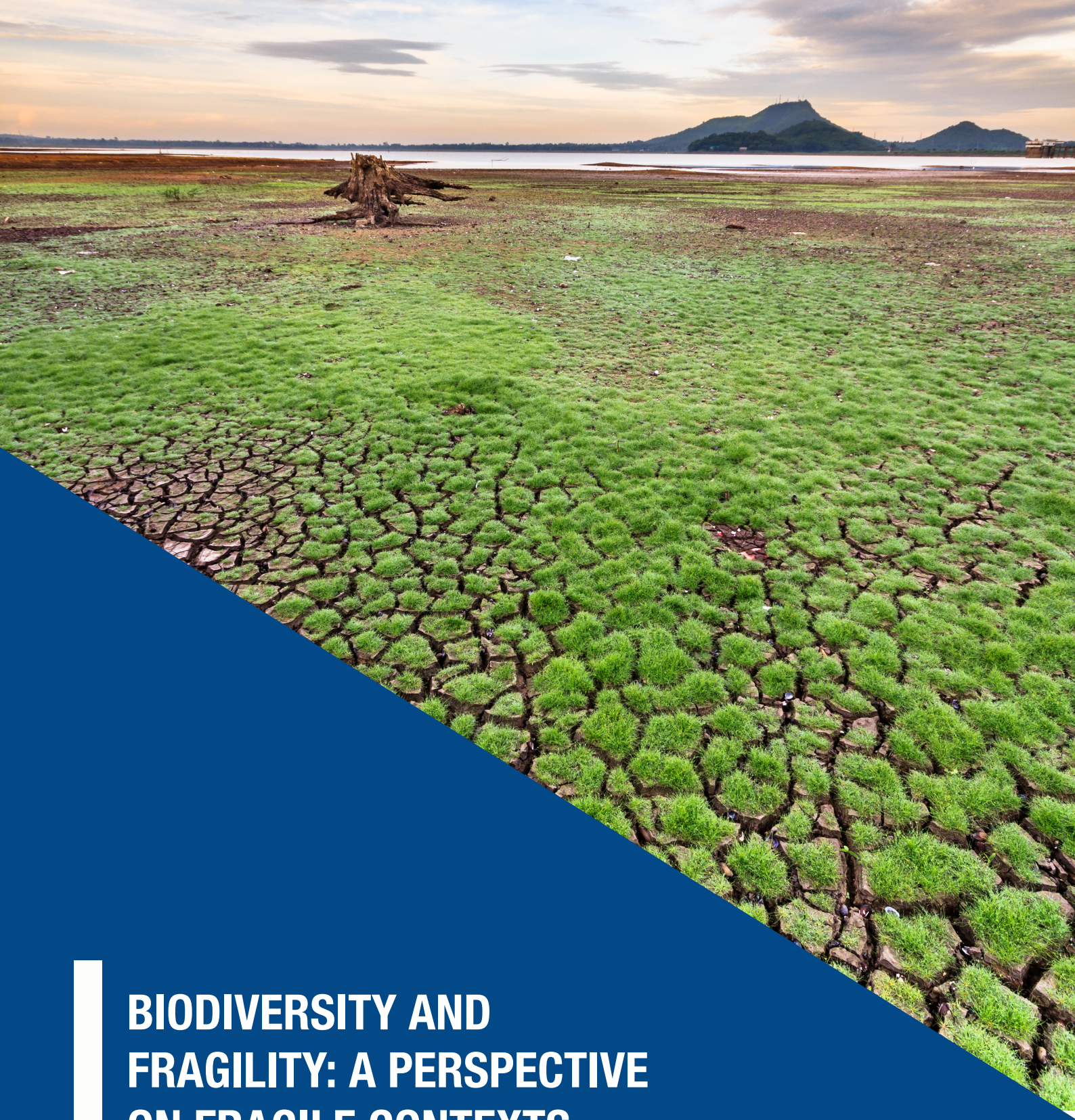

BIODIVERSITY AND FRAGILITY: A PERSPECTIVE ON FRAGILE CONTEXTS

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This paper examines how the loss of biodiversity – and of the ecosystem services it provides – affects the various dimensions of fragility, amplifying existing risks and diminishing coping capacity in fragile contexts. It calls on all stakeholders in development co-operation to align (i) efforts to manage natural resources in a sustainable manner, (ii) measures protecting and restoring biodiversity, and (iii) actions addressing the causes of multidimensional fragility.

Key messages

- There is a strong correlation between biodiversity loss and fragility. Fragility increases the risk of biodiversity loss, notably through overexploitation of natural resources, pollution and armed conflicts.
- In turn, biodiversity loss can worsen fragility, especially in contexts that rely on nature-related sectors and/or with insufficient physical, institutional, and political capacities to cope with environmental challenges. Increasing environmental risks, like biodiversity loss and habitat conditions cause disruptions that impacts the socio-economic, infrastructure, political, and cultural systems of fragile contexts.
- Development finance to protect biodiversity and address environmental fragility has increased since 2010. Yet the link with the causes and consequences of fragility in biodiversity hotspots is not systematic.
- To address the related human, social and economic risks in these contexts, donors must take into account these inter-linkages and take biodiversity loss and environment degradation as an important factor when designing their development aid policies and programming.

Why biodiversity matters for fragile contexts

Biodiversity is understood as the "variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems." (Convention on Biological Diversity, 2010[1]). Biodiversity thus includes diversity at the ecosystem, species, and genetic levels. Successive reports from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and World Economic Forum, including the 2022 Global Risk Report, have considered biodiversity loss and ecosystem collapse two of top three global risks (alongside climate). These findings align with those of the Intergovernmental Panel on Climate Change (IPCC) and the COP27 (Conference of the Parties of the UNFCCC) meetings have once again highlighted the new orders of environmental risk magnitudes for which the world is ill prepared. The connection between biodiversity and climate change goes both ways. Biodiversity conservation, sustainable use and restoration contribute to and enhance climate mitigation and adaptation while climate change can lead to degradation and loss of land and marine biodiversity. Combating climate change is necessary but not sufficient to tackle biodiversity loss. Effective responses to climate change and biodiversity loss rely, in part, on an appreciation of the root causes of fragility (World Economic Forum, 2020[2]).

All economic activities both depend on and affect natural capital. The destruction of nature therefore poses macroeconomic and financial risks resulting in severe economic shocks. Moreover, declines in the quantity and quality of nature threaten the health and well-being of both current and future generations (OECD, 2021, p. 12[3]). These declines are causing more, as well as more intense, spontaneous as well as slow onset disasters that threaten human security, infrastructure, deepen inequalities, disrupt social activity, and

economies. The collective impact of these risks is felt the hardest in fragile contexts[1] that have the least capacity to cope.

Environmental fragility is shaped by the relationship between human systems and their direct environment, determined by the interplay of risks and coping-capacities.[2] This dynamic is particularly important in biodiversity hotspots, where risks connected to biodiversity multiply while related coping capacities diminish (Box 1). The intensity of this compounding dynamic can be especially severe when biodiversity is already degraded, as it amplifies the tension between human systems and their direct environment. The Earth's natural assets and their associated biospheres are unevenly distributed and tend to be clustered in particular regions. According to the Dasgupta Review, 17.3% of the Earth's land surface maintains 77% of all endemic plant species, 43% of vertebrates and 80% of all threatened amphibians. At sea: just 0.012% of the oceans have between 45% and 54% of restricted-range species, and 10 coral reef areas (Dasgupta, 2021, p. 372[4]). This concentration of natural assets attracts human populations seeking to benefit from the quantity and quality of opportunities for sustaining livelihoods and building prosperity. For fragile contexts with populations more directly dependent on nature this can be problematic, with degrading biodiversity overlapping with multidimensional causes of fragility. For example,1.2 billion people in countries with tropical climate, or 30% of their population, are highly dependent on nature for basic human needs (Fedele et al., 2021[5]).

Box 1. Biodiversity hotspots

To qualify as a biodiversity hotspot, a region must meet two strict criteria: First, it must have a high percentage of plant life (endemic species) found nowhere else on the planet. A hotspot, in other words, is irreplaceable. Second, it must have lost at least 70 percent of its primary native vegetation. In other words, it must be threatened. According to the Critical Ecosystem Partnership Fund, there are currently 36 recognised biodiversity hotspots. These are Earth's most biologically rich – yet threatened – terrestrial regions. The loss of vegetation in some hotspots has reached a startling 95 percent.

Source: Critical Ecosystems Partnership Fund, (2022[6]), Biodiversity hotspots defined, https://www.cepf.net/our-work/biodiversity-hotspots/hotspots-defined.

Biodiversity loss can be a source of global and localised systemic shocks. Analysis of the 2008 financial crash, the ongoing COVID-19 pandemic, and the impact of Russia's war of aggression against Ukraine in 2022, demonstrate how risks can cascade rapidly through global systems – they do not stay confined to one dimension of fragility, to one country or region. The origin of the risk may be financial, health-related, environmental, or political but the impacts manifest across socio-economic, political and security dimensions at various levels. The systemic impacts of collapsing biodiversity can contribute to the spreading of zoonotic diseases, food insecurity, floods, water scarcity and a general weakening of ecosystem health and resilience.

[1] The term "fragile contexts" refers to the first 60 contexts identified in the 2022 edition of the OECD's multidimensional fragility framework. It is important to note that while most fragile contexts can be legally classified as states this is not applicable in all cases. The term is also used to reflect the fact that fragility can be experience at global regional, state and community levels.

[2] In 2022 the OECD added an indicator on biodiversity and habitat to the environmental dimensions of the OECD's multidimensional fragility framework, https://www3.compareyourcountry.org/states-of-fragility

In this way, biodiversity loss can impact across dimensions of fragility and can be a significant driver of compounding risk in fragile contexts.

The convergence of biodiversity hotspots and fragile contexts

According to the Critical Ecosystem Partnership Fund there are currently 36 biodiversity hotspots[3] around the globe (Convention on Biological Diversity, 2010[7]).[4] These are Earth's most biologically rich – yet threatened – terrestrial regions; their future matters at local and global levels. The distribution of biodiversity hotspots corresponds strongly with fragile contexts. Though the size of the hotspot can be relatively small in comparison to the total land or sea mass of a context, hotspots often span across multiple borders with associated transboundary issues that impact on political, economic and security dimensions of fragility. Of the first 60 fragile contexts identified in the OECD's fragility framework, 42 contexts include land or maritime space classified as a biodiversity hotspot; this includes 8 (out of 15) extremely fragile contexts: Afghanistan, Burundi, Democratic Republic of Congo (DRC), Eritrea, Haiti, Somalia, South Sudan, and Yemen (OECD, 2022[8]; Critical Ecosystem Partnership Fund, 2022[6]). However, environmental fragility as presented in the OECD's multidimensional fragility framework[5] is not exclusive to biodiversity hotspots. Among the 7 extremely fragile contexts that are not located in biodiversity hotspots, 4 of them (Central African Republic, Chad, Republic of Congo, and Syria) are categorized as having severe environmental fragility. Meanwhile, Iraq and Sudan are classified as experiencing high levels of environmental fragility, particularly concerning water scarcity.

The connections between the causes of biodiversity loss and fragility

In certain contexts, halting biodiversity loss is closely tied to addressing the drivers of fragility. Biodiversity collapse drives fragility in many ways. The World Economic Forum identifies three critical socio-economic systems to addressing the looming nature crisis, including biodiversity, and its likely devastating impact on social, health and economic costs. These systems are 1) food, land, and ocean use; 2) infrastructure and the built environment; and 3) energy and extractives (World Economic Forum, 2020[2]). In fragile contexts, each of these areas poses significant challenges. For instance, in places like Libya, Somalia, and Yemen, which are affected by fragility and conflict, there is a heightened reliance on nature-related sectors. Food security becomes a critical concern in these contexts, where the scale and complexity of environmental challenges often overwhelm the physical, institutional, and political coping capacities. (OECD, 2022, pp. 50-52[8]). These already vulnerable coping-capacities have been weakened even further by the global impact on food security caused by Russia's war of aggression against Ukraine (OECD, 2022, p. 22[8]). This erosion of coping capacity, as much as the exposure to risk, leaves fragile contexts more exposed to some of the impacts of biodiversity loss compared to less fragile contexts. For example, the global decline of pollinators and its associated impact on nutrition and health (Box 2) adds pressures on fragile contexts where risks linked to health and nutrition are already high (OECD, 2022[8]).

[3] Many of these contexts with hotspots also have non-hotspots biodiversity that are equally important for sustainable development.

[4] The Critical Ecosystem Partnership Fund is just one example of a prioritisation scheme looking at biodiversity. Other sites of biodiversity significance can be equally important, under threat, and closely linked to fragility

[5] The OECD's Multidimensional Fragility Framework assesses environmental fragility based on the following indicators: Exposure to hazards; Air quality; Biodiversity and habitat; Environment-related displacement; Food supply adequacy; Lack of adaptive capacity to climate change; Non-renewable resource crimes; Share of electricity production from renewables; Water stress; and Women's participation in UNFCCC delegations.

Box 2. Pollination: a critical ecosystem service provided by biodiversity

A key example of how biodiversity contributes to human and economic security is pollination. Bees, butterflies, flies, and other insects are some of the most important pollinators. Their population is, however, at serious threat of collapse due to chemical inputs in agriculture, air pollution, depletion of soil, water health, and general habitat encroachment. In the People's Republic of China, for example, air pollution has become so smothering that in certain regions, pollinators have disappeared, and human labour is now employed to manually pollinate fruit trees and crops. Nearly 75 percent of global food crops depend, at least in part, on insects and other pollinators, estimated to be worth USD 235 to USD 577 billion per year. Globally, 40% of insects are in decline and one-third are threatened with extinction. Pollinator-dependent crops account for about 40 percent of the global nutrient supply for people. A 2015 Lancet study estimated that pollinator collapse would cause new deficiencies for vitamin A and folate, essential to the human diet, in 71 million and 173 million people, respectively. The same study estimated that a 50 percent decline in pollinators would lead to 700,000 additional deaths annually.

The vulnerability of many fragile contexts to pollinator decline is increasingly studied but more detailed research is required. Research carried out in Burkina Faso, indicated that the negative consequence of any pollinator decline has the potential to cause significant average yield gaps for vital crops such as cotton and sesame, while research in Uganda has shown a negative impact on coffee production. Though the decline of insects is a global issue, it is often the deficit of coping capacities that leaves fragile contexts, especially those located in biodiversity hotspots such as Burkina Faso, acutely exposed to the multidimensional impact of (in this case) one albeit critical element of biodiversity collapse.

Source: Goulson (2012[9]) "Decline of bees forces China's apple farmers to pollinate by hand", https://chinadialogue.net/en/food/5193-decline-of-bees-forces-china-s-apple-farmers-to-pollinate-by-hand; Kumsa and Ballantyne (2021[10]) "Insect pollination and sustainable agriculture in Sub-Saharan Africa", https://www.pollinationecology.org/index.php/jpe/issue/view/58 ; Schoonover, Caballo and Caltabiano (2021[11]) *The Security Threat That Binds Us: The Unravelling*, https://councilonstrategicrisks.org/the-security-threat-that-binds-us/ ; OECD (2019[12]) "Biodiversity: Finance and the Economic and Business Case for Action", https://www.oecd.org/environment/resources/biodiversity/G7-report-Biodiversity-Finance-and-the-Economic-and-Business-Case-for-Action.pdf; Sánchez-Bayo and Wyckhuys (2019[13]), "Worldwide decline of the entomofauna: A review of its drivers", https://doi.org/10.1016/j.biocon.2019.01.020.

Dependency on natural resources is more critical in biodiversity hotspots in fragile contexts

Natural resource dependencies linked to the overexploitation of natural resources,[6] pollution and conflict are just three of the ways in which humans are depleting biodiversity that generate and support life. In many fragile contexts, dependencies have indirect (oil extraction and mining) and direct (deforestation) impact on biodiversity. This causality is not unique to fragile contexts, but the latter are most exposed to the negative consequences of declines in nature. Increasing environmental risks, like biodiversity loss and habitat

[6] The 5 key pressures on biodiversity loss are land and sea use change, over-exploitation of natural resources, pollution, climate change and invasive alien species (IPBES, 2022[33]).

conditions, will cause disruptions and complex chain reactions impacts in the socio-economic, infrastructure, political, and cultural systems of fragile contexts. To respond effectively to this dynamic, policies and their implementation will need to be better aligned with the different dimensions of fragility. For example, the World Bank has identified the importance of linking support for addressing environmental fragility to support for peace, thereby linking effective action on biodiversity to conflict prevention, conflict resolution and sustaining peace (Zimmermann, 2020[14]). Experience from Columbia has demonstrated the value of targeting biodiversity and peace as a mean to deal with socio-environmental conflicts (Brown and Nicolucci-Altman, 2022, p. 20[15]). In addition to emerging trends like food insecurity, energy dependencies, inequalities and violence, efforts to protect biodiversity further strengthen the case for crisis prevention in fragile contexts.

In contexts heavily dependent on agriculture, the connection between biodiversity and food security is a key determinant of economic wealth, growth, and debt levels over time. Beyond decreasing yields, poor soil health leads to more pest outbreaks (OECD, 2019, p. 30[12]) and to lower nutritional content, thereby also affecting human health in the longer-term. Finally, soil degradation makes landscapes more prone to disasters (drought, floods, fires). These disasters have long-lasting socio-economic impacts that perpetuate fragility at the community level. In fragile contexts, they also tend to reveal weak governance response systems, leading to a breakdown of trust between citizens and their government. (Gambella et al., 2021[16]).

In conflict-affected fragile areas, addressing biodiversity loss and ecological degradation is more complex due to several factors. Firstly, these regions are disproportionately affected by climate disruptions and environmental plundering, like illegal reptile skin trade and logging (Pergolizzi, 2022[17]). In places where biodiversity has already collapsed, such as certain arid and semi-arid biomes, the impact of climate disruptions and environmental degradation is severe. This results in violent competition for scarce resources and more frequent displacement of people. Fragile contexts generate and host the majority of the world's forcibly displaced population (OECD, 2022, p. 54[8]). Secondly, modern economics broadly treats the environment as an externality, which means it critically underestimates the true costs of resource-extracting activities. The focus on short-term economic gains overlooks the extensive ecological, economic, and social cost caused by biodiversity loss and depletion of natural resources (OECD, 2021[3]). In conflict-affected fragile areas, this issue can be more pronounced as political attention often narrowly focuses on military goals, neglecting the systemic risks of biodiversity collapse. As a result, these regions face complex development challenges that require harnessing capacities from across the Humanitarian-Development-Peace nexus. combining peace, regeneration, resilience, and socio-economic redistribution becomes crucial to address these challenges effectively.

In conflict-ridden areas with significant biodiversity loss, state capacities are often weak, and sometimes corrupt or absent. This hinders their ability to organise time and resources for preventive or reactive actions to manage multiple crises. Most conflict-analysis models focus on context, actors, causes, and dynamics. However, to understand the causes and dynamics of violence, including why violent means are employed and for what reasons, it is crucial to also analyse biodiversity degradation and its connection to other factors contributing to multidimensional fragility, such as ecosystems reaching a state where they cannot support a community. (Dasgupta, 2021, p. 90[4])

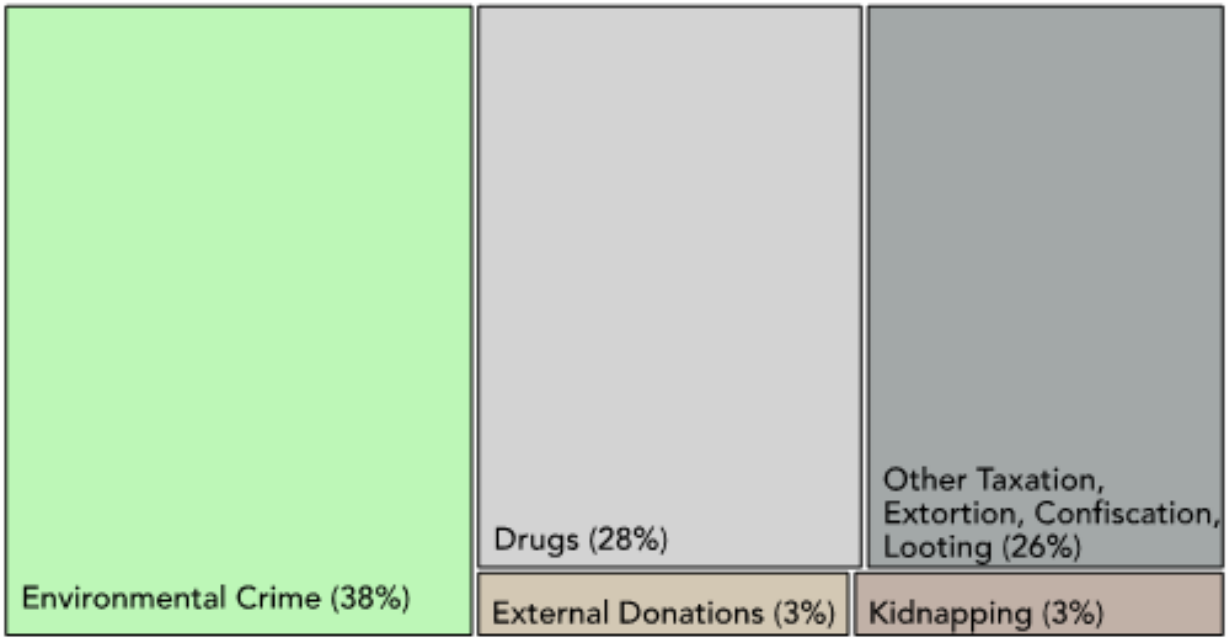
The implications of biodiversity loss for economic and societal fragility

The loss of biodiversity creates significant socio-economic tensions as it leads to reduced food production, water availability, and regeneration of natural resources. These consequences can trigger global food price shocks, displacement, socio-economic fragmentation, and increased fragility. Moreover, the collapse of biodiversity is also linked to various issues such as conflict systems, governance fragility, transnational crime, corruption, and predation (World Bank, 2022[18]). For instance, illegal fishing in fragile areas often attracts

violent anti-government groups, like insurgents or criminal organizations involved in maritime piracy (Desai and Shambaugh, 2021[19]). The global economic damage caused by illegal logging, illegal fishing, and illegal wildlife trade is estimated to be between USD 48 billion to USD 216 billion annually (Schoonover, Cavallo and Caltabiano, 2021[11]). These revenues are lost for government resources, which could otherwise be invested in environmental governance, livelihoods, disaster prevention, and social welfare services.

The disappearance of key species has made biodiversity a central topic in combating transnational illegal wildlife trade. As a resource becomes scarcer and demand rises, it becomes more profitable. Environmental crime accounts for 38% of the funds generated by transnational crime (Figure 1). Criminal organisations are highly organised and contribute to ecological collapse. Strategies for addressing environmental crime are crucial enablers for effectively responding to multidimensional fragility[7] at global, regional, and local levels. Understanding the nexus existing between elites using state infrastructure to ensure their own interests, and non-state armed groups and terrorist organisations can add clarity on activities that drive biodiversity loss and wider ecological collapse, including on they connect to other causes of fragility.

Figure 1. How transnational crime organisations fund their operations



Source: Nelleman (2018[20]) World Atlas of Illicit Flows, https://globalinitiative.net/wp-content/uploads/2018/09/Atlas-Illicit-Flows-Second-Edition-EN-WEB.pdf.

Aligning development aid policy with biodiversity and environmental degradation in fragile contexts

The Strategic Plan for Biodiversity 2011-2020 (Box 3), supported by the Aichi Targets, provided the framework for addressing biodiversity loss globally up to 2020. The plan identified 5 biodiversity strategic goals to: 1)

[7] The OECD identifies six dimensions of fragility: political, security, environmental, economic, societal, and human.

address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society; 2) reduce the direct pressures on biodiversity and promote sustainable use; 3) improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity; 4) enhance the benefits to all from biodiversity and ecosystem services; and 5) enhance implementation through participatory planning, knowledge management and capacity building (Convention on Biological Diversity, 2010[21]). Of the 196 signatures to the convention, all those considered as fragile contexts by the OECD's framework have either ratified or signalled their intent to do so. Out of the three countries that have not submitted National Biodiversity Strategies and/or Action Plans[8], two are fragile contexts: Libya and West Bank and Gaza Strip (Convention on Biological Diversity, 2010[1]).

Box 3. Convention on Biological Diversity

The Convention on Biological Diversity entered into force on 29 December 1993, and currently has 196 Parties. The Convention aims to promote the conservation of biodiversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from the use of genetic resources. Biodiversity targets were adopted in 2010 in Aichi, Japan establishing specific actions to be taken by considering the issue of biodiversity as a social issue that needs to be understood from a socio-economic standpoint including the utilisation of benefits of nature and factors which harm ecosystems, rather than purely from the natural science point of view. The 15th Conference of Parties to the UN Convention on Biological Diversity adopted the "Kunming-Montreal Global Biodiversity Framework", including four goals and 23 targets for achievement by 2030.

Source: Convention on Biological Diversity (2022[22]), "COP15: Nations adopt four goals, 23 targets for 2030 in landmark UN Biodiversity agreement", https://www.cbd.int/article/cop15-cbd-press-release-final-19dec2022.

Collectively, the parties to the Convention failed to fully[9] achieve any of the Aichi Biodiversity Targets by 2020 (Secretariat of the Convention on Biological Diversity, 2020[23]). The Global Biodiversity Outlook 5 report found that only six Aichi targets were partially achieved, including those on protected areas and invasive species. 44% of biodiverse areas were reported as under protection, an increase from 29% in 2000. Around 200 successful eradications of invasive species on islands have also taken place. The target to halve the loss of natural habitats, including forests, was not met even though global deforestation rates decreased by about a third up to 2020 compared with pre-2010 levels; natural habitat degradation remains high (Secretariat of the Convention on Biological Diversity, 2020[23]). Wetlands continue to disappear, and freshwater ecosystems remain critically threatened. The report emphasised the connection between political and economic fragility and raised concerns about harmful government subsidies in agriculture, fossil fuels, and fishing. While some regions have made progress, the proportions of overfished marine stocks have increased in the last decade. Many non-target species are threatened because of high levels of bycatch. The target to sustainably manage and harvest all fish and invertebrate stocks has consequently not been met. Most of the progress identified has not occurred in biodiversity hotspots in fragile contexts.

[8] National Biodiversity Strategy and Action Plans (NBSAP) are intended to define the current status of biodiversity, the threats leading to its degradation and the strategies and priority actions to ensure its conservation and sustainable use within the framework of the socio-economic development of the country

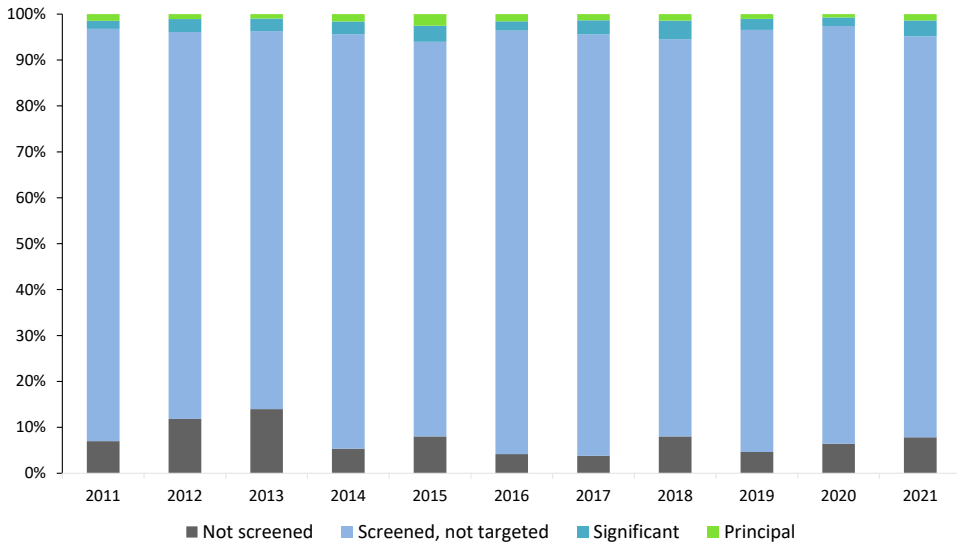
[9] Collectively the DAC members achieved the Aichi target on development finance.

One of the main reasons for not achieving any the Aichi targets in full was the lack of cohesion and integration with global, national, and local policy frameworks. The Aichi Targets were not formally integrated with the Sustainable Development Goals (SDGs), although some targets were mirrored in SDG 14 and 15. Only recently, in the past three years, has the significance of biodiversity been acknowledged in many fragile contexts. Until 2022, fragility strategies rarely addressed the Aichi targets, and funding levels for these targets remained below what was identified by the Convention. This segmented approach contributed to the collective failure in meeting the Aichi targets. (Dasgupta, 2021, p. 209[4]).

COP 15 and highlighting the requirements for fragile contexts

Achieving progress on the global goals will be particularly challenging in fragile contexts that are experiencing systematic increases in fragility across all dimensions (OECD, 2022, p. 23[8]). DAC members have increased their official development finance (ODF)[10] to biodiversity in fragile contexts since 2010. However, funding for biodiversity is lower than allocations for climate mitigation, climate adaptation, and desertification (OECD, 2022, pp. 15-16[24]). Recent analysis in the Sahel region showed that biodiversity received the least funding compared to the other objectives. Additionally, funding volumes have decreased since reaching a peak in 2018. (Figure 2) According to OECD data, on average during 2002-20, USD 2 billion or 25% of biodiversity-related ODF was allocated in fragile contexts. Related OECD analysis shows that the effectiveness of biodiversity-related ODF for fragile contexts could be enhanced through the application of OECD States of Fragility framework (and similar tools) to uncover multidimensional risks and coping capacities that link fragility, conflict and biodiversity (Casado Asensio, Blaquier and Sedemund, 2022[25]).

Figure 2. ODA to fragile contexts with a biodiversity Rio marker



Source: OECD (2022[26]), Creditor Reporting System (database), https://stats.oecd.org/Index.aspx?DataSetCode=CRS1.

[10] Official development finance consists of the sum of ODA and developmental other official flows (OOF), which excludes export credit OOF. In other words, ODF includes concessional and non-concessional resources from bilateral and multilateral development partners.

It is essential to align approaches to biodiversity challenges with those addressing the root causes of fragility. This is crucial for implementing the Kunming-Montreal Global Biodiversity Framework agreed upon in December 2022. The Convention on Biological Diversity recognises the significance of integrating biodiversity governance and prioritisation within the broader context of sustainable development. (Convention on Biological Diversity, 2021[27]). The introduction of the Global Biodiversity Framework with four overarching goals at COP 15 is, in many ways, a continuation of the previous Strategic Goals (Convention on Biological Diversity, 2022[22]). Some aspects, such as messaging on ecosystems functions and species safeguarding, remain consistent. However, it also raises new questions for developing strategies in fragile contexts.

Achieving Goal A, which focuses on maintaining, enhancing, or restoring ecosystem integrity, connectivity, and resilience, requires approaches that address multidimensional fragility. For instance, addressing human-induced extinction of threatened species will be significantly concentrated in fragile contexts as noted above, and will demand considering interconnected risks and coping capacities across all dimensions of fragility. Progress on this goal in fragile contexts may require adapting existing approaches to societal, economic, and political fragility, including incentives, norms, and coercive measures.

Similarly, managing Goal C, which emphasises fair and equitable sharing of “the monetary and non-monetary benefits from the utilisation of genetic resources, and digital sequence information on genetic resources, and of traditional knowledge associated with genetic resources” (Convention on Biological Diversity, 2022[22]), can challenge the socio-economic balance and political settlements in fragile contexts where ecosystem services are deeply entwined with existing elite bargains.

Goal D raises the question of what closing the biodiversity financing gap means for development finance, especially in fragile contexts. The target is to increase international financing flows to “at least US$ 20 billion per year by 2025, and to at least US$ 30 billion per year by 2030” (Convention on Biological Diversity, 2022[22]) Meeting this ambition to least developed countries, small island developing states, and economies in transition, many of whom are identified as fragile on the OECD Multidimensional Framework will be challenging, considering the decline in development assistance to fragile contexts to its lowest share since 2016 (OECD, 2022, p. 68[8]). Responding to biodiversity loss in fragile contexts faces difficulties due to due to weak coping capacities associated with insufficient policy frameworks, finance, capacity, human resources, or technologies (Casado Asensio, Blaquier and Sedemund, 2022[25]) This is compounded by pressures to address other drivers of fragility and in many cases the presence of violence and conflict (OECD, 2022, p. 37[8]).

Furthermore, the tendency to approach climate change and other environmental issues from the perspective of security (Warner and Boas, 2019[28]) and economics only, has also limited the scope for effective response to environmental stresses that weaken healthy interdependencies and drive food and water scarcity and biodiversity loss.

The call for equitable access to "means of implementation" for all parties, especially least developed countries and small island developing states (Convention on Biological Diversity, 2022[22]), has the potential to align with development approaches in fragile contexts. Achieving this alignment is not a new ambition, but progress has been limited due to increasing multidimensional fragility overall and diverging models of development. (OECD, 2022, p. 97[8]). Ensuring effective means of implementation poses challenges for humanitarian, development, and peace institutions already under stress to deliver in fragile contexts. However, the focus on equitable access raises an intriguing question for both DAC and non-DAC countries of whether biodiversity could emerge as a focal issue for consensus across development landscapes otherwise marked by geo-political contestation and diverging models of development.

Building strategic approaches for biodiversity hotspots in fragile contexts

Given that fragile contexts are lagging behind on SDGs, there is a strong logic to integrate fragility analysis to improve responses to biodiversity loss and ecological deterioration. This integration should also address the drivers of other dimensions of fragility through policy and finance. For humanitarian, development, and peace actors, this means leveraging biodiversity expertise to achieve sustainable outcomes in environmentally fragile areas, particularly those with biodiversity hotspots (OECD, 2022[29]). This can be progressed in part by incorporating thinking on the causes of biodiversity loss, regeneration and human security, and by integrating expertise for adapting nature-based processes alongside other approaches to address drivers of fragility.

To build resilience in biodiversity-affected contexts, it is necessary to align efforts that address the drivers of fragility, regeneration, and economic transformation with measures to stop and reverse biodiversity loss. This presents a challenge for donors and partners where priority ecosystems to protect and restore are located in conflict-affected fragile contexts. Conflict poses unique obstacles to implementing regeneration approaches and natural resource management, including rebuilding vibrant ecosystems and revitalising social fabric, economic, and political structures. In situations where conflicts are not widespread across entire territories, a geographically targeted approach to biodiversity loss and regeneration can aid in conflict mitigation or prevention.

At international and national levels, responses to complex crises often address only parts of the problem, prompting the need for a broader approach to security beyond human security. To achieve this, integrating ecological resilience is important, particularly for implementing the OECD-DAC Recommendation on the Humanitarian-Development-Peace Nexus in fragile contexts hosting biodiversity hotspots. This approach can complement climate, biodiversity, and ecosystem-based strategies for ecologically informed responses in these regions (Lazard, 2021[30]).

Protecting and restoring lost biodiversity and promoting natural resource use in fragile contexts require tailored strategies that consider multidimensional fragility and adopt approaches like complex regenerations. Regeneration efforts are required where protection has failed and rely on nature-based processes that aim to reboot ecological functions. For example, rebuilding water-retention landscapes to enable soils to fix carbon and restart biological activities in soil, thus recreating chains of complex biodiversity. Regeneration combines benefits for climate action, and most of all, it allows the return of natural resources over time where they have disappeared, building resilience to the benefit of community livelihood, political and socio-economic stability. This is the starting point for ecological resilience.

Implementing such approaches would also call for innovative financing ideas. An OECD report suggests that DAC members have room to increase official development finance for biodiversity and should explore partnerships beyond the DAC, like South-South and Triangular Co-operation, aligned with the ambitions of the Global Biodiversity Framework. (Casado Asensio, Blaquier and Sedemund, 2022[25]).

Planning regeneration involves collaborating with a diverse group of experts, including hydrologists, risk analysts, governance planners, ecologists, community leaders, and members. Nature-based processes aim to design or redesign approaches that create healthy ecosystems meeting human and ecological needs. Integrating this expertise is essential for multidimensional approaches that address interconnected causes of fragility.

Nature-based processes should consider local societal and human dynamics, enabling a shift towards regenerative socio-economic development. It is therefore not just about one-off actions like planting trees for carbon reduction, but about applying good practices for knowledge, analysis, financing, and strategies to tackle climate change, biodiversity, and environmental fragility in fragile and conflict-affected contexts (OECD INCAF,

2022[31]). Crucially, community participation in protection and regeneration efforts should be inclusive and representative of all members, including vulnerable populations and minorities. Examples like the project to restore Somalia's southern forests show the potential of these approaches, but widespread implementation is necessary for sustained effectiveness (UNEP, 2022[32]).

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Annex A. Key terms

What is fragility?

The OECD characterises fragility as the combination of exposure to risk and insufficient coping capacity of the state, systems and/or communities to manage, absorb or mitigate those risks. Fragility can lead to negative outcomes, including violence, poverty, inequality, displacement, and environmental and political degradation. Fragility is measured by the OECD on a spectrum of intensity and expressed in different ways across economic, environmental, political, security, human and societal dimensions. Each dimension is represented by 8 to 12 indicators – 54 in total across all 6 dimensions – that measure risks and coping capacities for fragility. The 2022 edition of the fragility framework identifies 60 fragile countries and territories (referred to as “contexts”) of which 15 are extremely fragile and 45 are fragile contexts. Additional information on each dimension and what it measures, as well as the methodology for *Multidimensional framework*, is available on the States of Fragility platform.

Biodiversity

"Biological diversity" means the variability among living organisms from all sources including, inter alia, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

Ecosystem

"Ecosystem" means a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit. The environment is composed of various living systems: soils, watersheds, diverse vegetation, animal and insect biodiversity, minerals, oceans, and air. When these systems interact as a functional whole, they make up ecosystems. The health of each of these systems, and their relationships with each other, determine the health of the environment as a whole.

Ecology

Ecology is the study of the relationships between living organisms, including humans, and their physical environment; it seeks to understand the vital connections between plants and animals and the world around them. Ecology also provides information about the benefits of ecosystems and how we can use Earth’s resources in ways that leave the environment healthy for future generations.