

3 April 2026

The Honourable Julie Dabrusin, P.C., M.P.
Minister of the Environment, Climate Change and Nature

Thank you for the opportunity to review and comment on Canada’s Draft 2026–2029 Federal Sustainable Development Strategy (FSDS).

The overarching goal of the FSDS should clearly identify pathways to reduce Canada’s total material and energy throughput at the system level while maintaining or improving human well-being. This is the lynchpin of any credible sustainability process, and we find it currently missing.

At the outset, we emphasize that the FSDS and the enabling *Federal Sustainable Development Act* (Act) do not appear to have incorporated primary input from Earth scientists, ecologists, or ecological economists thus they lack the scientific basis for sustainable development. This omission is critical, as ecological economics is the economic science of sustainability (Haddad and Solomon 2024). If the FSDS is to be considered as a genuine pathway toward sustainability, it must be grounded in ecological economics and oriented toward a steady state economy within the biosphere and society, rather than treated as separate from them (Brand-Correa et al. 2022). “*The simple, but to many unthinkable, fact is that you cannot get to a flourishing or even sustainable Earth if you start with the assumptions of neoclassical economics....*” (Kosoy et al. 2012).

Most mainstream economists—neoclassical economists—lack the ecological knowledge required to construct sustainability regulations or design an effective sustainable development strategy. Research indicates that neoclassical economic theory, when combined with neoliberal economics practice, form one of the principal driving forces of environmental destruction and social injustice (Diesendorf et al. 2024). Mainstream economics — with its focus on efficiency and markets — does not adequately account for the embeddedness of the economy within ecological limits, which is a foundational sustainability concern (Haddad and Solomon 2024) and as such should not be used as a guide for government policies.

It follows that growth-focused neoclassical economics contradicts planetary health goals. This is significant because Earth system scientists report that economic growth is driving an unprecedented disruption of the Earth systems that stabilize and maintain resilience in the biosphere (Richardson et al. 2023). Of the nine planetary boundaries that define a safe operating space for humanity, seven of these have already been seriously transgressed (Finlay et al. 2025). In effect, the global economy has outgrown the planet. Continued increases in material and energy use to fuel further growth accelerate unsustainable overshoot, undermine the well-being of the present generation, and threaten the survival of future generations.

Flowing from this central concern, we focus on three key issues in the Act that constrain the FSDS and limit its effectiveness, followed by suggested corrective actions. Our comments focus specifically on physical and biological laws. For some of these, we have provided citations from the scientific literature, though these are not exhaustive.

Key Issue 1: Defining Sustainable Development

In the Act, sustainable development is defined as “*development that meets the needs of the present without compromising the ability of future generations to meet their own needs.*” This is the first half of the Brundtland Commission definition and is one of the most often used – and abused – phrases in modern policy. It’s abused because the two key concepts that follow the definition in the original report are omitted: the concept of ‘needs’, in particular the essential needs of the world’s poor, to which overriding priority should be given; and the idea of *limitations* imposed by the state of technology and social organization *on the environment’s ability to meet present and future needs* (World Commission on Environment and Development, 1987).

Why this Matters:

“If your [economic] theory is found to be against the second law of thermodynamics I can give you no hope; there is nothing for it but to collapse in deepest humiliation.”—Sir Arthur Eddington, astrophysicist and mathematician.

By truncating the reference to limits, the Act’s definition overlooks the fundamental constraints imposed by thermodynamics on energy use and material throughput in the economy, opening the door to serious misinterpretation. For example, the FSDS begins with the Minister’s message about “*striking a balance between protection of the environment, economic growth and helping people build better lives.*” However, “*...[T]he environment is not and cannot be a leg of the sustainable development stool. It is the floor upon which the stool, or any sustainable development model, must stand. It is the foundation of any economy and social well-being that humanity is fortunate enough to achieve. Therefore, it follows that the environment must be considered at a different, more significant level than either the economy or our social well-being because it is the source of both these necessities to humanity*” (Dawe and Ryan, 2003).

Further, the FSDS reference to balancing the needs of the environment is in direct contradiction to the body of scientific achievement with roots extending from the 1920s that links the second law of thermodynamics to economic processes. The second law of thermodynamics states that energy and matter inevitably degrade from low-entropy (usable) states to high-entropy (less usable) states; therefore indefinite growth, including ‘*green growth*’, in the material scale of the economy is physically impossible because it continually converts finite stock of low-entropy resources into unrecoverable waste.

The Solution:

Update the Act and the FSDS with a biophysically correct definition of sustainable development such as: The intentional improvement of human well-being while keeping total material and energy throughput permanently within Earth’s regenerative and absorptive capacities.

From the FSDS, remove references to striking a balance between the environment, and social and economic factors and replace it with clear statements that identify the foundational role of the environment to social well-being and the economy.

Key Issue 2: Basic Principles

The Act’s omission of biophysical limits in the definition of sustainable development is amplified in the basic principles section by erroneously stating that sustainable development is “*based on*” the efficient use of natural resources and the integration of environmental factors in decision making. And while the ways to reduce material and energy throughput through the economy may be continually evolving, the underpinning science of sustainable development is not “*continually evolving*” as the Act suggests, and the second law of thermodynamics has not been repealed.

As Haddad and Solomon (2024) note, “*If one takes existing economic organization and throughput as given, and then moves directly to efficiency analysis [which the Act does], one risks continuing the overshoot of biogeophysical limits and the exclusion of large number of people from economic improvement even when the overall pie is growing. If one instead begins by considering limits, distribution, and inclusion, it makes sense to move on later to efficiency through market mechanisms as a complementary goal.*”

Technology, innovation, efficiency, clean growth, net-zero, Indigenous governance, protection of ecosystems, prevention of pollution, protection of human health, promotion of equity, the conservation of cultural heritage and so on, may help us live well within ecological limits subject to the second law of thermodynamics, but they can never repeal the law, allowing the economy to grow indefinitely. Unless economic growth can be decoupled from ecological degradation in substantive and measurable ways—and the second law of thermodynamics suggests that absolute decoupling is not feasible—sustainability goals that include economic growth are simply a pipe dream (Ripple et al. 2017; Hardt et al. 2021; Parrique et al. 2019; Hickel and Kallis 2020).

Why this Matters:

With the starting premise that sustainable development is about efficiency, it follows that the FSDS does not explicitly frame Canada’s development priorities within the context of planetary boundaries and absolute ecological limits (e.g., climate stability, biodiversity thresholds, and material footprint). Climate change and biodiversity loss are primarily framed as risks to economic growth and well-being rather than as constraints within which policy must operate to ensure a habitable planet and long-term human survival. This distinction is significant because a genuine move toward sustainable development requires more than incremental improvements; it requires operating within ecological thresholds. This perspective is central to sustainability science and critiques of Sustainable Development Goal implementation, which warn that without integrating ecological limits into policy frameworks, governments risk implementing measures that technically improve sustainability indicators while still contributing to the overshoot of critical environmental boundaries. Ongoing human pressures will continue to push multiple planetary boundaries further beyond their safe limits unless major policy shifts occur (Richardson et al. 2023; Gupta et al. 2024; Van Vuuren et al. 2025).

Specific examples in the FSDS:

- Sections emphasize “*building a productive and low-carbon economy*,” but do so largely within the conventional growth paradigm. The FSDS supports continued economic growth while coupling it with environmental considerations such as low-carbon technologies, yet it stops short of fundamentally questioning or restructuring growth-oriented economic models.
- Many targets address symptoms (such as energy efficiency, housing availability, and transportation access) rather than the structural drivers of environmental degradation, including production and consumption patterns, material throughput and resource extraction rates, and institutional incentives that favour short-term economic activity over long-term ecological stability.
- Goals align closely with the United Nations Sustainable Development Goals (SDGs). Critiques suggest those goals can function as overly broad frameworks that lack adequate depth regarding ecological limits. Strict alignment with the SDGs may therefore obscure Canada-specific sustainability challenges that require more rigorous or tailored policy approaches. Moreover, the concept of “sustainable economic growth” embedded within SDG Goal 8 has been criticized as internally contradictory, since sustained economic expansion ultimately increases material and energy throughput (Hickel, 2019). Some analyses have concluded that progress toward certain SDG targets may in fact intensify pressures on planetary boundaries (Pecquet 2023; Montemayor 2019; Washington 2021; Rhomrasi et al. 2025).
- The commitment to protect and restore Canada’s ecosystems and biodiversity in alignment with the Kunming-Montreal Global Biodiversity Framework, falls short of what current science suggests is necessary. While conserving 30% of land and inland waters and 30% of coastal and marine areas by 2030 represents an important policy milestone, multiple studies suggest that conserving approximately 44–50% or more of terrestrial and marine ecosystems may be required to sustain biodiversity, maintain ecosystem function, and support climate stabilization. Also, meeting the 30% target alone does not guarantee biodiversity outcomes: modelling suggests that only about 15% of species would be adequately represented without coordinated conservation planning, and potentially up to approximately 65% with well-coordinated planning. Additionally, percentage-based conservation targets alone do not ensure biodiversity protection, since the effectiveness of conservation depends heavily on location, ecological representation, connectivity, and management quality.

The Solution:

In the Act, correct the Basic Principles section to identify that real sustainability requires policies that reshape economic and social systems rather than simply improving efficiency or mitigating impacts; otherwise, gains in one domain may be offset by losses in another (Demaria 2018; Tal 2025). Also ensure that Earth scientists, ecologists, or ecological economists are included in the appointee list of the Act’s Sustainable Development Advisory Council.

This would help to integrate ecological limits into the policy frameworks of the FSDS. As an example, in the biodiversity section targets to protect closer to half of the terrestrial realm are grounded in ecoregional analyses indicating that many ecosystems require half or more of their area to remain

conserved in order to maintain long-term biodiversity viability. For this reason, many scientists emphasize that conservation effectiveness and prioritization—protecting the right places and managing them well—are as important as the proportion of area formally protected. Canada’s 30% target is therefore widely viewed as a minimum global ambition rather than a sufficient condition for halting biodiversity loss without stronger integration with broader conservation and land-use strategies (Dinerstein et al. 2020; 2019; Jung et al. 2021; Allan et al. 2022; Neugarten et al. 2024; Eckert et al. 2023; Carroll and Noss 2022; Dinerstein et al. 2017; Belote et al. 2021).

Key Issue 3: Lack of Enforcement

The Act obligates many federal departments and agencies to prepare their own strategies aligned with the FSDS, primarily to promote accountability and transparency rather than direct legal enforcement of sustainable development actions. Although progress must be reported to Parliament, and oversight is provided by the Commissioner of the Environment and Sustainable Development within the Auditor General’s office, the Act does not impose penalties or binding compliance mechanisms if targets are missed. Its enforcement relies largely on public reporting, parliamentary scrutiny, and administrative accountability rather than sanctions or judicial enforcement.

Why this Matters:

Without compliance mechanisms in the Act, the FSDS is reduced to high-level goals, broad targets, and implementation strategies. There are no legally binding mechanisms or enforcement provisions that would ensure federal departments follow through credibly. As such, the FSDS risks becoming a *reporting and planning document* rather than a framework that drives systemic change and agencies are not held accountable for results. Historically, audits of previous FSDS drafts showed that many targets were not sufficiently specific, lacked benchmarks, or were too few to ensure measurable progress. For example, earlier reviews found only a small fraction of targets met criteria for clarity and measurability (see <https://www.ourcommons.ca/DocumentViewer/en/42-1/ENVI/report-2/page-54>).

Two excellent examples of a lack of enforcement of proposed commitments are the COP meetings on climate and biodiversity illustrated by the graphs in Figures 1 and 2. Despite the many COP meetings attempting to deal with these issues, CO₂ levels keep rising—driven by population and economic growth (Pachauri et al. 2015; Shukla et al. 2022)—and Global Biodiversity keeps falling (Liu et al. 2025; Keck et al. 2025; Nguyen et al. 2025).

The Solution:

Amend the Act to include a regulatory component, ensuring that it has coercive enforcement powers.

We thank you again for the opportunity to review and comment on the FSDS and kindly request a written response from your office concerning the specific issues we’ve brought forward.

Sincerely,

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Directors, Qualicum Institute (qualicuminsitute.ca)

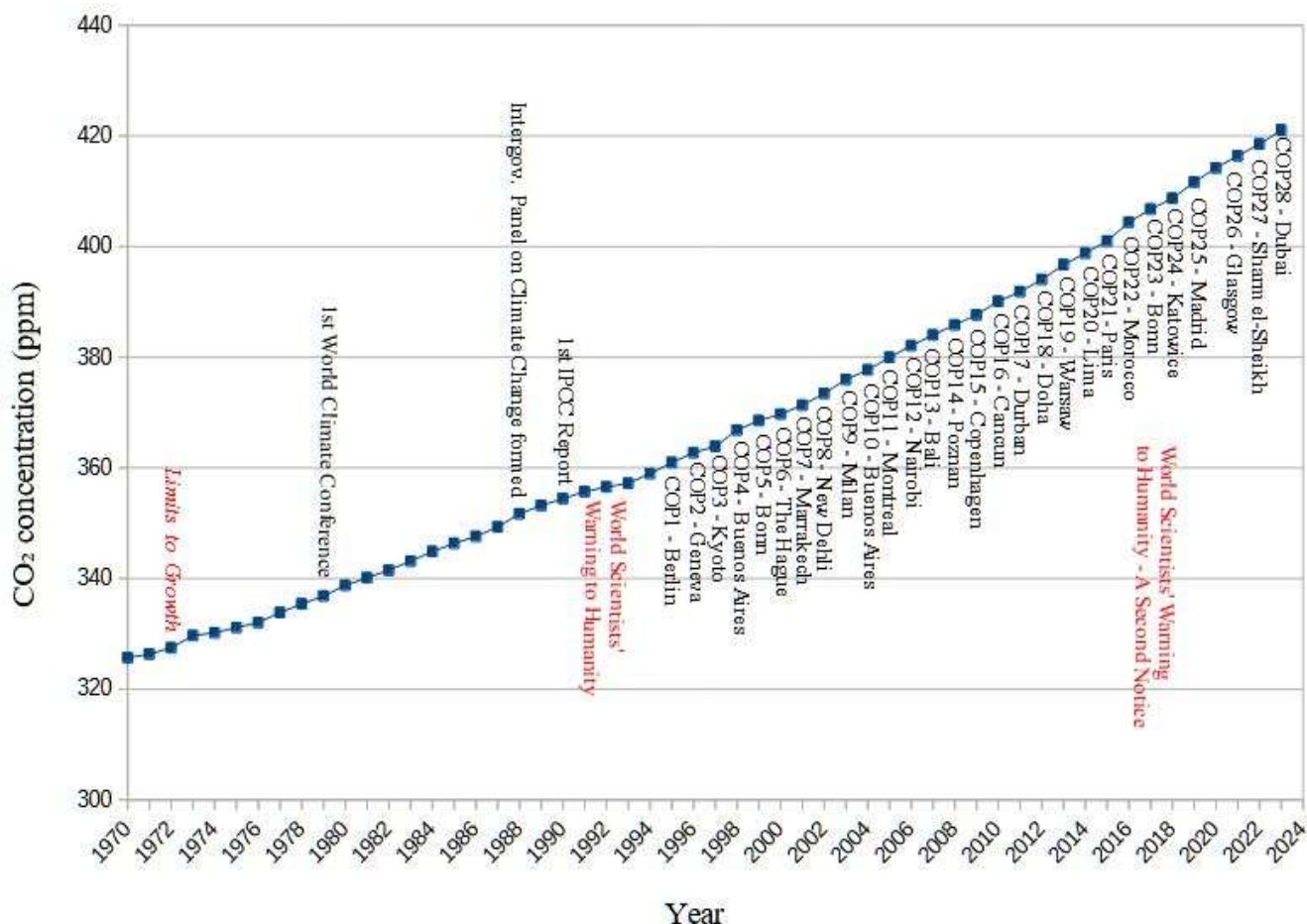


Figure 1. Annual mean atmospheric CO₂ concentration levels from Mauna Loa Observatory, Hawaii, overlain with the various climate conferences, scientists’ warnings and, in particular, the formal United Nations Framework Convention on Climate Change Conferences of the Parties (COP) and their 28 Climate Change Conferences. (Data courtesy of NOAA Global Monitoring Laboratory https://gml.noaa.gov/webdata/ccgg/trends/co2/co2_annmean_mlo.txt).

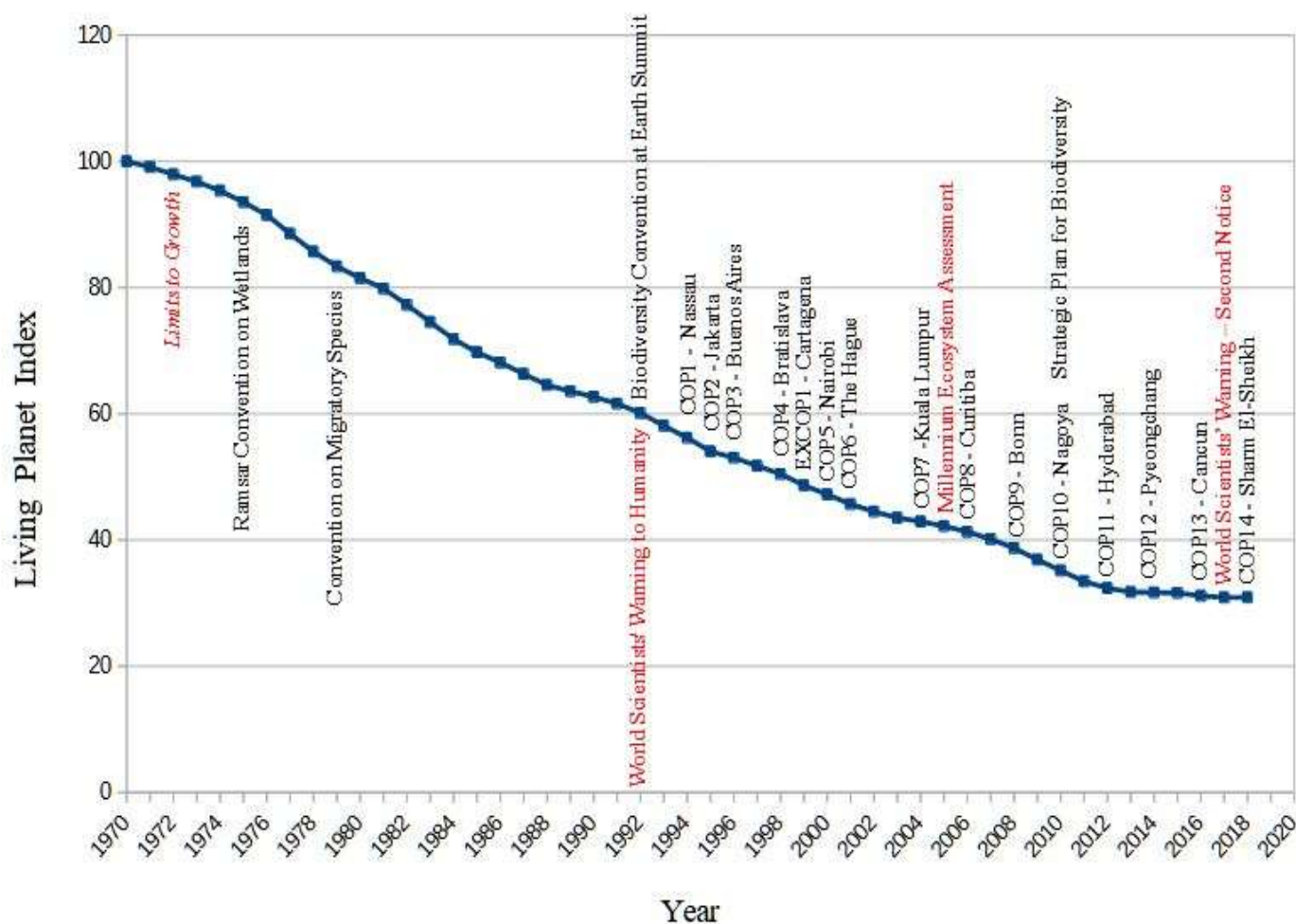


Figure 2. The Living Planet Index showing an average relative decline of 69% across the studied animal populations, overlain with the various biodiversity conferences, conventions, scientists' warnings and, in particular, the formal Convention on Biological Diversity Conferences of the Parties (COP) and their 14 Biodiversity Conferences. Data source: World Wildlife Fund (WWF) and Zoological Society of London <https://ourworldindata.org/biodiversity>.

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