The ecological debt: Save biodiversity, save the economy

How the IMF can explore debtfor-nature swaps and support the implementation of the post-2020 global biodiversity framework





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The IMF is considering climate variables for debt sustainability, but it must also consider biodiversity criteria. Comments on the IMF Working Document WP/22/162¹

5' Read

Washington DC, October 10, 2022

Mrs. Kristalina Georgieva

Managing Director of the International Monetary Fund

Dear IMF Managing Director Kristalina Georgieva:

Avaaz welcomes the working paper WP/22/162 "Debt-for-Climate Swaps: Analysis, Design, and Implementation" published by the IMF in August 2022. We think it is a significant, urgently needed step forward in the incorporation of climate change variables in the international financial framework. In this sense we encourage the IMF to extend the scope and include biological diversity as it not only underlies and supports climate change adaptation and contributes to climate stability, but also supports more than 50% of the world's economic activity. Reversing biodiversity loss and investing in its sustainable use is vital for its irreplaceable role in providing services such as fertile soil, water infiltration and availability.

Furthermore, over half of the world's GDP is at moderate or severe risk due to biodiversity related losses². It is commendable that the IMF has responded to the relationship linking climate and debt through the creation of the Resilience and Sustainability Trust. We think that similar urgency must be placed on addressing biodiversity loss and the decline of ecosystem services, as the latest science indicates that these environmental losses are also intensifying the challenges of addressing climate change. Avaaz - which is composed of 70 million members worldwide – would like to take the opportunity to provide a perspective on the working paper. **Key performance** indicators developed jointly with financial institutions, and multilateral development banks enhancements to expand sustainable and impact-bond markets, would also be useful for the alignment of investments under biodiversity or natural capital criteria, or for agendas under negotiation such as the global biodiversity framework.

Specific comments on policy measures

With respect to the section on policy measures (page 17), Avaaz considers that this is a very relevant contribution as a potential road map for countries to carry out stocktaking and the identification of steps to take to develop debt swap opportunities. It also addresses the issues of impact and scale that have limited the broader use of these instruments, as well as the role of debt swaps within the context of comprehensive debt restructuring.

Regarding Measure 1 (page 17) on bundling projects and policy reforms, it is also something that has been explored in relation to natural resource-based projects. Specifically, a study produced by Credit Suisse and McKinsey³ reviews methodological and investment aspects of potential asset classes in productive sectors dependent on natural capital. We think this is an important area for urgent consideration by the IMF, and we would suggest that corresponding research could support a future decision by the Executive Board regarding the adoption of new qualifying challenges for the Resilience and Sustainability Trust (RST).

Additionally, the suggested measure on bundling would be an important aspect for promoting swaps at scale in larger middle-income countries that have prepared national (and subnational) climate action plans and biodiversity strategies. Finally, the summary for policymakers on the multiple values of nature published by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)⁴ provides a methodological roadmap for incorporating these values into policymaking, including entry points for financial and development policies. On Measure 2 (page 17), Budgetary Expenditures Supporting Adaptation and/or Mitigation, Avaaz fully supports the focus on green budgeting and notes that this approach is also possible with existing methodologies for the case of natural resources and biodiversity. Efforts such as the UN System of Environmental Economic Accounting, the OECD Green Budgeting Database, the use of Rio Markers, UNDP's Biofin approach, UNEP's The Economics of Ecosystems and Biodiversity (TEEB) initiative and the global partnership program for Wealth Accounting and the Valuation of Ecosystem Services (WAVES), among others, all permit a robust process of green planning and green budgeting with reliable data. Many middle-income countries have initiated work in this area and debt swaps could be used as an incentive measure to carry out this type of valuation by linking investment in environmental goods and services to public expenditure.

Another potential approach could be based on the World Bank model to assess development policies⁵, published in 2021, particularly in countries with economic sectors with high dependence on natural resources and unsustainable practices such as intensive use of agrochemicals and pesticides in agriculture, or extractive fisheries. The model allows for the development of economic scenarios of ecosystem collapse and the importance of not only maintaining ecosystem services but increasing natural capital through the development of nature-smart policies.

In regard to Measure 3 (page 18), key performance indicators developed jointly with financial institutions, and multilateral development banks enhancements to expand sustainable and impact-bond markets, would also be useful for the alignment of investments under biodiversity or natural capital criteria, or for agendas under negotiation such as the global biodiversity framework. We believe that the document's hypothesis regarding potential voluntary swaps of existing debt by commercial creditors into "new green instruments" is an idea that should

^{3.} Credit Suisse Group AG and McKinsey Center for Business and Environment. (2016). Conservation Finance From Niche to Mainstream: The Building of an Institutional Asset Class https://www.credit-suisse.com/media/assets/corporate/docs/about-us/responsibility/ banking/conservation-finance-en.pdf.

^{64.} IPBES (2022). Summary for policymakers of the thematic assessment of the sustainable use of wild species of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, J.-M. Fromentin, M.R. Emery, J. Donaldson, M.-C. Danner, A. Hallosserie, D. Kieling, G. Balachander, E. Barron, R.P. Chaudhary, M. Gasalla, M. Halmy, C. Hicks, M.S. Park, B. Parlee, J. Rice, T. Ticktin, and D. Tittensor (eds.). IPBES secretariat, Bonn, Germany. https://jbbes.net/media.release/Values, Assessment Published

^{5.} World Bank (2021). The Economic Case for Nature: A global Earth-economy model to assess development policy pathways. Retrieved from https://www.worldbank.org/en/topic/ environment/publication/the-economic-case-for-nature

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be further developed in those countries with high levels of debt and a positive ecological balance.

Regarding Measure 5 (page 19), Mobilizing Official Funding for Debt Swaps or Grants Linked to Climate Action, Avaaz believes that the development of coordinated and longer-term initiatives between major creditors, high-income donor countries and highly indebted countries to close the climate-related fiscal gap could build on previous IMF work on fiscal space and SDGs to identify scenarios with broader in-country impact. Additionally, Avaaz believes that these types of coordinated, multi-actor efforts, including the Paris Club, are what is needed to jumpstart wide-ranging debt restructuring and the alignment of new sustainable debt instruments, including green bonds based on natural capital and investments in nature with the potential for transformational impact on international and multilateral finance.

Final reflections

In closing, Avaaz welcomes the IMF working paper WP/22/162 "Debt-for-Climate Swaps: Analysis, Design, and Implementation" which reinforces our conviction that under current conditions, debt-for-climate and debt-for-nature swaps could play an important role within comprehensive debt management and restructuring.

While the IMF Working Paper is aimed at a more technical audience, we consider that it is an important contribution to on-going financial discussions in the multilateral environmental agreements and that it may serve as a bridge to catalyze dialogue between the IMF, Parties to the Rio Conventions, and their respective technical personnel. The IMF is an important reference for other international financial institutions and bilateral and private creditors, and the incorporation of biodiversity values in its debt sustainability framework would therefore have a significant global impact. Further engagement could be secured for example by convening a future IMF Statistical Forum to explore biodiversity and natural capital methodologies and their interrelation with debt sustainability, ratings, and overall contribution to economic stability and growth.

Avaaz is committed to promoting dialogue and partnerships that address the issues that our 70 million supporters around the world consider as priorities: biodiversity loss, climate change, and disruption of economic security. We look forward to identifying opportunities to engage with the IMF on these and other issues in the international financial agenda. Attached please find our latest report on the relation between debt and biodiversity that can serve as a catalyst for further discussion.

With hope and determination,

The Avaaz Community

We would like to encourage the IMF to continue working on debt swaps, with a view towards developing analytical tools to calculate the impacts of natural capital depletion, its relation to climate change and its threat to macroeconomic and financial instability.

Introduction and recommendations

"I sit on a man's back, choking him and making him carry me, and yet assure myself and others that I am sorry for him and wish to lighten his load by all means possible... except by getting off his back"

Leo Tolstoy

9' Read

Stop procrastinating and get ready for Montreal. IMF and UN Biodiversity people, start right now!

Every sector of our economy, from agriculture and manufacturing to tourism and health, depends either directly or indirectly on biodiversity, making it a global common good. The sustainable use and conservation of biodiversity therefore requires a global approach to mobilize public and private investment.

Biodiversity and debt are intricately linked. As in the case of climate change, the science is clear that the global economy depends on biodiversity and functional ecosystems, and while progress has been made in individual countries to identify these dependencies, as well as to value natural capital, they are not yet recognized in the multilateral financial architecture. While biodiversity provides goods and services to the entire global economy, most of the world's remaining biodiversity is housed in a small number of megadiverse countries. These countries also happen to be among the most financially indebted: emerging and developing economies, each possessing huge national debt. Highly indebted countries, rich in biodiversity, provide uncompensated ecosystem services to the global community.

Furthermore, the current unsustainable expenditure patterns in the form of, for example, perverse subsidies, contribute to biodiversity loss and environmental degradation. A recent publication by the Food and Agriculture Organization⁶ claims that the repurposing of nearly US\$ 540 billion in subsidies would help mitigate their harmful impacts in 86% of the cases. If it is not addressed with the needed sense of urgency, the risks of diminished productive capacities of all economic sectors will continue to increase.

On top of this, and following the global health contingency caused by COVID-19 and the resulting economic recession, to-

6. FAO (2022). The State of the World's Forests. Forest pathways for green recovery and building inclusive, resilient and sustainable economies. https://www.fao.org/3/cb9360en/cb9360en.pdf.

Innovative swaps of some of the public and private debt for the much needed resources for biodiversity conservation and sustainable use should be implemented to unblock this chronic underfunding. tal global debt has reached a new record high of US\$ 305 trillion with a global debt-to-GDP ratio of 351%. Paradoxically, among the countries at greatest risk of sovereign-debt default are a number of megadiverse countries, both emerging and developing economies, whose biological diversity provides people and planet with vital ecosystem services. These countries and others are at risk of sovereign-debt default requiring a comprehensive debt restructuring that addresses the intricate and often destructive relationship between debt and biodiversity, and contributes to macroeconomic and financial instability.

Debt swaps: Tactical solutions in a time of interconnected emergencies

Debt -and in particular sovereign debt- has been a very politically contentious issue with debates emerging from the nonprofit, academic and political arenas regarding the legitimacy of national debt, all with compelling economic and social arguments questioning the power asymmetries, historical and present injustices, and even the predation of natural resources, that can be found at the heart of the debt issue. These debates have to unfold further. We see them as a tactical solution in a context where we need to urgently find additional ways to jointly address the need for debt relief and the need for funding for biodiversity and climate.

This paper is also written in a context in which several countries and constituencies are already pushing for different forms of such schemes: the discussion and potential implementation of swaps is thus already underway; but we believe that several crucial safeguards are not receiving enough attention. Notably, the actual relevance for biodiversity and climate action of the proposals that we see is not sufficiently clear, nor are the proposals grounded in rights-based approaches. Likewise, increased transparency of debt swaps and the activities that they finance is necessary through the development and application of new mechanisms of accountability - such as the use of opensource technologies and big data - with the participation of all relevant stakeholders, especially IPLCs and other groups in vulnerable conditions. It is in this spirit of dealing with the urgency of the times, and of a strong expectation of emerging initiatives that they truly benefit biodiversity, climate, and people, that we are writing this paper.

Coordinated action is needed to urgently initiate a sovereign debt restructuring that addresses the interrelated relationship between debt and biodiversity loss. Both creditors as consumers of biodiversity goods and ecosystem services, and debtors as the stewards of a massive share of biodiversity and ecosystem services for the global community need to be involved. The role of private creditors is also paramount, as they have been reluctant to enter into broader debt relief efforts. All stakeholders and multilateral institutions must fully participate in comprehensive debt relief efforts. This can include swaps, considered as part of a broader conversation on restructuring and cancellation.

Innovative swaps of some of the public and private debt for the much needed resources for biodiversity conservation and sustainable use should be implemented to unblock this chronic underfunding. Furthermore, these swaps can include climate change adaptation and mitigation measures, as both approaches can provide timely relief for debt-distressed borrowers and support any long-lasting approach to "building back better" strategies.

This new approach would involve the engagement of countries with high indebtedness and relevant biodiversity. Using criteria or indicators such as debt-to-GDP and natural capital accounting, the financial system should support them in the implementation of clear and attainable national goals derived from the multilateral environmental agreements for which these countries are Parties, through the development and application of innovative debt-for-nature (DNS) and debt-for-climate swaps (DCS). The ecological debt: Save biodiversity, save the economy How the IMF can explore debt-for-nature swaps and support the implementation of the post-2020 global biodiversity framework

DEBT-FOR NATURE, NOW! DEUDA POR NATURALEZA! ANAAZ

NR PRESIDEN Reconciliation bill now

A drag queen dressed as Marilyn Monroe calls on Argentina's President Alberto Fernandez to stop drilling in the Amazon rainforest while singing "Happy Summit Dear President!" during an Avaaz protest at the Summit of the Americas on Thursday, June 9, 2022 in Los Angeles. (Jeff Lewis/AP Images for AVAAZ)

Mobilizing US\$ 1 trillion per year for biodiversity, in a spirit of justice and solidarity

Seven weeks after the Fall meetings of the IMF and World Bank, the UN Biodiversity Conference (15th Conference of the Parties to the Convention on Biological Diversity, COP15) will meet in Montreal for the final negotiations of the "post-2020 global biodiversity framework". This global framework will become the main international policy reference, and the basis upon which governments will cooperate to stop biodiversity loss (and thus also contribute to fighting climate change and desertification).

One of the key aspects of the negotiations concerns the vast range of macroeconomic reforms that countries must put in place, and the additional financial resources that will be necessary to implement the post-2020 global biodiversity framework. The latest estimates show that the needed resources are close to **at least US\$ 1 trillion per year.** This will necessarily require more international cooperation, especially in a context where the world is entering into a deep recession.

We believe debt-for-nature swaps should be considered in this context, with the support of the political and technical expertise of the IMF. There are many potential candidates to consider, but it is worth exploring options even for the sake of illustration or as a thought experiment. In this light, Avaaz presents five megadiverse countries: Brazil, the Democratic Republic of Congo, Indonesia, the Philippines and South Africa. In each of these five countries the inclusion of biodiversity variables in debt profiles can help to revert this cycle and guide debt-financed actions towards nature-positive investments.

Lastly but not less important, these financial instruments should be designed under a rights-based approach, with specific considerations for the efficient natural resource management of Indigenous Peoples and Local Communities, as recognized by IPBES⁷ in order to build truly sustainable economies.

This paper reviews development concepts and context on the relationship between economics and biodiversity (section 1), and then presents recent developments on debt and how they can be modified in favor of biodiversity action (section 2), develops possibilities towards aligning the economic system with biodiversity conservation and sustainable use (section 3), the end of in section 4 explores opportunities for the megadiverse countries of Brazil, the Democratic Republic of the Congo, Indonesia, the Philippines and South Africa.

What needs to happen at the UN Montreal talks on biodiversity, and afterwards

Recommendations to the IMF: show us in Montreal that you can be a real leader on sustainability

1. Assemble a high-level and strongly engaged delegation for CBD COP15 in Montreal. Get immediately involved in these discussions, put proposals on the table before the end of November, and go to Montreal and actively participate to help accelerate crucial discussions on resource mobilization to implement the post-2020 global biodiversity framework. This delegation should be headed by no less than the leadership of the IMF; Kristalina Georgieva should be there in person.

2. Support a new and much more ambitious round of

debt-for-nature swaps. The IMF, WB and their regional multilateral development partners should mobilize support within their institutions and with key actors such as the Paris Club and bilateral creditors to promote a new round of DNS at scale as part of wider debt relief action, in recognition of their importance for conservation and sustainable use efforts and their role in leveraging other resources. Beyond the financial support that should be mobilized to help countries, technical and

^{7.} IPBES (2019). Summary for policymakers of the IPBES global assessment report on biodiversity and ecosystem services. https://jbes.net/sites/default/files/inline/files/ipbes_global_assessment_report_summary_for_policymakers.pdf

Previous IMF staff research on the fiscal space needed to meet the Sustainable Development Goals might be a good starting point to develop economic scenarios for SDGs 14 and 15 regarding biodiversity. financial capacities (a role often filled by NGO third-parties), but which fits within the institutional mandates of the IMF and WB, are also required to enable these countries to build a low-carbon trajectory for sustainable development and biodiversity- and climate-related investments to help them fulfill their national priorities and commitments to multilateral environmental agreements. Basic guides should be developed to help countries conduct stocktaking exercises to evaluate the suitability of national conditions for DNS.

3. Stimulate more in-house research at the IMF on debt and biodiversity. Researchers at the IMF are encouraged to continue their work on debt management and debt transparency and the relationship to environmental deterioration as a progressive process which affects the natural assets of individual countries , not as a permanent asset stock. Previous IMF staff research on the fiscal space needed to meet the Sustainable Development Goals might be a good starting point to develop economic scenarios for SDGs 14 and 15 regarding biodiversity.

4. Launch the exploration of additional climate and nature-friendly mechanisms to channel existing and potential Special Drawing Rights allocations in favor of resilient, diversified and inclusive economies in developing countries.

5. Develop pilot initiatives with both highly concessional and non-loan financing to create standards and policy advice on biodiversity risk management in developing countries that can guide the incorporation of standards on biodiversity within the IMF, such as a future biodiversity-related qualifying challenge in the Resilience and Sustainability Trust.

Biodiversity actors preparing for Montreal: engage with the IMF and give the post-2020 global biodiversity framework the ambition we all need

1. Get in touch right now with your government colleagues responsible for working on agendas related to the Bretton Woods institutions, and with experts from these institutions. CBD delegates of every level need, at the same time, to better understand how these institutions function and to convey the message of how much these institutions are urgently and effectively needed in the discussion around resource mobilization for biodiversity conservation and sustainable use.

2. Include debt relief and debt restructuring proposals in the post-2020 global biodiversity framework. Considering that the most recent estimates for financing measures that are needed to address both the conservation and sustainable use of biodiversity are already US\$ 967 billion per year (Deutz et al.⁸), or, as Avaaz suggests in our "It's the Ecology, Bretton Woods" report, US\$ 1 trillion per year, Debt-for-Nature Swaps are a feasible option for resource mobilization, and they have to be included as a source among resource mobilization options that are being considered for the post-2020 global biodiversity framework implementation.

3. Support and cement the roles of Indigenous Peoples and Local Communities, and of women: the target(s) on resource mobilization should include language reflecting how financial flows for biodiversity will take into account the leading roles of Indigenous Peoples and Local Communities. Leaving no one behind also means that the CBD is to address the marginalization and other different forms of oppression IPLCs face worldwide. Funds should also be distributed in a gender-responsive way to ensure that women get stronger roles in economic decision-making regarding the use and conservation of

^{8.} Deutz, A. et al. Paulson Institute, TNC, Cornell Center for Sustainability (2020). *Financing Nature: Closing the Global Biodiversity Financing Gap*. https://www.paulsoninstitute.org/wp-content/uploads/2020/10/FINANCING-NATURE_Full-Report_Final-with-endorsements_101420.pdf

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biodiversity. In addition, IPLCs and women should be able to access credits and direct funding.

4. Present a specific text for a COP15 decision calling for Bretton Woods institutions to unblock financial resources for the post-2020 global biodiversity framework and urgently operationalize resource mobilization schemes to be presented no later than CBD COP16. Be bolder than the last 26 years and call on Bretton Woods institutions to work with the CBD on the macroeconomic constraints that have impeded the implementation of the CBD so far and that have led us to the current dead-end in negotiations on financing. This work could include other International Financial Institutions, other Rio Conventions, and international organizations such as UN DESA. The first outcome could be a joint report, presented at COP16, highlighting the necessary macroeconomic reforms and who would be responsible for implementing them in order to achieve the targets of the post-2020 global biodiversity framework in the context of Agenda 2030 and the SDGs. This report should then serve as guidance for the work of Bretton Woods institutions with individual countries.

5. Create an interdisciplinary task force between CBD parties, the IMF and the WBG to design and implement approaches for countries to effectively remove all perverse subsidies and harmful incentives and support them with in-house research to identify those public resources and provide technical assistance on how to redirect them to practices that have been proven successful in protecting and sustainably using biodiversity.

01. Concepts and context on the relationship between economy and biodiversity

16' Read

1.1. What is biodiversity and why is it central to the economy?

Biodiversity, or biological diversity, is the variability among living organisms from all sources, their genetic variation and the ecological complexes of which they form part. Our global economy and human well-being depend on the essential services that biodiversity and ecosystems provide at the local, regional, and global level, including the provision of food, fresh water, medicine, timber, and fuelwood; climate regulation and protection from extreme weather events; primary production, soil formation, fertility and nutrient cycling. Human beings also obtain non-material benefits from ecosystems through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experiences.

Estimates suggest that the extent to which our economy depends on biodiversity is extremely high, and that the costs caused by biodiversity loss would be potentially ruinous. For instance, it's been estimated that more than half of the world's economic output - US\$44 trillion of GDP - is either moderately or highly dependent on ecosystems and, as a result, is vulnerable to biodiversity loss⁹. **The following three economic sectors are highly dependent on nature: construction, generating an annual US\$4 trillion of gross value added (GVA); agriculture, generating an annual US\$2.5 trillion GVA; and food and beverages generating US\$1.4 trillion GVA**.

Other important industries, ranging from cosmetics to pharmaceuticals, are also dependent on the long-term supply of biodiversity goods and services¹⁰. **Between 1981 and 2014, for example, 686 of the 1,328 new therapeutic agents approved for pharmaceutical drugs were based on com**-

^{9.} WEF (2020), Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy, http://www3.weforum.org/docs/WEF_New_Nature_Economy_Report_2020.pdf

Neergheen-Bhujun, V., Awan, A. T., Baran, Y., Bunnefeld, N., Chan, K., et al (2017). Biodiversity, drug discovery, and the future of global health. Introducing the biodiversity to biomedicine consortium, a call to action. Journal of global health, 7(2), 020304. https://doi. org/10.7189/jogh.07.020304

The ongoing pandemic and the associated economic crisis are contributing to what the IMF has warned may become an emerging market debt crisis leading to a "great divergence" between countries, with the "risk that most developing countries will languish for years to come". **pounds from biodiversity**¹¹. Even industries that might not initially appear to be directly dependent on biodiversity - including banking, digital communications and industries related to information services - usually show a medium to high dependence on nature in their supply chain¹².

It's relevant to point out that relatively few tropical or subtropical nations host the highest percentages of biodiversity. Paradoxically, those countries, considered as megadiverse, are wealthy in biodiversity, wealthy in natural capital, and yet they are among the most financially indebted, emerging or developing economies with significant national debt, like Brazil whose debt ratio to GDP is 98% or India with nearly 90%¹³.

1.2. The problem: biodiversity loss and social inequality

Since the second half of the 20th century humans have been changing ecosystems rapidly and extensively¹⁴. While these changes have supported economic development, they have also compromised the provision of ecosystem services essential for sustaining life on Earth.

Some countries have profited off biodiversity to a significantly greater extent than others. In-depth research in the field of ecological economics has documented asymmetric flows of natural resources from the developing to the developed world in international trade, or what is known as an *unequal ecological exchange*,¹⁵ or ecological debt. Importantly, **this unequal exchange**, which recent research estimates as a net trans-

fer from developing nations equivalent to over US\$ 10 trillion¹⁶, results in increased inequality.

This exploitative system began with colonization and was one of its major drivers. Today the asymmetric natural resource flows become quite visible when the monetary metrics of conventional economics are replaced with biophysical metrics such as material and energy flows. Their contribution to growing inequalities between affluent regions of the global system on the one hand, and impoverished economies based on the intensive extraction of natural resources and biodiversity on the other become apparent¹⁷. Research also shows that less-developed countries that export large volumes of natural resources to more developed countries tend to have lower per capita levels of consumption and carbon dioxide emissions and are more likely to experience adverse effects from biodiversity loss including deforestation and a resulting increased vulnerability to climate change with weakened natural barriers¹⁸.

The COVID-19 pandemic has created unprecedented health, economic, political and social crises, causing the largest recession since World War II, with high unemployment across the globe¹⁹. The ongoing pandemic and the associated economic crisis are contributing to what the IMF has warned may become an emerging market debt crisis leading to a "great divergence" between countries, with the "risk that most developing countries will languish for years to come"²⁰.

19. Kyte, R. Tubiana, L (2020). It's time for recovery finance to step up. Climate Policy Initiative. https://www.climatepolicyinitiative.org/its-time-for-recovery-finance-to-step-up/

Newman, D. J., & Cragg, G. M. (2016). Natural Products as Sources of New Drugs from 1981 to 2014. Journal of natural products, 79(3), 629–661. https://doi.org/10.1021/acs.jnatprod.5b01055

^{12.} ibid

^{13.} Statista, Inc. (2022), Brazil: National debt from 2017 to 2027 in relation to gross domestic product. https://www.statista.com/statistics/271041/national-debt-of-brazil-in-relation-to-gross-domestic-product-gdp/

^{14.} Dasgupta, P. (2021), The Economics of Biodiversity: The Dasgupta Review. (London: HM Treasury). https://www.gov.uk/government/publications/final-report-the-economics-of-biodiversity-the-dasgupta-review

^{15.} Hornborg, A. (1998). Towards an ecological theory of unequal exchange: articulating world system theory and ecological economics. Ecological Economics 25(1):127-13. https://www.sciencedirect.com/science/article/abs/pii/S0921800997001006

Hickel, J. et al. (2022). Imperialist appropriation in the world economy: Drain from the global South through unequal exchange, 1990-2015, Global Environmental Change, Volume 73. Retrieved from https://www.sciencedirect.com/science/article/pii/ S095937802200005X

^{17.} Hornborg A. and Martínez-Alier, J. (eds.) (2016). *Ecologically Unequal exchange and ecological debt*, Special Section of the *Journal of Political Ecology* 23: 328-491. https://www.researchgate.net/publication/316507106_Ecologically_unequal_exchange_and_ecological_ed_bt}

^{18.} Jorgenson, A.K. (2016). The sociology of ecologically unequal exchange, foreign investment dependence and environmental load displacement: summary of the literature and implications for Sustainability. Journal of Political Ecology 23:334-349. https://www.re-searchgate.net/publication/270759814 The Sociology of Ecologically Unequal Exchange Foreign Investment Dependence and Environmental Load Displacement_Summary_of the Literature and Implications for Sustainability

Kristalina Georgieva. (2021), The Great Divergence: A Fork in the Road for the Global Economy. IMF. https://blogo.imf.org/2021/02/24/the-great-divergence-a-fork-in-the-roadfor-the-global-economy/

The latest assessment of the IPCC Working Group II (2022) states with high confidence that "maintaining the resilience of biodiversity and ecosystem services at a global scale depends on effective and equitable conservation of approximately 30% to 50% of Earth's land, freshwater and ocean areas, including currently near-natural ecosystems".

1.3. Protect at least 50 percent of the planet by 2030, to stop biodiversity loss and help contain global warming at 1.5°C

There is no silver bullet to stop and revert biodiversity loss, and it is the post-2020 global biodiversity framework that is needed to achieve the deep transformations that we need²¹. However, while we transform economic sectors to end harmful pressures in production-oriented seascapes and landscapes, we must also urgently find ways to better protect the remaining places that harbor the richest biodiversity and restore degraded ecosystems as well. The urgency is made even greater because climate change is adding to the other anthropic impacts and worsening the state of biodiversity and land degradation. As a consequence, the latest assessment of the IPCC Working Group II (2022) states with high confidence that "maintaining the resilience of biodiversity and ecosystem services at a global scale depends on effective and equitable conservation of approximately 30% to 50% of Earth's land, freshwater and ocean areas, including currently near-natural ecosystems"22.

Given this range of potential protection goals (30% to 50%), if we want to meaningfully contribute to building resilient economies (by both mitigating climate change and conserving biodiversity), **we need to protect at least 50% of** both terrestrial and marine ecosystems. The international community has already recognised the importance of protecting and restoring ecosystems, both for biodiversity and climate.

At least half of the continental land and waters must be conserved by 2030. By mapping different types of remaining terrestrial habitats, and considering both their value for biodiversity and for carbon storage, in the 'Global Safety Net' to Re-

22. Pörtner, H.-O, Roberts, D. C., et al. (2022). Climate Change 2022. Impacts, Adaptation and Vulnerability. Summary for Policymakers of Working Group II contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. 27th February 2022. https://report.ipcc.ch/ar6wg2/pdf/IPCC_AR6_WGII_SummaryForPolicymakers.pdf verse Biodiversity Loss and Stabilize Earth's Climate²³, researchers have concluded that protecting 35.3% of land area in addition to 15.1% of land area currently protected-is needed to conserve sites of particular importance for biodiversity and ecosystem services, including the preservation of carbon sinks vital for limiting global warming to 1.5°C. The analysis proposes a disaggregation of these numbers to the national level, and also identifies that indigenous lands constitute an important share of the most biodiverse and carbon-rich places in the world. Another recent study²⁴ that "estimated the minimum land area to ensure important biodiversity areas, ecologically intact areas, and optimal locations for representation of species ranges and ecoregions" found that at least 64 million square kilometers (44% of that land area) would require conservation attention (from protected areas to land use policies) to meet this goal. The authors further note that "over 1.8 billion people live on these lands, so responses that promote autonomy, self-determination, equity and sustainable management to safeguard biodiversity are essential. Spatially explicit land use scenarios suggest that 1.3 million square kilometers of this land is at risk of being converted to intensive human land use by 2030, requiring immediate attention".²⁵

At least half the global ocean must be conserved. Concerning the ocean, a recent study points out that conserving 45% of the ocean would be compatible with a scenario that also optimizes the conservation of biodiversity, food security, and climate change mitigation.²⁶ The authors also stress that it could be possible to protect "as much as 71% of the ocean, obtaining 91% of the biodiversity and 48% of the carbon benefits, with no change in the future yields of fisheries". Evidence is also

25. idem.

 $[\]mathbf{21.}\ Leadley, P., Achieving global biodiversity goals by 2050 requires urgent and integrated actions. Idem$

^{23.} Dinerstein, E., Joshi, A. R., Vynne, C., Lee, A. T. L., Pharand-Deschênes, F., França, M., ... & Olson, D. (2020). A "Global Safety Net" to reverse biodiversity loss and stabilize Earth's climate. Science advances, 6(36), eabb2824. https://www.science.org/doi/10.1126/sciadv.abb2824

^{24.} Allan, J. R., Possingham, H. P., Atkinson, S. C., Waldron, A., Di Marco, M., Butchart, S., et al (2022). The minimum land area requiring conservation attention to safeguard biodiversity. Science (New York, N.Y.), 376(6597), 1094-1101. https://doi.org/10.1126/science.abl9127

Sala, E., Mayorga, J., Bradley, D., Cabral, R. B., Atwood, T. B., Auber, A., ... & Lubchenco, J. (2021). Protecting the global ocean for biodiversity, food and climate. Nature, 592(7854), 397-402.https://www.nature.com/articles/s41586-021-03371-z

The global financial system must also develop better methods of providing liquidity for developing countries and economies in transition in order to create fiscal space for investment in crisis response. mounting on the importance of preserving marine sediments, including in the high seas, as they sequester very large amounts of carbon.²⁷ Recently, 1.5 million people signed a petition demanding the protection of the Antarctic Ocean as a step to-wards conserving half of the planet.²⁸

The necessary actions for the conservation of at least 50% of the planet will require a significant effort in mobilizing resources, and this must take place within a broader policy mix supporting structural changes in the world economy:

"(...) **To achieve biodiversity conservation some structural changes are necessary**: Approaches to financing biodiversity conservation tend to focus on funding gaps but fail to address underlying political and economic drivers. A prominent explanation for international failure²⁹ to progress on biodiversity targets³⁰ has been a lack of financial resources³¹. The focus on filling this funding gap with innovative, private-sector financial schemes tends to treat austerity – diminished public investment in public services and systems – as an immutable reality. But enticing private finance has serious limits; a recent expert report on finance and biodiversity commissioned by the Convention on Biological Diversity (CBD) concluded that private finance alone "will never be sufficient for meeting all of the challenges of achieving the post-2020 global biodiversity framework"³². There

29. Xu, H., Cao, Y., Yu, D. et al. Ensuring effective implementation of the post-2020 global biodiversity targets. Nat Ecol Evol 5, 411-418 (2021). https://doi.org/10.1038/s41559-020-01375-y is a growing conversation suggesting that the most effective approach will be to arrest the flows of biodiversity-degrading finance, which massively eclipse spending on protection and sustainable use of biodiversity³³ while dramatically increasing public finance for biodiversity, particularly in the Global South. (...) The result of this debt-austerity nexus is that there are trillions of dollars in debt repayment required at the same time that austerity measures constrain public expenditure in vital social and environmental sectors. Many of the countries facing these new debt burdens have previously been subjected to illegitimate debts³⁴ without popular consent or benefit of citizens.³⁵

1.4. A solution in the current context: changes in debt for nature

Promising developments focused on addressing climate change include the creation of the IMF's Resiliency and Sustainability Trust and the adoption of climate change vulnerability parameters in the operations of the World Bank and other multilateral development banks.

However, more is needed to address the current environmental and economic crises and the positive developments mentioned above must be expanded to include and reflect the dependence of international trade and economic productivity on biodiversity and healthy ecosystems.

The global financial system must also develop better methods of providing liquidity for developing countries and economies in transition in order to create fiscal space for investment in crisis response. The general allocation of Special Drawing Rights (SDR) in August 2021³⁶ to provide balance of payment support

^{27.} Ocean & Climate Platform (2021) Protecting the ocean, mitigating climate change? State of the evidence and policy recommendations https://ocean-climate.org/wp-content/up-loads/2021/11/Policy-Brief_MPA.pdf

^{28.} President Macron accepts petition of 1.5 million worldwide signatures urging protection of Antarctica's waters: The petition was delivered to several world leaders during the IUCN Congress in Marseille, and was part of a joint effort by Antarctica 2020, Ocean Unite, Pew Charity Trusts, WeMove Europe, Only One, Antarctic and Southern Ocean Coalition, Blue Nature Alliance, Sea Legacy, and Avaaz. (September 2020) https://antarctica2020. org/president-macron-accepts-petition-of-15-million-worldwide-signatures-urging-protection-of-antarcticas-waters/

OECD. 2020. A Comprehensive Overview of Global Biodiversity Finance. Retrieved from: https://www.oecd.org/environment/resources/biodiversity/report-a-comprehensive-overview-of-global-biodiversity-finance.pdf

^{31.} Deutz, A. et al. *Financing Nature: Closing the Global Biodiversity Financing Gap* (Paulson Institute, TNC, Cornell Center for Sustainability, 2020). https://www.paulsoninstitute.org/wp-content/uploads/2020/10/FINANCING-NATURE_Full-Report_Final-with-endorsements_101420.pdf

^{32.} Contribution to a Draft Resource Mobilization Component of the Post-2020 Biodiversity Framework as a Follow-up to the Current Strategy for Resource Mobilization: Third Report of the Panel of Experts on Resource MobilizationCBD/SBI/3/5/ADD3 (CBD, 2021). https://www. cbd.int/doc/c/5c03/865b/7332bd747198R256e9e55b/sbi-03-05-add3-en.pdf

 $[\]label{eq:starth} \begin{array}{l} \textbf{33. Bankrolling Extinction} (Portfolio Earth, 2020). \\ \texttt{https://portfolio.earth/wp-content/uploads/2021/11/Portfolio-Earth_Subsidising-Extinction.pdf} \end{array}$

^{34.} Lienau, O. Rethinking Sovereign Debt: Politics, Reputation, and Legitimacy in Modern Finance(Harvard Univ. Press, 2014). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2583591

^{35.} Dempsey, J., Irvine-Broque, A., Bigger, P. et al. (2021). Biodiversity targets will not be met without debt and tax justice. Nat Ecol Evol (2021). https://doi.org/10.1038/s41559-021-01619-5

^{36.} IMF. (2021) 2021 General SDR Allocation. IMF https://www.imf.org/en/Topics/special-drawing-right/2021-SDR-Allocation

The ecological debt: Save biodiversity, save the economy How the IMF can explore debt-for-nature swaps and support the implementation of the post-2020 global biodiversity framework

WORLD LEADERS: **PROTECT HALFOUR JOB 141 JOB 141**

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HAVE SIGNED THE PETITION TO WORLD LEADERS:

next to sustaining the on Earth conder by scientists warning that ecosystems of a down pargets to protect bodiversity, longe a new agreement so that at least completely autainably managed. This must take into considerment so that at least long-learn goal to realure can restore harmony with our house pooles. The

'Liberty Leading the People' live art installation in UICN World Conservaton Congress. Wednesday, September 8, 2021, Marseille, France (AVAAZ)

Lastly but not less important is people participation and the rights-based approach that is a sine qua non element for any expected economic recovery. Increased participation by all segments of society in the implementation of debt relief measures will also be necessary. to countries in need, as well as the voluntary reallocation of SDRs from countries with sufficient international reserves to countries facing persistent external deficits or crises, has been used in part to fund the RST to address climate-change vulnerability. Additional allocations might be used to explore similar funding to address natural capital and biodiversity loss.

Middle income countries must also be fully engaged in the transition of the global economy to a truly sustainable path. The middle-income trap of increasing income and labor costs, coupled with underdeveloped capacity for competitiveness in more skill-intensive markets, must be addressed in an integrated way, while still recognizing the diversity of conditions in these countries. As highlighted by the Economic Commission for Latin America and the Caribbean (ECLAC),³⁷ comprehensive debt solutions must be multifactorial to address not only the debt burden, but also to develop long-term solutions to build resilient and just economies that increase capacities to respond to biodiversity loss, land degradation and climate change. Elements in support of these solutions might include swaps, biodiversity performance bonds, the use of green budgeting and planning and tools such as sustainable taxonomies, natural capital valuation, and longer-term risk horizons.

Avaaz believes that this can be accomplished by broad adoption of nature-based risks in the current international financial architecture, in general, and in the IMF specifically. Existing methodologies to measure these risks and to quantify ecosystem values are sufficiently robust for adoption in central banks to evaluate nature-based risks to macroeconomic and financial stability. More ambitious action on incorporating nature-based risks in debt sustainability analysis³⁸ is needed, especially considering that investments in ecosystem restoration and natural capital generate results in a much longer time frame than current periods used for debt sustainability analysis and debt maturity.

Lastly but not less important is people participation and the rights-based approach that is a *sine qua non* element for any expected economic recovery. Increased participation by all segments of society in the implementation of debt relief measures will also be necessary. Innovations such as citizen observatories and capacity building to increase and disseminate knowledge on debt, the environment and their relation to development that address human rights, gender, and youth inclusion approaches while supporting the transition to just and equitable economic systems are urgently needed. Creative digital innovations will also increase transparency and accountability, as in the case of Colombia³⁹, which is using open-source information to track financial disclosure of income and tax payments, and allow for better monitoring and evaluation of the application of resources that are generated by debt swaps or redirection.

1.5. Debt swaps as a tactical solution in the context of an emergency – why debates and actions towards debt justice must continue

As indicated in a recent report by the Economic Commission for Latin America and the Caribbean⁴⁰, debt growth in the region (also registered in the rest of the world) and increasingly tight fiscal space point to the need for new social pacts allowing for increased investment with high economic, social and environmental returns.

It is clear that reverting, or at least halting, biodiversity loss will initially require massive public and private sector investment. Equally clear is the fact that inaction today will lead to even

^{37.} McLean, S., Tokuda, H., Skerrette, N., Pantin, M. (2020). Promoting debt sustainability to facilitate financing sustainable development in selected Caribbean countries: a scenario analysis of the ECLAC debt for climate adaptation swap initiative, *Studies and Perspectives series-ECLAC Subregional Headquarters for the Caribbean*. No. 89 https://repositorio.cepal.org/bitstream/handle/11362/45108/1/Si901211_en.pdf

^{38.} Debt sustainability analysis is the tool that the IMF uses to evaluate debt situations in individual countries, identify vulnerabilities leading to possible payment difficulties, and in case of said difficulties the analysis examines impacts of different policy measures to stabilize debt. https://www.imf.org/external/pubs/ft/dsa/

Bala, A., Behsudi, A., Owen, N. 2022. Meeting the Future. Finance & Development March, 2022. Retrieved from: https://www.imf.org/en/Publications/fandd/issues/2022/03/Country-cases-meeting-the-future-Belize-Colombia-Ghana

^{40.} CEPAL. 2022. Estudio económico de América Latina y el Caribe: Dinámica y desafíos de la inversión para impulsar una recuperación sostenible e inclusiva.) https://repositorio.cepal.org/handle/11362/48077

The ecological debt: Save biodiversity, save the economy How the IMF can explore debt-for-nature swaps and support the implementation of the post-2020 global biodiversity framework

Concepts and context on the relationship between aconomy and biodiversity



The money can be found as long as world leaders prioritize commiting to the conservation of biodiversity as a condition for humankind's quality of life.

greater costs (in terms both of lives lost and funds needed) and shrinking productive capacities tomorrow. We believe that the money can be found as long as world leaders prioritize commiting to the conservation of biodiversity as a condition for humankind's quality of life.

Developing debt relief strategies considering biodiversity and climate-related instruments is vital in the creation of new opportunities for aligning international policy and market developments regarding biodiversity and climate and their role in debt markets while respecting and supporting countries' rights to development.

Debt, and in particular sovereign debt, has been a highly contentious issue politically, with debates emerging from the non-profit⁴¹, academic,⁴² faith⁴³ and political arenas regarding the legitimacy of national debt, all with compelling economic and social arguments questioning the power asymmetries, historical and present injustices⁴⁴, and even the predation of natural resources, that can be found at the heart of the debt issue. These debates have to unfold further. We see debt swaps as a tactical solution in a context where we need to urgently find additional ways to jointly address the need for debt relief and the need for funding for biodiversity and climate. Our research also takes into the current context in which several countries are already pushing for different forms of such schemes, thus the discussion and potential implementation of swaps is already on its way but we believe that several crucial safeguards are not receiving enough attention. Notably, the actual relevance for biodiversity and climate action of the proposals is not sufficiently clear, nor is how the proposals are grounded in rights-based approaches.

44. Lecompte, E. (2020). Bottom of the first. Debt cancelled, Crisis Protections, Next Steps. Jubilee. https://www.jubileeusa.org/ea_covid19_campaign_update

^{41.} Avaaz, CAFOD, Global Justice Now, Jubilee Debt Campaign, Oxfam. (2020).G20 must cancel debt to stop coronavirus 'third wave' devastating developing countries. https://

^{42.} Graeber, D. (2011) Debt, the first 5000 years. https://warwick.ac.uk/fac/arts/english/ currentstudents/undergraduate/modules/fullist/special/statesofdamage/svllabus201516 graeber-debt the first 5000 years.pdf

^{43.} Holy See. (2020). Statement at the 67th Executive Session of the UNCTAD Trade and Development Board. https://unctad.org/system/files/non-official-document/TDB67 stat

We are no longer living in the world for which the Bretton Woods institutions were originally conceived. It is time for a truly global economy based on sustainable, equitable allocation of resources to meet the needs of all and ensure the future security and habitability of our planet. It is in this spirit of dealing with the urgency of the times and strong expectations for emerging initiatives that truly benefit biodiversity, climate, and people, that we are writing the following sections. Developing countries also need technical support to prevent risk of sovereign-debt default; comprehensive global debt restructuring, and relief packages including private-party participation through the Paris Club creditors. And capacity must be developed to enable these countries to identify and develop low-carbon trajectories for sustainable use and conservation of natural resources and climate-related investments to help them fulfill their national priorities and commitments in the multilateral environmental agreements.

Current external debt stocks of developing countries are the highest in history at US\$11.1 trillion, more than doubling since 2009⁴⁵. There has also been a significant increase in the ratio of external debt to GDP, reaching 45.4% in developing countries (excluding China). These increases are noted across all developing regions. For example, over the next six years, countries in the Vulnerable Twenty Group will be responsible for nearly half a trillion dollars of debt service payments alone⁴⁶. In addition, debt composition has changed with an increase in private non-guaranteed debt over public and publicly guaranteed debt, increasing the risk profiles of developing countries and placing additional pressure on public resources in the case of default.

In contrast, the current total global annual flow of funds toward biodiversity conservation is estimated to be approximately US\$124-143 billion per year against an estimated annual need of US\$ 722-967 billion to stop the decline in global biodiversity between now and 2030⁴⁷. Taken together, these figures reveal a biodiversity financing gap of US\$ 598-824 billion per year. Cooperation from all is needed, but for developed countries this

46. Ramos, L., Bhandary, R., Gallagher, K., Ray. R., Global Development Policy Center (2022). V20 Debt review. An account of debt in the Vulnerable Group of 20. https://www.bu.edu/ gdp/2022/09/16/v20-debt-review-an-account-of-debt-in-the-vulnerable-group-twenty/

47. Paulson Institute. (2020). Financing Nature: Closing the Global Biodiversity Financing Gap. https://www.paulsoninstitute.org/key-initiatives/financing-nature-report/

becomes both a moral obligation beyond their commitments under the Rio Principles⁴⁸ and a necessity if we are to ensure planetary health and human well-being and equitable, longterm, opportunities for sustainable development.

Clearly there is an opportunity to mobilize debt relief to finance biodiversity conservation and sustainable use, which could also generate significant additional benefits such as accelerated achievement of the Sustainable Development Goals (SDGs), sustainable jobs, and increased climate stability.

We are no longer living in the world for which the Bretton Woods institutions were originally conceived. It is time for a truly global economy based on sustainable, equitable allocation of resources to meet the needs of all and ensure the future security and habitability of our planet. The international financial architecture can support more sustainable debt by making major changes in conditionality in debt relief and debt swap operations to reflect more progressive fiscal reforms and to include local capacity development and technology transfer components in sector reforms.

BOX 1. Bretton Woods and beyond

The Bretton Woods system was originally established to meet the needs of the global economy through standardized procedures and rules to regulate the international monetary system. It supported the creation of institutions such as the International Monetary Fund and the World Bank. Specifically, the IMF was charged with maintaining stability in the monetary system and providing lending, sometimes of last resort, to reduce and/or finance balance-of-payment debts. While the Bretton Woods system formally ended with the adoption of floating currency rates, the Bretton Woods institutions remain and have since been challenged by a series of crises.

48. CBD. 2006. Article 20. Financial Resources. Retrieved from: https://www.cbd.int/ convention/articles/?a=cbd-20

^{45.} UNCTAD. (2021). Developing country external debt: From growing sustainability concerns to potential crisis in the time of COVID-19. *SDG Pulse*. https://sdgpulse.unctad.org/debt-sustainability/

2. Recent developments on debt and how they can be modified in favor of biodiversity action

7' Read

2.1. Historical background

Since the inception of debt-for-nature swaps in the late 1980s, large external debt and degraded natural resources in developing countries have combined to reduce debt obligations, allowing payment of debt through biodiversity conservation, and in some cases providing endowment capital and/or sinking funds for national environmental trust funds. These instruments work by restructuring, reducing, or buying a portion of a developing country's outstanding debt, with a percentage of proceeds (usually in local currency) used to support conservation programs within the debtor country⁴⁹.

Since 2010, a renewed interest in DNS has emerged, particularly in connection to global pledges on climate finance⁵⁰. The first generation of DNS were valuable for ensuring conservation but were on a smaller scale than what is currently needed to address present indebtedness and sustainability challenges, especially when indebted countries may want to use the proceeds to fund healthcare, poverty alleviation measures, and energy recovery objectives⁵¹. Therefore, these instruments need to innovate to respond to the current challenges and to be implemented in a wider range of countries.

2.2. New instruments for new steps in the right direction

These steps could immediately contribute to debt sustainability through the implementation of pilot projects that fully incorporate biodiversity criteria and corresponding longer maturities to mainstream the international financial architecture, and therefore contribute to the provision of long-term solutions for both debt and nature-oriented investments for sus-

51. Carlos Manuel Rodríguez Echandi, Ibrahim Thiaw. (2021). How rescheduling debt for climate and nature goals could unlock a sustainable recovery, *World Economic Forum*. https:// www.weforum.org/agenda/2021/03/rescheduling-debt-climate-sustainable-recovery/

^{49.} Pervaze A. Sheikh. (2010). Debt-for-Nature Initiatives and the Tropical Forest Conservation Act: Status and Implementation. https://www.cbd.int/financial/debtnature/g/inventory2010.pdf

^{50.} UNDP. (2017). Debt for biodiversity Swaps, Financing Solutions for Sustainable Development. https://sdgfinance.undp.org/sdg-tools/debt-nature-swaps

The new Resilience and Sustainability Trust is designed to support climate action, and additional reallocations of Special Drawing Rights at the IMF for climate and nature-informed financing might be possible if political will exists. tainable and resilient economies.

Despite international discussions about promoting "green recoveries" and "building back better", biodiversity and climate action often continue to be subjected to constrained fiscal space and subordinated to other economic development choices. This situation has led to growing calls from global stakeholders such as the Vulnerable Twenty Group⁵² to explore the use of climate or biodiversity-related instruments such as DNS (multilateral, bilateral, or with private investors) as part of broader debt relief or cancellation efforts. The new Resilience and Sustainability Trust⁵³ is designed to support climate action, and additional reallocations of Special Drawing Rights at the IMF⁵⁴ for climate and nature-informed financing might be possible if political will exists. Finally, new financial instruments that can increase financial flows towards achieving environmental and economic development needs and goals are needed. These include:

- New generations of debt for biodiversity/climate-related swaps involving the use of country-driven key performance indicators provide more flexibility in the use of proceeds mobilizing other resources, and addressing capacity building needs that better adapt to current economic, climate, health and social crises.
- Nature Performance Bonds (NPBs), which are an emerging set of performance-linked debt instruments that seek to better align the cost of sovereign debt with success in conserving and/or enhancing a country's valued productive natural capital ⁵⁵.

2.3. Strategies to develop a framework for debt swaps

The Institute for Governance & Sustainable Development (IGSD) in its debt-for-nature swap background note suggests that "as countries begin negotiations to restructure sovereign debt to address the COVID-19 pandemic and wider debt crisis, climate protection should be at the center⁵⁶." Following a series of consultations with relevant stakeholders and decision makers, the IGSD identified the following strategies for developing a framework for debt-for-climate swaps as a way to implement, at scale, climate mitigation strategies consistent with a 1.5°C pathway. The strategies identified include:

- Create a High-Level Task Force to raise awareness and political visibility.
- Engage high-level champions representing both creditor and debtor countries, as well as international financial institutions.
- Identify climate protection options for debt swaps.
- Facilitate at least one debt-for-climate swap to gain implementation experience.
- Strengthen and expand eligible debt types and frameworks for debt swaps, including the U.S. Tropical Forest and Coral Reef Conservation Act and the G20 Debt Service Suspension Initiative.
- Encourage China and India to undertake debt-for-climate swaps.
- Engage with sovereign debt rating agencies such as Moody's to explore how debt swaps can be structured to work in favor of sovereign credit ratings.

^{52.} Ramos, L., Bhandary, R., Gallagher, K., Ray, R. (2022). V20 Debt review. An account of debt in the Vulnerable Group of 20. Retrieved from https://www.bu.edu/gdp/2022/09/16/ v20-debt-review-an-account-of-debt-in-the-vulnerable-group-twenty/

^{53.} IMF 2022. IMF Executive Board Approves Establishment of the Resilience and Sustainability Trust. Press release No. 22119. Retrieved from: https://www.imf.org/en/News/ Articles/2022/04/18/pr22119-imf-executive-board-approves-establishment-of-the-rst

^{54.} Katharina Lütkehermöller, Veronica Hector, Aki Kachi with contributions from Mats Marquardt. (2021). Climate, COVID-19, and the Developing Country Debt Crisis Potential criteria for prioritizing debt-for-climate swap support; *New Climate Institute*. https://newclimate.org/wp-content/uploads/2021/04/NewClimate_Debt-for-Climate-Swaps_PolicyMemo_March2021.pdf

^{55.} Finance for Biodiversity Initiative. (2021). Building a biodiversity and Climate Sovereign Bond Facility. https://www.naturefinance.net/resources-tools/greening-sovereign-debt-new-paper-building-a-nature-and-climate-sovereign-bond-facility/

^{56.} IGSD. (2020). Debt-for-Climate Swaps: Background Note. https://www.ccacoalition.org/en/resources/debt-climate-swaps-background-note

Kristalina: don't miss the train to make history! Go to Montreal to save biodiversity (and the economy)

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Avaaz activists call on IMF's Kristalina Georgieva and Canadian PM Justin Trudeau to work wonders to ensure the UN Biodiversity Conference this December in Montreal is a success, unlocking the funds needed to save nature on Wednesday, Oct. 12, 2022 in Washington. (Joy Asico/AP Images for Avaaz)

The strategies proposed by the IGSD, as well as the V20 proposal to reform the G20 Common Framework, would contribute to making the link between biodiversity-related debt relief instruments, including swaps at scale for climate mitigation, and adaptation strategies through conservation and restoration of natural and managed ecosystems. The strategies proposed by the IGSD, as well as the V20 proposal⁵⁷ to reform the G20 Common Framework, would contribute to making the link between biodiversity-related debt relief instruments, including swaps at scale for climate mitigation, and adaptation strategies through conservation and restoration of natural and managed ecosystems. They can also be used to identify potential DNS candidates since countries have different debt structuring needs, diverse amounts of natural capital based on their distinct terrestrial and marine biodiversity and ecosystems, and distinct climate change mitigation opportunities. Finally, the debt relief and restructuring efforts would be expanded to include a larger number of countries and a broader approach to engage all creditor classes.

Current steps (Box 2) taken by multilateral and bilateral donors to develop sovereign debt restructuring alternatives in support of developing economies include:

57. Ramos, L., Bhandary, R., Gallagher, K., Ray, R. (2022). V20 Debt review. An account of debt in the Vulnerable Group of 20. Retrieved from https://www.bu.edu/gdp/2022/09/16/v20-debt-review-an-account-of-debt-in-the-vulnerable-group-twenty/

Box 2. Debt restructuring efforts.

The International Monetary Fund (IMF)

Supports members with policy advice, financing, and capacity development to ensure debt sustainability and to avoid a disorderly debt restructuring.

Identifies and overcomes debt risks within member countries through debt sustainability analysis and policy advice. Provides lending to low-income countries (LICs) at below market rates.

Provides technical assistance on debt management, transparency and the promotion of informed dialogue with broad segments of society. When debt levels are unsustainable, IMF-supported programs complement the necessary debt restructuring by supporting countries with sound economic policies and fresh financing. Established the new Resilience and Sustainability Trust, which allows countries to access finance to integrate climate change action into policy frameworks and sector investments. The IMF also **provided debt relief** reaching US\$ 930 to 31 countries under the Catastrophe Containment and Relief Trust (CCRT), in its final tranche (April 2020-April 2022) for COVID-19 related assistance.

The World Bank and the IMF pushed for the G20 to establish the Debt Service Suspension Initiative (DSSI) to help countries concentrate their resources on fighting the pandemic and to safeguard the lives and livelihoods of millions of the most vulnerable people. The DSSI took effect on May 1, 2020 and delivered far less relief than projected with major creditors and debtors not participating, and a number of vulnerable countries deemed ineligible. DSSI allowed 48 out of 73 eligible low-income countries to postpone US\$12.9 billion before the initiative expired in 2021.

The report "Financing Nature: Closing the Global Biodiversity Financing Gap" outlines a set of nine financial and policy mechanisms (Box 3) based on the United Nations Development Program's Biodiversity Finance Initiative (UNDP BIOFIN) Catalog of Finance Solutions that, if scaled up through appropriate public policies and private sector action, have the potential to collectively make a substantial contribution to closing the global biodiversity financing gap over the next decade.⁵⁸ Several of these mechanisms are also addressed in the IMF Working Paper No. 2022/162, particularly with respect to the use of green budgeting and accounting innovation in Official Development

 $58. \ Paulson Institute. 2020. \ Financing Nature: Closing the Global Biodiversity Financing Gap. \ https://www.paulsoninstitute.org/key-initiatives/financing-nature-report/$

The expansion of instruments that can be piloted and tested to gauge creditor and investor interest and willingness will diversify funding opportunities and allow for greater scale and reduction of risk. Given the urgency of the need for action, all of these approaches are viable and necessary steps forward to provide solutions to the debt crisis.

Assistance to increase resource flows and the development of green financial instruments in debt markets.

These strategies are attainable under the current international financial framework, and some have already made initial progress. Avaaz supports these measures and has engaged on debt relief issues with the G2O, G7 and IMF, linking them to other relevant issues within Avaaz's core agenda of social inclusion, the rights of IPLCs and women, transparency, biodiversity loss and investments in nature.

Box 3. Catalog of mechanisms

Reform of "perverse subsidies" that induce production or consumption activities exacerbating biodiversity loss, particularly within the agriculture, fisheries, and forestry sectors. Investment risk management actions taken by financial institutions to understand and manage the risks to biodiversity from their investments.

Biodiversity off-sets to compensate for unavoidable damage to biodiversity through a development project when the cause of damage proves difficult or impossible to eliminate. Domestic budgets and tax policies to prioritize budget expenditure for biodiversity as raising revenue from taxation may be insufficient to close the biodiversity financing gap by 2030. The protection of natural infrastructure serves a dual purpose, first, it maintains healthy ecosystems over the long-term and second, it delivers ecosystem services to human populations, supporting livelihoods and communities.

Green financial products are a collection of financial instruments, primarily debt and equity, that facilitate the flow of investment capital into companies and projects that can have a positive impact on biodiversity.

Nature-Based Solutions and Carbon Markets as a part of countries' strategies for achieving their NDC goals by generating direct biodiversity benefits.

Increasing Official Development Assistance funding to biodiversity-rich countries between 2020 and 2030, supporting country efforts to develop National Biodiversity Finance Plans and implement the nationally appropriate suite of mechanisms to meet biodiversity finance needs.

Improve supply chains by incorporating better sustainable management practices as an opportunity to avoid harm and positively impact nature and biodiversity. Implementation experience under current conditions has been generated with the design and implementation of an innovative debt-for-nature swap for Belize, which mobilized private investment and risk management instruments in support of a traditional DNS that can be replicated.

Avaaz believes that the expansion of instruments that can be piloted and tested to gauge creditor and investor interest and willingness will diversify funding opportunities and allow for greater scale and reduction of risk. Given the urgency of the need for action, all of these approaches are viable and necessary steps forward to provide solutions to the debt crisis.

Box 4. Belize DNS

In November 2021, a debt-for-nature swap was negotiated by the government of Belize and The Nature Conservancy that not only ensures the long-term conservation of marine ecosystems and resources, but also allows Belize to buy back its outstanding external commercial debt at a discount equivalent to 30% of the country's GDP. A guarantee provided by the US government's International Development Finance Corporation was used to off-load risk, contributing to the swap's success. The expanding interest in Environmental, Social and Governance (ESG) criteria by investors is an enabling factor that allowed for private creditors to enter into the deal and provides an example of the usefulness of swaps for other indebted countries with similar economic circumstances.

03. Towards aligning the economic system with biodiversity conservation and sustainable use

7' Read

3.1. The importance of biodiversity accounting and valuation

The science is clear that the global economy depends on biodiversity and functional ecosystems. And while progress has been made in individual countries to value natural capital and the economies that depend on it, it is not yet recognized in the multilateral financial architecture, as is the case for climate change.

For example, existing tools and policies to tailor debt relief and redirection, such as those discussed in the IMF working paper 22/162⁵⁹, should be used and expanded. Building on the U.N. Secretary General's policy brief of March 2021⁶⁰, long-term credit ratings to account for investments in SDG achievements should also explicitly include natural capital accounting to accurately reflect accrual of conservation and sustainable use actions in favor of the global community.

The incorporation of a broader approach of biodiversity valuation that takes into consideration nature's diverse values in debt negotiations⁶¹, the wider adoption of green taxonomy with biodiversity criteria (Box 5) in the financial system and measures to incorporate biodiversity risks in capital markets can help catalyze joint action to mobilize resources to close the gap in biodiversity funding needs in support of SDG achievement. This focus can be aligned with current due diligence language such as the European Parliament's resolution of March 10, 2021, with recommendations to the Commission on Corporate Due Diligence and Corporate Accountability:

^{59.} Chamon, M., Klok, E., Thakoor, V., and Zettelmeyer, J. 2022. "Debt-for climate swaps: analysis, design, and implementation." IMF Working Paper WP/22/162. Retrieved from https://www.imf.org/en/Publications/WP/Issues/2022/08/11/Debt-for-Climate-Swaps-Analysis-Design-and-Implementation-522184

^{60.} UNSG. (2021). Liquidity and debt solutions to invest in the SDGS: The time is now. https://unsdg.un.org/sites/default/files/2021-03/sg-policy-brief-on-liquidity-and-debtsolutions.pdf

^{61.} As recommended in the recently published IPBES report: IPES (2022).IPBES (2022). Summary for Policymakers of the Methodological Assessment Report on the Diverse Values and Valuation of Nature of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Pascual, U., Balvanera, P., Christie, M., Baptiste, B., González-Jiménez, D., Anderson, C.B., Athayde, S., Barton, D.N., Chaplin-Kramer, R., Jacobs, S., Kelemen, E., Kumar, R., Lazos, E., Martin, A., Mwampamba, T.H., Nakangu, B., O'Farrell, P., Raymond, C.M., Subramanian, S.M., Termansen, M., Van Noordwijk, M., and Vatn, A. (eds.). IPBES secretariat, Bonn, Germany. https://doi.org/10.5281/zenodo.6522392

The informed participation of women in biodiversity conservation, as in climate change mitigation and adaptation efforts, mobilizes additional knowledge and skill sets that are often overlooked in public policies but have an impact directly in the economic activities of a population, a region or a country.

Box 5. Green and sustainable taxonomies

Taxonomy is a "classification system identifying activities, assets, and/or project categories that deliver on key climate, green, social or sustainable objectives with reference to identified thresholds and/or targets."62 While definitions of sustainable finance are less ambitious in scope and are currently focused in most cases on climate change criteria, taxonomies bring clarity since they provide more precise and consistent definitions of which investments are sustainable. Taxonomies could facilitate investment by giving confidence and assurance to investors. Easier tracking of sustainable finance flows is another potential benefit that would facilitate policy actions such as establishing incentives.63 Currently, the most comprehensive and developed framework is the EU taxonomy. It interlinks six environmental objectives based on the "Do No Significant Harm" principle. Second, it includes transition and enabling activities, with thresholds declining over time. This framework development started with climate change criteria - mitigation- as the main focus of the EU taxonomy. In parallel, the EU has been working on a social taxonomy whose final report was published

"support strong due diligence [measures] aligned with the goals of international treaties and conventions based on the agreement of scientific communities, where relevant and where they exist, on certain key environmental sustainability matters, such as the 2050 climate neutrality objective, the net zero biodiversity loss objective, climate change, air and water pollution, deforestation, loss in biodiversity, and greenhouse emissions...".⁶⁸ in 2022.64

Progress has been made towards the harmonization of national taxonomies. For instance, in 2021 at COP26, China and the EU published a technical comparison of their taxonomies focusing on climate change mitigation.⁶⁵ Taxonomies may be designed both to serve domestic or regional environmental objectives, including biodiversity and sustainable use, and could also be used by global corporate and financial actors with activities and investment across various jurisdictions. Disseminating knowledge and guidance for best practices in taxonomies and facilitate international cooperation by harmonizing principles and approaches.⁶⁶

Harmonizing methodologies is fundamental, as it will not be possible to have a single taxonomy for all jurisdictions. Ecosystem health and climate fair shares vary among all countries. ⁶⁷ On the other hand, investors need certainty for investments, and harmonization sets a common ground among the necessarily unequal taxonomies.

3.2. Include a rights-based approach to the social sustainability of the proposals

The incorporation of the gender perspective in conservation efforts is not only a measure of social justice, but also key for improving current conservation efforts and promoting the adoption of more sustainable practices and decisions and is more profitable economically. The informed participation of women in biodiversity conservation, as in climate change mitigation and adaptation efforts⁶⁹, mobilizes additional knowledge and skill sets that are often overlooked in public policies but have an impact directly in the economic activities of a population, a region or a country ⁷⁰.

^{62.} International Capital Market Association (2020). Sustainable Finance. High-level definitions. Zurich. Retrieved from https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/Sustainable-Finance-High-Level-Definitions-May-2020-051020.pdf

^{63.} OECD (2020), Developing Sustainable Finance Definitions and Taxonomies, Green Finance and Investment. Paris: OECD Publishing. https://www.oecd-ilibrary.org/finance-and-investment/developing-sustainable-finance-definitions-and-taxonomies _134a2dbe-en

^{64.} EU, Platform on Sustainable Finance (2022). Final Report on Social Taxonomy. Retrieved from: https://ec.europa.eu/info/sites/default/files/business economy_euro/bank ing and finance/documents/280222-sustainable-finance-platform-finance-report-social-taxonomy.pdf

^{65.} International Platform on Sustainable Finance (2021).Common Ground Taxonomy. Change Instruction IPSF Taxonomy Mitigation. Retrieved from: https://ec.europa.eu/info, sites/default/files/business_economy_euro/banking_and_finance/documents/211104-ipsf-common_ground-taxonomy-instruction-report-2021_en.pdf

^{66.} OECD (2020), Developing Sustainable Finance Definitions and Taxonomies, Green Finance and Investment. Paris; OECD Publishing. Retrieved from https://www.oecd-ilibrary.org/finance-and-investment/developing-sustainable-finance-definitions-and-taxon omies_134a2dbe-en

^{67.} A GHG emissions budget based on the principle of common but differentiated responsibilities and capabilities: http://www.climatefairshares.org that, in a certain way, defines local mitigation trajectories and transition risks.

^{68.} EU Corporate due dilligence and corporate accountability https://www.europarl.europa.eu/doceo/document/TA-9-2021-0073_EN.html

Nnoko-Mewanu, J., Téllez-Chávez, L. & Rall, K. (2021).. Protect rights and advance gender equality to mitigate climate change. Nat. Clim. Chang. 11, 368-370. https://doi. org/10.1038/s41558-021-01043-4

^{70.} For example in the Yucatan Peninsula, Mexico, Leydy Pech, winner of the Goldman Prize, organized a coalition of Mayan beekeepers to defend the production of high-quality honey for export to the European Union against the threat of the Monsanto company that intended to plant genetically modified soybeans in the Peninsula, putting at risk the local biodiversity and the international certification of a productive activity with a gender perspective that demonstrates the wisdom of the IPLC in conservation efforts. Because of the persistence of Pech and her coalition, in September 2017, Mexico's Food and Agricultural Service revoked Monsanto's permit to grow genetically modified soybeans in seven states. See: Goldman Environmental Foundation (2022) 2020 Goldman Prize Winner Leydy Pech. https://www.goldmanprize.org/recipient/leyd-pech/#recipient-bio

The ecological debt: Save biodiversity, save the economy How the IMF can explore debt-for-nature swaps and support the implementation of the post-2020 global biodiversity framework

PLAN

Does life imitate art? If so, the live installation inspired by Eugène Delacroix's iconic 1830 "Liberty Leading the People" (La Liberté Guidant le Peuple, Louvre) shows the only thing that can lead people - to survival - now. Wednesday, September 8, 2021. Marseille, France (AVAAZ)

MINI AGOR/

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The full and effective participation of IPLCs in the decision-making process is costeffective, beneficial to the conservation of biodiversity, and essential for maintaining life-supporting systems and other critical ecological processes. This is undoubtedly economically smart. We must also increase recognition and support for IPLC conservation and sustainable use practices. IPLCs manage over at least 43.5 million km² (32% of global land) in 87 countries. Not only their livelihoods depend on the ecosystems they inhabit⁷¹; but most IPLCs have developed management practices and governance systems allowing them to satisfy their needs without compromising the conservation of their ecosystems while generating highly valuable benefits that sustain the livelihoods of other human groups outside of their communities⁷².

Furthermore, independent scientific evaluations confirm that while conservation projects involving IPLCs have better-than-average implementation records, support for these projects is limited in scale and scope⁷³. The international community recognizes in diverse fora the IPLC concept of territory: a special relationship between their lands and resources with corresponding access and rights to self-governance, reparations, compensation and indemnity, consultation, and informed participation. Harmonization of national regulatory frameworks to recognize and respect territorial rights of IPLCs, and the integration of their traditional knowledge and practices in the conservation and sustainable use of natural resources and in measures for climate change adaptation, will not only benefit IPLCs, but humanity as a whole.

The full and effective participation of IPLCs in the decision-making process is cost-effective, beneficial to the conservation of biodiversity, and essential for maintaining life-supporting systems and other critical ecological processes. This is undoubtedly economically smart.

3.3. The case for an urgent mechanism for biodiversity and climate resilient debt restructuring

Avaaz believes in the necessity of creating high-level global task forces, or other bodies that can support the development and orientation of sustainable development, climate and biodiversity-related financial instruments aimed at increasing opportunities for debt relief globally. The recent Climate Vulnerables' Manifesto for COP26⁷⁴ also calls for the establishment of an emergency coalition for climate resilient debt restructuring. Taking into account all the scientific evidence available today, Avaaz believes that this initiative should be expanded to include biodiversity.

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While bilateral negotiations may continue to prevail in the short term, a common framework to promote these instruments would have a strong impact on the effectiveness of debt relief in supporting biodiversity and climate goals. These goals are thoroughly entwined, and effective measures for climate change mitigation and adaptation cannot be conceived in the absence of functional and healthy natural and sustainably managed ecosystems.

Building on past experience, lessons learned, best practices, and learning by doing, initiatives should be developed and implemented immediately to test different models of debt relief options. These could include ecosystem valuation, ecological footprints and innovative debt capacity rating evaluations that incorporate biodiversity values as well as cultural values related with biodiversity, and longer horizons in line with ecosystem response times.

Feasibility guides should be developed to help countries conduct stocktaking exercises to see if they are suitable candidates for the implementation of debt relief instruments such as DNS or climate swaps. The IMF should engage with other financial institutions to identify the most appropriate and immediate platform to incorporate these types of variables in pilot initiatives.

^{71.} WWF, UNEP-WCMC, SGP/ICCA-GSI, LM, TNC, CI, WCS, EP, ILC-S, CM, IUCN The State of Indigenous Peoples' and Local Communities' Lands and Territories: A technical review of the state of Indigenous Peoples' and Local Communities' lands, their contributions to global biodiversity conservation and ecosystem services, the pressures they face, and recommendations for actions. Gland, Switzerland (2021). https://wwfint.awsassets.pan-da.org/downloads/report_the_state_of_the_indigenous_peoples_and_local_communities_lands and territor.pdf

^{72.} ICCA Consortium. (2021). Territories of Life: 2021 Report. ICCA Consortium: world-wide.https://report.territoriesoflife.org/es/

^{73.} GEF, UNDP (2021). Third Joint GEF-UNDP Evaluation of the Small Grants Programme. http://web.undp.org/evaluation/evaluations/thematic/sgp.shtml

^{74.} Climate vulnerable forum.(2021). Climate Vulnerables' Manifesto for COP 26. https://thecvf.org/activities/program/cvfmanifestocop26

04. Potential pilot programs

16' Read

4.1. Introduction to the proposal

What follows is a list of five megadiverse countries (including both middle-income and emerging economies) -- Brazil, the Democratic Republic of Congo (DRC), Indonesia, the Philippines and South Africa - which Avaaz believes are illustrative cases of where DNS could be further explored for supporting pilots.

Based on scientific and economic data, Avaaz identified these countries as potential opportunities for piloting debt for nature swaps on a larger scale, both economically as well as geographically, and with innovative approaches to national engagement and social and environmental safeguards. Criteria used by Avaaz from publicly available sources include country participation in different ecosystem valuation experiences, regional and global participation in alliances or coalitions relevant to biodiversity, levels of overall debt and debt-to-GDP ratio, availability of country-specific data on costs and benefits of biodiversity conservation and sustainable use, and evidence of biocultural heritage carried on by IPLCs. It is important to note that these are examples only, and do not reflect any political engagement by Avaaz, rather they identify possible opportunities to move forward on recognizing natural capital and biodiversity as elements for debt relief and new DNS approaches.

Avaaz hopes that the analysis opens dialogue for the reappraisal of DNS as an instrument that can be paired with other financial instruments such as performance-based bonds, green bonds and investments in sectors highly dependent on biodiversity, to achieve scale, mobilize the necessary resources and support the conservation of 50% of the planet by 2030.

Each of these countries is endowed with exceptional cultural heritage and natural resources. They host a significant percentage of Earth's endemic species and are included in the UN group of Like Minded Megadiverse Countries, a grouping of the world's 17 most biodiverse developing countries and economies in transition. They also share many challenges - all currently face a rapid loss of their natural capital and biodiversity,

In the case of Latin America and the Caribbean, use the Escazú Agreement's principles to guide sovereign debt discussions. ven if not binding for them, African and Asian countries could benefit from a similar approach.

they are saddled with high debt and vast social and inequality challenges with a significant portion of their population living in poverty, and some have suffered political instability and social unrest. Today they face additional major economic and social impacts as a result of the COVID-19 pandemic.

The most vital element of any successful DNS proposal will be collaboration with, and agreement from, the people of each country. Without the following steps, a DNS could result in an illegitimate appropriation of a country's sovereign wealth and will fail.

Development of an equitable, sustainable resource distribution plan, based on the Sustainable Development Goals, to accelerate a country's fair and ecological transition. A developing country will be better situated to engage in the conservation and sustainable use of its biodiversity and natural capital if it is linked to the creation of quality jobs, greater social inclusion.

Organize and promote public discussion and other transparent, accessible public participation mechanisms that allow their social sector to effectively engage in decision-making regarding the conservation and sustainable use of national biodiversity and natural resources. Under no circumstances should a DNS lead to policies that entail increased poverty or ceding of sovereignty over national biocultural heritage and natural capital.

Build consensus among political forces, ruling and other, and establish a multilateral and cross-sector dialogue on public debt, actively including groups that have been historically excluded from such public discussions.

Build consensus with IPLCs and civil society, especially in the development of legal regulations addressing biodiversity conservation and sustainable use; the conditions for renegotiating external debt, especially under DNS schemes, and laws and regulations of strict protection for biocultural heritage.

Move from a fossil-fuel economy to carbon-neutral one. Linking the renegotiation of external debt to comprehensive and sustainable human development means putting an end to the extractivist vicious circle in which emerging economies are often trapped by moving from a fossil fuel-based economy to a carbon-neutral one.

In the case of Latin America and the Caribbean, use the Escazú Agreement's principles to guide sovereign debt discussions. Balancing out financial decision-making by analyzing the costs and impact on the environment, and on people's human right to a healthy environment, requires bringing more actors into the fold who can actively participate and share other perspectives so that the outcomes of these new public policy decisions can enjoy broad civic support. Even if not binding for them, African and Asian countries could benefit from a similar approach.

4.2. Brazil

The Opportunity:

Brazil's terrestrial and marine ecosystems provide benefits estimated in US\$ 5,042 billion annually⁷⁵ and values per hectare in Brazilian forests for a few ecosystem services can reach up to US\$ 737 per year⁷⁶. Its national debt reached US\$ 1,393 billion accounting for 78.%⁷⁷ of its nominal GDP by mid-2022 and is expected to rise again this year.

Therefore, Brazil's biodiversity is making an annual global environmental contribution equivalent to 3.6 times the size of its national debt.

^{75.} Li, G & Fang, C. (2014). Global mapping and estimation of ecosystem services values and gross domestic product: A spatially explicit integration of national 'green GDP' accounting. *Ecological Indicators*. (46) pp. 293-314. http://dx.doi.org/10.1016/j. ecolind.2014.05.020

^{76.} Strand, J., Soares-Filho, B., Costa, M. H., Oliveira, U., Ribeiro, S. C., Pires, G. F., ... & Toman, M. (2018). Spatially explicit valuation of the Brazilian Amazon forest's ecosystem services. *Nature Sustainability*, 1(11), 657-664. Retrieved from: https://csr.ufmg.br/csr/ wp-content/uploads/2018/11/Soares-Filho_et-al_Rajao_Spatially-explicit-evaluation-of-the-Amazon NSUS.pdf

^{77.} CEIC Data (2021) Brazil National Government Debt https://www.ceicdata.com/en/ indicator/brazil/national-government-debt

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Children delivered 1.1 million signatures demanding that Congress take measures against illegal deforestation in the Amazon. On the occasion, Avaaz published the results of the unpublished surveys IBOPE and INSTITUTO DEMODATA on the perceptions of the population and parliamentarians about the Amazon. Wednesday, August 21, 2019 (AVAAZ)

CONGRESSO NACIONAL **1.1 MILHÃO** DE PESSOAS PEDEM: **PRESERVEM** AMAZÔNIA

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Brazil's consolidated fiscal balance recorded a deficit equal to 4.7% of its nominal GDP in June 2022 and governmental debt accounted for 78.0%⁷⁸ of its nominal GDP of US\$ 501.9 billion. As of July 2022, Brazil's national debt reached US\$ 1,393.0 billion. For comparison's sake, a report submitted by the country in July 2021 to the Clearing-House Mechanism of the Convention of Biological Diversity states that the annual gap for achieving national goals would be approximately US\$ 309.20 million, including the values to be mobilized by the private sector.

Brazilian biocultural heritage and biodiversity, and ongoing challenges:

Brazil has the largest known concentration of Indigenous peoples in isolation in South America, with 107 recorded in the Amazon region. The region concentrates most of the country's 505 Indigenous lands, covering 12.5% of Brazil's territory. IPLCs conform 305 ethnic groups who speak 274 languages⁷⁹. Securing land tenure for IPLCs can provide significant ecosystem service benefits in Brazil, as well as Bolivia and Colombia, estimated at between US\$ 679 and US\$ 1,530 billion for the next 20 years. The costs of doing so amount to less than 1% of these benefits.⁸⁰

Brazil harbors the world's biggest rainforest, which likely explains why it ranks amongst the top countries generating biodiversity-related studies, projects and initiatives. For example, financial gaps have been measured for meeting biodiversity-related international commitments and for effective Protected

78. idem.

79. IGWIA. (2021). The Indigenous World 2021. Retrieved from: https://www.iwgia.org/en/resources/indigenous-world

80. Ding, Helen & Veit, Peter & Gray, Erin & Reytar, Katie & Altamirano-Cabrera, Juan-Carlos & Blackman, Allen & Hodgdon, Benjamin. (2016). Climate Benefits, Tenure Costs: The Economic Case For Securing Indigenous Land Rights in the Amazon. Retrieved from: https://www.wri.org/research/climate-benefits-tenure-costs Areas (PA's) system management⁸¹⁸². This provides information on strategic ways to invest funds acquired via debt swap.

Brazil is the most biodiverse country in the world, and the 12th largest economy. It was one of the first South American countries to develop a National Biodiversity Strategy⁸³ and adopted 2020 national biodiversity targets aligned with the UN Aichi Biodiversity Targets. However, Brazilian biodiversity and natural resources continue to be lost and degraded. For example, subsidies to produce commodities linked to forest destruction and land-use change exceed the amount spent on measures to combat deforestation by a factor of 100 or more⁸⁴.

The main driver of deforestation in Brazil is land-use change for agrobusiness. This sector's exports have become the country's main source of economic growth. The agricultural sector generates 27.5% of the country's 2021 GDP and is estimated to decline slightly to 25.5% in 2022⁸⁵. This sector produces roughly 30% of the world's soybeans and 15% of its beef.

The financial sector is aware of its dependency on biodiversity and since at least 2014 has been developing proposals to start addressing biodiversity loss from a green finance perspective⁸⁶ ⁸⁷. Brazilian banks have an outstanding credit exposure of US\$ 150 billion to non-financial corporates that operate in sectors

84. Calice, P., Diaz Kalan, F., & Miguel, F. (2021). Nature-Related Financial Risks in Brazil. World Bank Group. Retrieved from: https://documentsl.worldbank.org/curated/ en/105041629893776289df/Nature-Related-Financial-Risks-in-Brazil.pdf

85. CEPEA. 2022. PIB do Agronegócio. Retrieved from: https://www.cepea.esalq.usp.br/ br/pib-do-agronegocio-brasileiro.aspx

 Calice, P., Diaz Kalan, F., & Miguel, F. (2021). Nature-Related Financial Risks in Brazil. World Bank Group. https://documentsi.worldbank.org/curated/en/105041629893776228/ pdf/Nature-Related-Financial-Risks-in-Brazil.pdf

87. Center for Sustainability Studies at Getulio Vargas Foundation (2014). The Brazilian Financial System and the Green Economy. Retrieved from: https://cmsarquivos.febraban.org.br/Arquivos/documentos/PDF/The%20Brazilian%20Financial%20System%20 and%20the%20Green%20Economy_Alignment%20with%20Sustainable%20Development_2014.PDF

De Oliveira, A. P. C., & Bernard, E. (2017). The financial needs vs. the realities of in situ conservation: an analysis of federal funding for protected areas in Brazil's Caatinga. *Biotropica*, 49(5), 745-752. Retrieved from: https://doi.org/10.1111/btp.12456

Pacheco, A. A., Neves, A. C. O., & Fernandes, G. W. (2018). Uneven conservation efforts compromise Brazil to meet the Target 11 of Convention on Biological Diversity. *Perspectives in Ecology and Conservation*, 16(1), 43-48. Retrieved from: https://www.perspectecolconserv.com/en-uneven-conservation-efforts-compromise-brazil-articu-lo-S2530064417300561

^{83.} Ministry of the Environment. Brazil. 2017. National Biodiversity Strategy and Action Plan. Retrieved from: https://www.cbd.int/doc/world/br/br-nbsap-v3-en.pdf

The DRC's 2021 debtto-GDP ratio dropped to 85%% after reaching 101% in 2020, and foreign debt reached US\$ 6.85 billion.91 Agriculture, forestry, and fisheries account for 20% of the DRC's GDP. 76% of its exports are ores and metals, which constitute the main national income (90%). highly dependent on one or more ecosystem services⁸⁸.

The possible inclusion of enforcement measures in international agreements for more sustainable supply chains would be a strong incentive for Brazil's agricultural sector to transition to more sustainable agricultural models.

4.3. The Democratic Republic of Congo (DRC)

The Opportunity:

It has been estimated that the DRC's ecosystems provide an average US\$ 813.5 billion in ecosystem services (provisioning, regulating, cultural and supporting services) per year.⁸⁹ Meanwhile, its debt stands at US\$ US6.85 billion⁹⁰ meaning that the DRC is making an annual global environmental contribution to the world equivalent to 135 times the size of its national debt.

Financial Situation:

The DRC's 2021 debt-to-GDP ratio dropped to 85%% after reaching 101% in 2020, and foreign debt reached US\$ 6.85 billion.⁹¹ Agriculture, forestry, and fisheries account for 20% of the DRC's GDP. 76% of its exports are ores and metals, which constitute the main national income (90%).

The DRC is the largest producer of cobalt in the world, and the fifth largest producer of copper. Despite the fact that the mining sector has been the main growth driver, it has created little added value and jobs, depending significantly on the fluctuation of world markets. The DRC has confronted numerous social challenges in recent years, including two particularly brutal armed conflicts, (1996-1997, 1998-2003) which triggered economic and financial crises and led to declining food and energy supplies.

DRC and IPLCs:

The DRC has more than 250 ethnic groups which make up about 45% of the population⁹². Customary law is used to govern use-rights to unallocated land in highly disperse rural areas and an estimated 97% of the territory remains subject to customary law by IPLCs⁹³.

DRC's biodiversity, natural resources and their destruction:

The DRC's tropical rainforest is the second largest tropical rainforest ecosystem in the world after the Amazon, and as such, it is also the second biggest carbon sink, making the DRC's forests a critical global ecosystem service provider. The DRC's peatland ecosystems are the largest in the world, also providing a massive carbon storage service (it is estimated that the forests of the DRC can store 30 billion tons of carbon, which is the equivalent of three years of carbon emissions at the global level). The DRC also has vast water resources (half of the water in the continent) and trillion dollar mineral reserves.⁹⁴

Africa's most biodiverse country, the DRC is home to 190 species that are classified as critically endangered or vulnerable on the IUCN's Red List of Threatened Species. Elephants and mountain gorillas are two of the species under threat due to unregulated hunting and poaching. Up to 1.7 million tons of bushmeat, mainly antelope, duiker, monkey and wild boar, are ille-

Calice, P., Diaz Kalan, F., & Miguel, F. (2021). Nature-Related Financial Risks in Brazil. World Bank Grouphttps://documentsi.worldbank.org/curated/en/105041629893776228/ pdf/Nature-Related-Financial-Risks-in-Brazil.pdf

Li, G & Fang, C. (2014). Global mapping and estimation of ecosystem services values and gross domestic product: A spatially explicit integration of national 'green GDP' accounting. Ecological Indicators. (46) pp. 293-314. http://dx.doi.org/10.1016/j. ecolind.2014.05.020

^{90.} Trading Economics (2022) Congo Total External Debt. https://tradingeconomics. com/congo/external-debt

^{92.} CIA (2021) DRC Profile. Overview: https://www.cia.gov/the-world-factbook/countries/ congo-democratic-republic-of-the/#people-and-society

^{93.} Rights and Resources Initiative (2020) The opportunity Framework. *Identifying Opportunities to Invest in Securing Collective Tenure Rights in the Forest Areas of Low- and Midlle-Income Countries.* https://rightsandresources.org/wp-content/uploads/2020/09/ Opp-Framework-Final.pdf

^{94.} Ministère de L'Environnement et Développement Durable (2019) Sixième Rapport de la République Democratique du Congo a la Convention Sur la Diversite Biologique https://www.cbd.int/doc/nr/nr-06/cd-nr-06-fr.pdf

The world's largest archipelagic state, Indonesia's biodiverse ecosystem ranges from sea and coastal systems to peat swamps and mountain forests. gally harvested each year.

Challenges:

Natural protected areas in the DRC cover 13.83% of its territory and yet they are threatened by encroachment. Law enforcement is unable to provide the protection needed to defend and conserve biodiversity over the long term. There are also serious issues of hunting, poaching, and logging within natural Protected Areas. Most of the conservation areas managed by IPLCs are not integrated into the national system of protected areas, and the government has been implementing a capacity-development initiative to document best IPLC practices⁹⁵.

4.4. Indonesia

The Opportunity:

Indonesia's ecosystems provide on average US\$ 8,717.84 billion in ecosystem services per year⁹⁶ while its debt is US\$ 400.4 billion⁹⁷. Indonesia is making an annual global environmental contribution equivalent to 21 times the amount of its debt.

It is estimated that valuation of ecosystem regulation services in five key Indonesian provinces would represent US\$2-8 million yearly from soil erosion prevention, US\$17-97 million per year in carbon sequestration and storage, and US\$ 435 million to US\$ 2.4 billion per year in water augmentation (increase of availability and supply).⁹⁸

Financial Situation:

The fourth most inhabited nation in the world, Indonesia's debt-to-GDP ratio is approximately 35.1%⁹⁹. Indonesia is the largest developing economy in Southeast Asia, based to a great extent on commodities exports.

Indonesia's biocultural and biological diversity and destruction:

Traditional knowledge and practices have spread awareness about the benefits of biodiversity for human survival. Starting in 2001, IPLCs acting as biodiversity custodians have been recognized by the Indonesian Ministry of the Environment, which reported around 300 examples of traditional knowledge and practices related with the environment and biodiversity.

The world's largest archipelagic state, Indonesia's biodiverse ecosystem ranges from sea and coastal systems to peat swamps and mountain forests. It is also the third largest area of tropical forest on the planet¹⁰⁰, which plays a significant role in the provision of ecosystem services to the world, including such as water cycle regulation, and carbon sequestration.

Challenges:

Indonesia's provision of ecosystem services to the world has dramatically changed in recent years. Land-use change, from tropical rainforest to oil palm extensive agriculture, and over-exploitation of natural resources has thoroughly, and negatively, altered Indonesian biodiversity and land and sea ecosystems.

Indonesia is the world's leading producer of palm oil, supplying approximately half of the commodity globally. Palm oil pro-

Schmitt & Mukungu (2019) How to achieve effective participation of communities in the monitoring of REDD+Projects: A case study in the Democratic Republic of Congo (DRC). Forests 2019, 10(9), 794; https://doi.org/10.3390/f10090794

^{96.} Li, G & Fang, C. (2014). Global mapping and estimation of ecosystem services values and gross domestic product: A spatially explicit integration of national 'green GDP' accounting. *Ecological Indicators*. (46) pp. 293-314. http://dx.doi.org/10.1016/j. ecolind.2014.05.020

Bank of Indonesia. 2022. Indonesia's external debt decreased in July 2022 Press release. Retrieved from: https://www.bi.go.id/en/publikasi/ruang-media/news-release/Pag es/sp_2424722.aspx

United Nations Office for REDD Coordination in Indonesia (UNOCRID). Forest Ecosystem Valuation Study: Indonesia. Retrieved from:https://wedocs.unep.org/bitstream/handle/20.500.11822/9737/- Forest_Ecosystem Valuation_Study - Indonesia:2015Forest_Ecosystem_Valuation_Study_-Indonesia.pdf.pdf?sequence=4&isAllowed=y

^{99.} CEIC (2022) Indonesia External Debt: % of GDP 2003 - 2021.https://www.ceicdata.com/en/indicator/indonesia/external-debt--of-nominal-gdp

^{100.} Ministère de L'Environnement et Développement Durable (2019) Sixième Rapport de la République Democratique du Congo a la Convention Sur la Diversite Biologique https://www.cbd.int/doc/mr/in-06/cd-nr-06-fr.pdf

The Philippine Biodiversity Strategy and Action Plan (PBSAP) 2015-2028 provides a clear framework for addressing biodiversity loss and degradation while promoting economic development and human well-being. duction is the largest agricultural industry in Indonesia and, as a major driver of deforestation, therefore also one of the biggest threats to the country's natural capital biodiversity. Intact tropical forests have been, and will continue to be, a major source of new land for palm plantations and monoculture crop systems, and lately also peat swamps, thereby not only depleting biodiversity, but increasing GHG emissions.

4.5. The Philippines

The Opportunity:

The Philippines is highly vulnerable to extreme climatic events such as cyclones. It is estimated that current mangrove cover averts US\$ 1 billion in industrial and residential property damages due to sea surge and surface flooding and US\$ 1.7 billion in damages for extreme climatic events annually. It has been estimated that flooding and damages for people, property and infrastructure would increase 25% without mangroves¹⁰¹. This estimate does not consider other important benefits provided by mangroves such as nursery and protective habitats for fisheries on which communities depend on as a source of food and income, or the capture and storage of CO₂ in the form of blue carbon.

The Philippine's ecosystems services economic value has been estimated in US\$ 860.3B per year¹⁰². while its debt is US\$ 216B in 2022¹⁰³. The Philippines is making an annual global environmental contribution equivalent to 4 times the amount of its debt.

Other estimates show that the Philippine's coral reefs alone

provide global ecosystem services estimated in US\$ 4 billion annuallyr¹⁰⁴. A recent valuation of the ecosystem services derived from Mt. Nacolod, one of The Philippines' priority conservation sites, estimated a total annual economic value of US\$98.5 million¹⁰⁵, considering provisioning, protective, regulating and cultural services.

The Philippine Biodiversity Strategy and Action Plan (PBSAP) 2015-2028 provides a clear framework for addressing biodiversity loss and degradation while promoting economic development and human well-being. Nevertheless, its implementation requires US\$ 530 million annually, with current spending reaching only US\$ 110 million annually, leaving an 80% financing gap.

Financial Situation:

The Philippines experienced sustained economic growth until the COVID-19 pandemic which reverted this trend and increased the country's outstanding debt, which has reached US\$ 216 billion to date for 2022¹⁰⁶. Debt swaps represent an attractive option for a green recovery since the country has successfully used them in the past to address key issues in biodiversity conservation. The most recent debt swap was in 2013 for US\$ 31.6 million to establish a conservation fund for endangered rainforests. This is an example of a traditional bilateral swap between the Philippines and the USA to strengthen the country's capacity to mobilize resources for biodiversity conservation.

Philippine biocultural and biological diversity and their destruction:

It has been reported that the Philippines is thought to have the

106. Philippines Bureau of the Treasury. Press Release June 2, 2022. https://www.treasury.gov.ph/wp-content/uploads/2022/06/NG-DEBT-PRESS-RELEASE_Apr-2022_final.pdf

Menendez, P., Losada, I. J., Beck, M. W., Torres-Ortega, S., Espejo, A., Narayan, S., ... & Lange, G. M. (2018). Valuing the protection services of mangroves at national scale: The Philippines. Ecosystem services, 34, 24-36. http://www.sciencedirect.com/science/article/pii/S2212041618301232

^{102.} Li, G & Fang, C. (2014). Global mapping and estimation of ecosystem services values and gross domestic product: A spatially explicit integration of national 'green GDP' accounting. *Ecological Indicators*. (46) pp. 293-314. http://dx.doi.org/10.1016/j. ecolind.2014.05.020

^{103.} Republic of the Philippines, Bureau of the Treasury. National Government Debt Recorded at P12.76 Trillion as of end-April 2022. MANILA, Philippines, 2 June 2022 https://www.treasury.gov.ph/wp-content/uploads/2022/06/NG-DEBT-PRESS-RELEASE_Apr-2022_final.pdf

^{104.} Natasha Charmaine A. Tamayo, Jonathan A. Anticamara, Lilibeth Acosta-Michlik, National Estimates of Values of Philippine Reefs' Ecosystem Services, *Ecological Economics*, Volume 146, 2018, Pages 633-644, ISSN 0921-8009, https://doi.org/10.1016/j.ecolecon.2017.12.005.

^{105.} Foundation for the Philippine Environment. 2020. The Economics of Nature: Using Natural Resource Valuation to Strengthen Conservation and Resilience. Retrieved from: https://www.fpe.ph/news/the-economics-of-nature-using-natural-resource-valuation-to-strengthen-conservation-and-resilience

As a middle-income emerging market, South Africa has been struggling to grow in recent years due in part to debt accounting for 69.9% of its GDP.

greatest number of species per unit of area of any country in the world, and it is also rich in endemisms¹⁰⁷. The Philippines is also rich in terms of marine biodiversity, ranking third in the world, and it forms part of the Coral Triangle, which is one of the world's most biodiverse marine regions. This unique biodiversity is supported by a large variety of ecosystems distributed among the more than 7,100 Philippine islands including forests, swamps, marshes, caves, inland waters, mangroves, seagrasses, and the aforementioned coral reefs.

Over a hundred ethnolinguistic groups comprise the cultural capital of the Philippines. There have been major contributions at a national level to recognize IPLC's rights and governance, which are instrumental in protecting and conserving the remaining natural forests of the Philippines. The mechanism of Indigenous Community Conservation Areas (ICCAs) is present in the country. ICCAs are natural and managed ecosystems, which include significant biodiversity, ecological services and cultural values that have been voluntarily conserved by IPLCs. Nevertheless, they are still unrecognized by the government.

The primary factors that threaten these areas and erode IPLCs conservation and sustainable management practices are habitat loss and degradation; loss of cultural links; traditional knowledge and/or traditional management practices; unsustainable tourism; and poorly planned infrastructure development. The main threat to terrestrial ecosystems is deforestation due to unsustainable logging and mining activities. In marine ecosystems, the main threat is unsustainable fishing, which also threatens most island populations as fishing is their main source of food.

107. The Philippine Clearing House Mechanism. http://www.philchm.ph/status-of-philippine-biodiversity-2/

4.6. South Africa

The Opportunity:

South Africa provides a net global environmental contribution of \$888.11 billion in ecosystem services every year. Meanwhile, its debt is \$173.8 billion,¹⁰⁸ which means that South Africa is providing the world with biodiversity services equivalent in value to five times its debt¹⁰⁹. This data indicates that the country has a potential of swapping debt for nature initiatives.

Financial Situation:

As a middle-income emerging market, South Africa has been struggling to grow in recent years due in part to debt accounting for 69.9% of its GDP¹¹⁰. Meanwhile, the country's unemployment, poverty and inequality rates are among the highest in the world. The wealthiest 10% of the population concentrate 71%¹¹¹ of the national income, while the poorest 40% share 7.2%¹¹².

Despite a strong economic recovery from the COVID-19 pandemic contraction (GDP growth rate was 4.9% in 2021), unemployment rates have not improved with nearly 1.9 fewer people employed at the end of 2021 compared with pre-pandemic levels, with the highest rate among the youth.¹¹³

110. Trading Economics (2022). South Africa recorded a Government Debt to GDP of 69.90 percent of the country's Gross Domestic Product in 2021. https://tradingeconomics com/south-africa/government-debt-to-gdp

111. World Bank (2022). Inequality in Southern Africa: An Assessment of the Southern African Customs Union. Retrieved from https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099125303072236903/p1649270c02a1f-06b0a3ae02e57eadd7a82

112. UNDP (2021). Human Development Reports: South Africa: http://hdr.undp.org/en/countries/profiles/ZAF

113. World Bank (2021) South Africa Overview: https://www.worldbank.org/en/country/ southafrica/overview#1

^{108.} CEIC (2022). South Africa External Debt 1985 - 2022. https://www.ceicdata.com/en/ indicator/south-africa/external-debt#-:text=South%20Africa%20External%20Debt%20 reached,bn%20in%20the%20previous%20quarter

^{109.} Li, G & Fang, C. (2014). Global mapping and estimation of ecosystem services values and gross domestic product: A spatially explicit integration of national 'green GDP' accounting. *Ecological Indicators*. (46) pp. 293-314. http://dx.doi.org/10.1016/j. ecolind.2014.05.020

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South African biodiversity and its challenges:

South Africa faces several risk factors associated with its unique biodiversity: deforestation rates continue to increase (between 2001-2021, South Africa suffered a decrease of forest cover of 26%¹¹⁴) and changes in the hydrological cycle are threatening inland ecosystems¹¹⁵. Other significant pressures are related to habitat loss derived from land use change resulting from clearing for croplands; plantation forestry; human settlements and mining; over utilization of rangelands; unsustainable use of biological resources; changes to fire regimes (frequency and location of wildfires) linked to management imperatives; invasive alien species; and climate change.116

South Africa's biocultural diversity

The total population of South Africa is around 59 million, of which it is estimated that indigenous groups represent approximately 1%.¹¹⁷ South Africa has great cultural diversity that has been historically linked with nature and biodiversity management. More than 800 academic studies provide evidence on indigenous and/or local knowledge (IPLCs) in SA on biodiversity and environmental issues. IPLCs are part of multiple biodiversity stewardship initiatives which have been presented as opportunities to support biodiversity protection within a framework that has proven to be efficient and more cost-effective, facilitating the collaboration among diverse stakeholders, and the particular context of the country.¹¹⁸

118. Cockburn, J., Cundill, G., Shcleton, S., Rouget, M. (2019) The meaning and practice of stewardship in South Africa. S Afr J Sci. 2019;115(5/6), Art. #5339,10 pages. Retrieved from:

^{114.} Global Forest Watch (2020). South Africa Profile: https://www.globalforestwatch.

^{115.} South African National Biodiversity Institute-SANBI (2019) National Biodiversity As-sessment 2018: The Status of South Africa's ecosystems and biodiversity. Synthesis Re-port, SANBI, an entity of the Department of Environment, Forestry and Fisheries, Pretoria. pp. 1-214. Retrieved from: https://www.sanbi.org/wp-c

^{116.} ibid

^{117.} International Work Group for Indigenous Affairs (IWGIA). 2022. The Indigenous World 2022. Retrieved from: htt s://www.iwgia.org/en/resources/indige



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