference document informing several high-stakes global forums. Its findings are expected to underpin discussions at the Summit of the Future, providing the scientific basis for reshaping global governance structures. Furthermore, it will be integral to the mid-term review of the SDGs, offering an unflinching assessment of the trajectory towards achieving the environmental and related sustainable targets. Crucially, the report will serve as a foundational resource for negotiators at upcoming Conferences of the Parties (COPs) for both climate and biodiversity, empowering nations to escalate their commitments and ambition with scientifically validated evidence.

2. CORE THEMATIC FOCUS AREAS OF GEO-7: LEVERAGING SYSTEMIC CHANGE

GEO-7's analytical framework is built around an in-depth exploration of the primary societal systems whose operations exert the most significant pressures on the planetary environment and where targeted interventions can yield the greatest transformative impact.

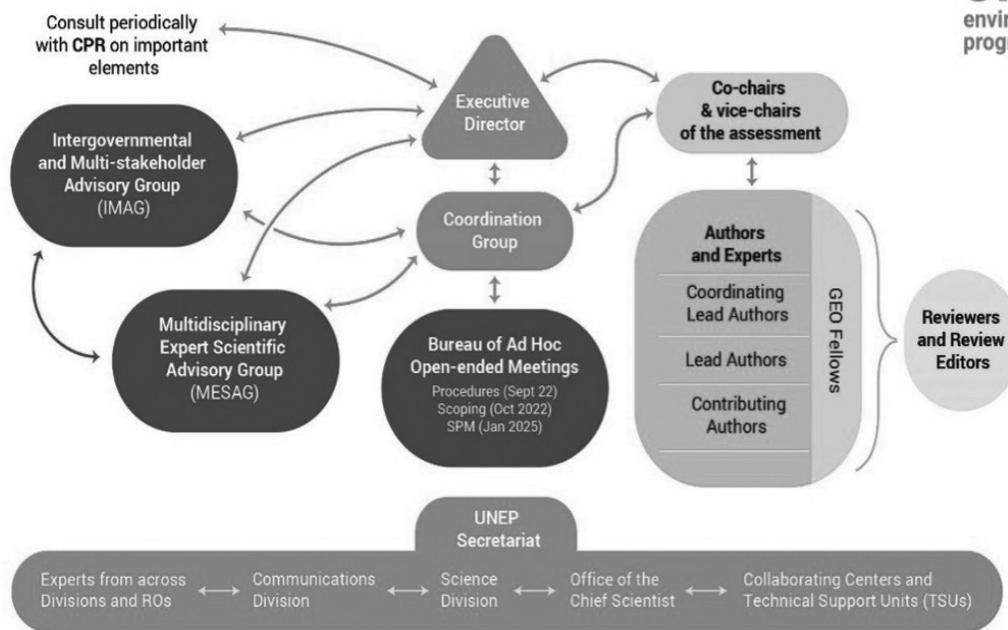
The energy system

The global energy system remains overwhelmingly dependent on fossil fuels, which are the dominant source of greenhouse gas (GHG) emissions and localized air pollution. GEO-7's focus here is manifold: it assesses the policies and technologies required for a rapid transition to renewable energy sources: solar, wind, and hydropower. It emphasizes the dual strategy of accelerated energy efficiency improvements and widespread electrification across industrial and



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With governments, stakeholders, outside experts and expertise from across the house



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transport sectors to curb overall demand. Critically, the report tackles the issue of equity and access, ensuring that the energy transition is a just one, avoiding the exacerbation of existing inequalities, particularly among vulnerable communities, and extending access to clean, affordable energy for all.

Food, land, and ocean systems

The prevailing models of food production and consumption constitute a primary driver of biodiversity loss, land degradation, water pollution, and a substantial portion of global GHG emissions. GEO-7 champions a holistic approach centered on regenerative and sustainable agriculture, advocating for farming methods that restore soil health, conserve water resources, and minimize chemical dependency. A major component involves tackling the twin challenges of food loss and waste reduction and dietary shifts, analyzing effective strategies to reduce waste from farm to fork while encouraging healthier, more environmentally benign diets, such as plant-rich consumption. For the oceans, the focus is on sustainable ocean management, evaluating the complex impacts of overfishing, plastic pollution, and ocean acidification. The report strongly promotes Nature-based Solutions (NbS), such as the restoration of coastal ecosystems like mangroves, and the expansion and effective management of Marine Protected Areas (MPAs).

Urban and infrastructure systems

Cities are acknowledged as paradoxical entities while they are epicenters of resource consumption and waste generation, they also represent the most fertile ground for implementing scaled-up sustainability solutions. GEO-7 advocates for Green and Smart Urban Planning, analyzing policies that promote compact development, highly efficient public transportation networks, and the integration of extensive green and blue spaces. A core tenet is the aggressive push toward a circular economy and integrated waste management, aiming to minimize the use of virgin resources and maximize the lifecycle of materials through comprehensive reuse and recycling programs. Furthermore, the report assesses resilience by examining how urban infrastructure can be safeguarded against climate-induced shocks, such as flooding and extreme heat, proposing crucial adaptation strategies.

Financial and economic systems

The current global economic paradigm, which overwhelmingly prioritizes GDP growth, often systematically externalizes environmental costs. GEO-7 tackles this systemic failure by focusing on valuing nature, proposing methods to internalize environmental externalities and assign quantifiable value to ecosystem services within economic decision-making processes. This includes implementing robust



carbon pricing mechanisms and developing natural capital accounting. The report also emphasizes the crucial role of sustainable finance, analyzing how financial institutions can reorient capital flows away from environmentally damaging activities and toward green projects, catalyzed by instruments like green bonds and innovative transition finance mechanisms. A critical and often politically challenging recommendation is the phasing out of harmful subsidies, calling for the urgent removal of state support for fossil fuels, unsustainable resource extraction, and environmentally destructive agricultural practices.

3. METHODOLOGICAL ADVANCEMENTS AND FUTURE-PROOFING GEO-7

GEO-7 is distinguished by its sophisticated methodology, which integrates advanced analytical techniques and incorporates diverse knowledge systems to create a more nuanced and action-oriented assessment.

Integrating systems and addressing interlinkages

Moving beyond the traditional DPSIR (Drivers-Pressures-State-Impact-Response) framework, GEO-7 provides an expanded analysis of the complex interlinkages between systems and crises. Instead of treating environmental issues in isolation (e.g., climate change alone), the report meticulously analyzes how, for instance, climate change exacerbates biodiversity loss, and how, reciprocally, degraded ecosystems undermine climate mitigation efforts. This interconnected perspective is vital for designing co-benefits solutions, which are policies that simultaneously address multiple environmental and societal goals, thereby maximizing policy effectiveness and efficiency.

Harnessing big data and earth observation

The rapid acceleration in the availability of satellite data (Earth Observation), remote sensing technologies, and artificial intelligence (AI) has allowed GEO-7 to provide more detailed, geographically granular, and timely assessments of the environment. This technology enables real-time monitoring of critical indicators such as deforestation rates, land degradation severity, and air quality across large areas. Furthermore, the use of integrated models allows the report to project various future scenarios and rigorously evaluate the potential impacts of different policy choices, providing a robust, evidence-based foundation for foresight.

Incorporation of social and indigenous sciences

GEO-7 deliberately moves beyond the domain of natural sciences. It aggressively integrates social sciences (economics, sociology, political science) to gain deeper insights into the crucial institutional and behavioral barriers that impede the implementation

of effective environmental policies. Furthermore, the report formally recognizes the indispensable role of Indigenous and Local Knowledge (ILK). These ancestral knowledge systems often hold proven, highly effective solutions for adaptation and resource management, which are particularly vital for biodiversity conservation and climate resilience strategies in local contexts.

The centrality of equity and the urgency of transformative action

The Seventh Edition of the Global Environment Outlook (GEO-7) does not confine its analysis to biophysical metrics; it places Environmental Justice at the foundational core of its policy framework. The report powerfully and unequivocally argues that the ongoing degradation of the planetary environment is not merely an ecological crisis but an accelerating social and ethical failure. The costs associated with environmental decay ranging from chronic health issues caused by pollution to the displacement and loss of livelihoods resulting from climate-induced disasters and, conversely, the economic and health benefits derived from sustainable solutions, are profoundly and unjustly unevenly distributed. GEO-7 rigorously substantiates the fact that poor, marginalized, and vulnerable communities, particularly indigenous peoples and those in the Global South, disproportionately bear the brunt of pollution burdens and are the least equipped to adapt to the accelerating impacts of climate change, despite having contributed the least to the crises.

Deepening the mandate for a Just Transition

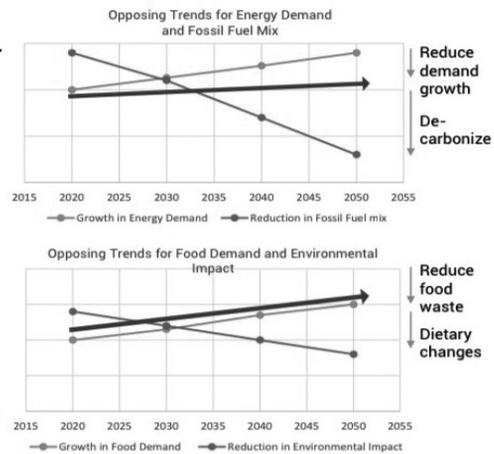
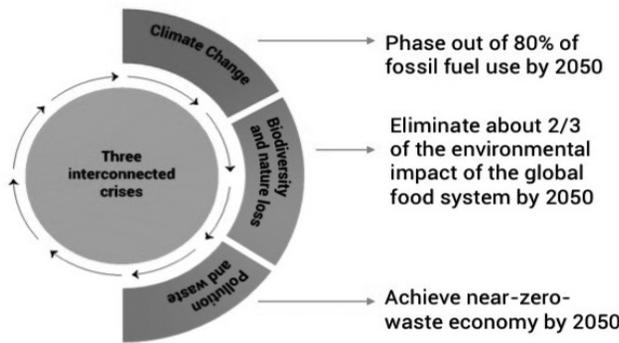
Consequently, GEO-7 elevates the Just Transition from a peripheral social concern to an indispensable prerequisite for achieving global environmental success. The report mandates that as nations embark on the necessary, large-scale transition away from fossil fuel dependency, resource-intensive industries, and polluting production methods, this economic restructuring must be managed with comprehensive social safeguards. A Just Transition, in the GEO-7 context, demands that policymakers implement holistic programs to support affected workers and their communities. This support must extend beyond mere rhetoric, encompassing robust retraining and upskilling programs to prepare the workforce for the green economy, the establishment of comprehensive social safety nets to bridge periods of economic uncertainty, and the proactive fostering of alternative, sustainable economic development in regions historically reliant on sunset industries. For GEO-7, the Just Transition is the mechanism that reconciles



GEO messages helped inform UNEP's MTS



- Chapter 22 of GEO-6 provides pathways to achieve politically agreed targets (e.g. Paris, Aichi, SDGs)
- More would be needed to achieve science-based targets.



GEO messages helped inform UNEP's MTS

the urgency of ecological necessity with the moral imperative of human equity, ensuring that environmental gains are not achieved at the expense of social cohesion or fairness.

4. SPEED-FOCUSED POLICY RECOMMENDATIONS

Recognizing that decades of incremental policies have proven insufficient, leading to the alarming rate at which international environmental targets are being missed, GEO-7 introduces a highly differentiated and speed-focused policy framework. This framework moves beyond simply detailing what needs to be done and forcefully articulates the rate, scale, and depth of action required to succeed. Policy interventions are meticulously categorized into three distinct tiers of ambition to guide implementation and resource allocation:

Incremental interventions: These represent the lowest tier of action, consisting of measures that only marginally improve existing performance and often maintain the status quo. Examples include marginally tightening existing emission standards for vehicles or gradually improving waste sorting efficiencies. While necessary for compliance, GEO-7 warns that reliance on this tier alone will ensure continued failure to meet transformative goals.

Systemic interventions: This intermediate tier calls for deep, structural changes within key economic and social sectors. These are high-impact interventions that fundamentally alter established operating practices. Examples include the complete overhaul of agricultural subsidy frameworks to reward ecological stewardship rather than merely production volume, or the systemic shift from private vehicle ownership to integrated, public mass-transit infrastructure powered by renewables. Systemic action is the minimum required to bend the environmental curve.

Transformative interventions: Representing the highest and most profound level of action, these interventions demand fundamental shifts in underlying societal values, mindsets, and power structures. Transformative action seeks to redefine the

very goals of development and human prosperity. The clearest example is the move beyond GDP as the sole measure of progress, replacing it with comprehensive sustainable well-being indices that integrate human health, social equity, and planetary integrity. This tier addresses the root cultural and political drivers of unsustainability.

GEO-7's concluding argument on this matter is emphatic and uncompromising: the planetary crisis cannot be solved through incrementalism. The path to avoiding the most catastrophic environmental tipping points and securing long-term planetary stability is possible only through the synergistic and immediate adoption of both Systemic and Transformative actions. These two upper tiers must be pursued simultaneously, driven by a commitment to justice, to fundamentally redirect global development pathways within this decisive decade.

The imperative for collective global action: The Seventh Edition of the Global Environment Outlook serves as the world's unequivocal gold standard for environmental intelligence, offering a clear-eyed and unsparing diagnosis of planetary health that transcends regional or political bias. It delivers a stark, empirically grounded articulation: the current global development trajectories driven by resource depletion, inequitable consumption



patterns, and systemic externalities are not merely degrading, but are fundamentally undermining the ecological foundations upon which human existence and prosperity depend. This comprehensive scientific consensus acts as a final, high-stakes warning against complacency.

Crucially, however, GEO-7 is strategically designed to avoid leaving its audience in despair or paralyzing inaction. While confronting the severity of the crisis, it carries a potent, evidence-based message of conditional hope, unequivocally stating that the window of opportunity for transformative action remains open, though it is closing rapidly and irrevocably. This acknowledgement defines the report's overarching mandate: to provide the actionable blueprint, the indispensable tools, the most current data, and the integrated, system-level recommendations for leaders and stakeholders across governments, the private sector, and civil society to immediately undertake the radical, deep-seated changes required for planetary stabilization.

The report decisively reframes the challenge: the transition to a sustainable future is no longer an optional policy choice; it is an existential imperative rooted in the physics and biology of the Earth system. Therefore, the ultimate, enduring success of GEO-7 will not be judged merely by the meticulous quality of its scientific composition, the breadth of its data, or the elegance of its prose. Its true legacy will be measured by the extent to which its urgent recommendations are converted into tangible, enforceable policy actions and, more importantly, result in demonstrable, verifiable systemic change across the globe. This change demands unprecedented levels of committed, accountable, and collective endeavor, transcending national interests and short-term political cycles. Only through such unified global mobilization can humanity successfully navigate and overcome the formidable Triple Planetary Crisis, thereby securing an equitable, healthy, and prosperous future not just for some, but for all generations to come.

5. GEO-7 AS THE CATALYST FOR DECADE-DEFINING POLICY IMPLEMENTATION

As the global community transitions from planning to the critical, decisive period of implementation, the scientific authority vested in GEO-7 must be leveraged far beyond the realms of mere academic consultation or occasional policy reference. The report is intended to serve as the active, strategic blueprint that dictates the direction of national development plans, fundamentally reshapes international aid strategies, and critically informs private sector investment

decisions worldwide. Its meticulous focus on the inherent interlinkages between the three pillars of the planetary crisis: climate change, biodiversity loss, and pollution renders isolated, single-issue policy solutions obsolete and unacceptable.

GEO-7 champions a radical shift toward integrated policy design. This means every national strategy, spanning from large-scale infrastructure spending and agricultural reform to public health initiatives and educational curricula, must now be evaluated not on its primary benefit alone, but through the rigorous lens of maximizing environmental co-benefits, strictly guided by the systemic thinking embedded within the report. For instance, an investment in public transportation should not only be justified by reduced traffic congestion but also by improvements in urban air quality (addressing pollution), reduced carbon emissions (addressing climate change), and the preservation of urban green spaces (addressing biodiversity). This holistic approach ensures that resources are deployed for maximal planetary and societal return.

To realize this vision, GEO-7 necessitates a profound restructuring of institutional incentives. Governments must integrate natural capital accounting into national ledgers, making the costs of environmental degradation visible and internalizing them within economic forecasting, a direct challenge to the supremacy of purely growth-focused metrics. For the private sector, the report acts as a powerful due diligence instrument, compelling financial institutions to adopt stringent ESG (Environmental, Social, and Governance) criteria aligned with planetary boundaries, thereby cutting off capital flows to environmentally destructive projects and accelerating the deployment of transition finance toward genuine sustainability.

The ultimate legacy of the Seventh Edition of the Global Environment Outlook will not be measured by its readership numbers or its citation count. Its success will be singularly determined by whether it successfully catalyzes a global shift from decades of incremental policy adjustments to a truly transformative societal and economic overhaul. GEO-7 provides the science to stop managing decline and instead start managing transformation, ensuring that the critical, non-negotiable targets missed in this decade become achievable, secure realities in the decades to follow, thereby safeguarding the integrity of the Earth system for all future generations ■

REFERENCES

<https://www.unep.org>

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