



Tackling climate change, biodiversity loss and land degradation through the right to food

Background note for the Committee on World Food Security's High-Level Forum held on 12 May 2025, in Rome, Italy

By the High Level Panel of Experts on Food Security and Nutrition (HLPE-FSN)

May 2025

Cover photograph: Ethiopia. 21 October 2020. Pastoralist women carry bundles of wood used for building their homes as they relocate after severe flooding affected their village in the Afar region.

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Referencing this paper: HLPE. 2025. *Tackling climate change, biodiversity loss and land degradation through the right to food – Background note for the Committee on World Food Security’s High-Level Forum held on 12 May 2025, in Rome, Italy*. Rome, FAO.

HLPE-FSN

The High Level Panel of Experts on Food Security and Nutrition (HLPE-FSN) is the United Nations body for assessing the science related to world food security and nutrition.

The HLPE-FSN is the science-policy interface of the Committee on World Food Security (CFS) and provides independent, comprehensive and evidence-based analysis and advice at the request of CFS. It elaborates its studies through a scientific, transparent and inclusive process.

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INTRODUCTION

The Committee on World Food Security (CFS) is organizing an intersessional High-Level Forum titled “Tackling Climate Change, Biodiversity Loss and Land Degradation through the Right to Food”. The Forum aims to assess progress, examine challenges to the realization of the right to adequate food in the context of climate change and biodiversity loss, and promote policies that support adaptation, mitigation, and the inclusion of smallholder farmers in climate solutions. Its broader objective is to raise awareness of the linkages between these environmental crises and the right to food¹. Prepared at the request of the CFS, this note by the High Level Panel of Experts on Food Security and Nutrition (HLPE-FSN) aims to inform the Forum’s discussions. Given the breadth of the topic the note is meant as an introduction to orient future work while focusing on some of the most promising synergies.

Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life (FAO, 1996). The right to food, meanwhile, frames this access as a legal entitlement, emphasizing state accountability and redress mechanisms (Mechlem, 2004). In line with this broadly accepted definition, the HLPE-FSN proposed to broaden the understanding of food security as encompassing six dimensions: availability, accessibility, utilization, stability, agency and sustainability (HLPE, 2020; Clapp et al, 2021). This framing is particularly useful for this note, as the dimensions of agency and sustainability allow to fully understand the links of the right to food with climate, biodiversity and land degradation impacts on food security.

Climate change, alongside human activities, is a primary driver of biodiversity loss and land degradation, which in turn weaken adaptive capacities and reduce carbon sinks, exacerbating climate change. These interconnected crises threaten all six dimensions of food security and impede the realization of the right to food.

The 1992 United Nations Earth Summit in Rio de Janeiro produced three landmark agreements—the UN Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (CBD), and the Convention to Combat Desertification (UNCCD) – collectively known as the Rio Conventions. Each of these agreements explicitly addresses one of the three challenges of climate change, biodiversity loss and land degradation. Their mandates and the policies they inspire profoundly intersect with food security and the right to food. However, the Rio Conventions were not designed with human rights at their core.

The note starts by showing the breadth of recent evidence on impacts of climate change, biodiversity loss and land degradation on the progressive realization of the right to food. A legal and policy analysis reveals gaps in translating the objectives of the Rio Conventions into tangible protections for the right to food, particularly as climate change, biodiversity loss and land degradation erode food security dimensions. The note then considers recent developments and concludes by making proposals that could support bridging this gap.

¹ CFS Multi-Year Programme of Work 2024–2027 <https://www.fao.org/cfs/about-committee-world-food-security/cfs-programme-of-work/en/>

1. EVIDENCE SHOWS THAT CLIMATE CHANGE, BIODIVERSITY LOSS AND LAND DEGRADATION CHALLENGE THE REALIZATION OF THE RIGHT TO FOOD

The first plenary of the reformed CFS, in 2010, requested the HLPE-FSN to “review existing assessments and initiatives on the effects of climate change on food security and nutrition, with a focus on the most affected and vulnerable regions and populations and the interface between climate change and agricultural productivity, including the challenges and opportunities of adaptation and mitigation policies and actions for food security and nutrition.”² The resulting report (HLPE, 2012) informed the Policy Roundtable: Food Security and Climate Change in CFS 39 in 2012 which “recognized that the adverse effects of climate change can pose serious threats to food security especially to small scale food producers’ lives and livelihoods, and to the progressive realization of the right to food in the context of national food security, and urged action.”³

Since the publication of the HLPE-FSN report on climate change, there have been significant scientific as well as legal and political developments (HLPE, 2022). Since 2012, considerable evidence has been generated on both attested and projected impacts of climate change, biodiversity loss and land degradation. For instance, a Web of Knowledge database search showed around 1800 papers on impacts of climate change on agriculture and adaptation published in 2016 compared to 7 in 1990 (Porter et al., 2017). This evidence was synthesized with increasing levels of detail and increasing consideration of systemic and cross issues in reports of the science policy interfaces considering each of these environmental issues and how to address them. The coverage of the impacts of climate change on food production has significantly evolved in the successive Assessment Reports (hereafter numbered ARs) conducted by the Intergovernmental Panel on Climate Change (IPCC). The first trend is the gradual shift in focus from only impacts on agriculture to progressively integrate adaptation (Porter et al., 2017). The second is the progressive enlargement of the perspective, from agriculture, - alone in AR2, with forestry as in AR1 and AR4, with ecosystem services in AR3- to food security in AR5, covering food distribution and social and economic access to food (Porter et al., 2019). This tendency was confirmed in the last assessment, AR6. The IPCC also produced a Special Report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems with a whole chapter on food security (Mbow et al., 2019).

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), established in 2012, produces thematic, global and regional assessments of knowledge on biodiversity and ecosystem services. Of particular relevance are the Global Assessment Report on Biodiversity and Ecosystem Services (IPBES, 2019), the IPBES Assessment Report on Land Degradation and Restoration (IPBES, 2018), the Thematic Assessment

² Committee on World Food Security, Thirty-sixth Session, Rome, 11-14 and 16 October 2010 <https://www.fao.org/cfs/cfs-governance/archive/cfs36/en/>

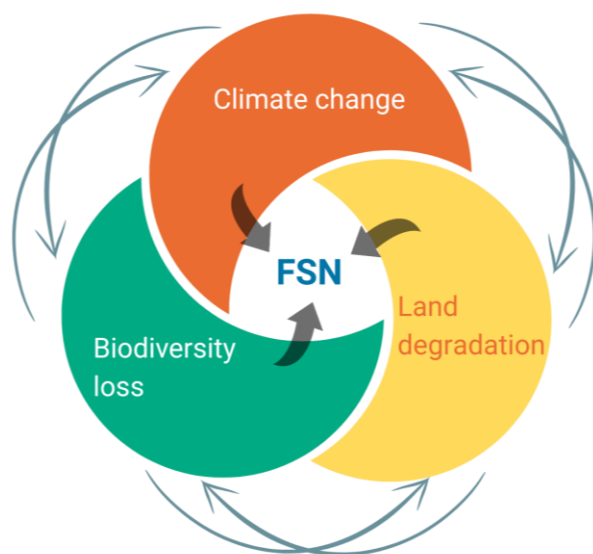
³ Committee on World Food Security, Thirty-ninth Session, Rome, Italy, 15-20 October 2012 <https://www.fao.org/cfs/cfs-governance/archive/cfs39/en/>

Report on the Sustainable Use of Wild Species (IPBES, 2022) and the Assessment Report on Pollinators, Pollination and Food Production (IPBES, 2016), one of the most illustrative examples of the dependence of food production on biodiversity and ecosystem services. In addition, it just prepared a Thematic Assessment Report on the Interlinkages among Biodiversity, Water, Food and Health (IPBES, 2024).

The Science-Policy Interface of the UNCCD was established by the Conference of the Parties (COP) at its eleventh session in 2013 (UNCCD, 2013). Since its creation it has produced several reports of major interest for the topics covered here, including on *Creating an Enabling Environment for Land Degradation Neutrality and its Potential Contribution to Enhancing Well-being, Livelihoods and the Environment* (Verburg et al., 2019) and more recently on *Sustainable Land Use Systems – the path to collectively achieving Land Degradation Neutrality* (Cowie et al., 2024). Some of its reports focus on the contribution of land management to climate action, for instance, *Sustainable Land Management’s contribution to successful land-based climate change adaptation and mitigation* (Sanz et al., 2017), *Realizing the Carbon Benefits of Sustainable Land Management Practices* (Chotte et al., 2019).

The HLPE-FSN itself, building among others upon such assessments, has worked on a range of topics influenced by climate change, biodiversity loss and land degradation, including the contribution of forestry to food security and nutrition (HLPE, 2017), sustainable fisheries and aquaculture for food security and nutrition (HLPE, 2014), and water for food security and nutrition (HLPE, 2015), among others. **There is thus abundant new evidence related to climate change, biodiversity and land degradation that could be mobilized to better consider their impacts on all dimensions of food security and on the progressive realization of the right to food in diverse ecological, economic and social contexts.** Some broad findings can already be highlighted. The first is that climate change, biodiversity loss and land degradation threaten the very basis of agricultural production, including crops, livestock, forestry, fisheries and aquaculture, creating disruptions all along value chains, and the entirety of food systems (see figure 1). The second is that negative impacts are and will be particularly important for the most vulnerable populations that are dependent on ecosystems services and goods for their livelihoods and food security.

Figure 1: Climate change, biodiversity loss and land degradation interact and impact Food Security and Nutrition

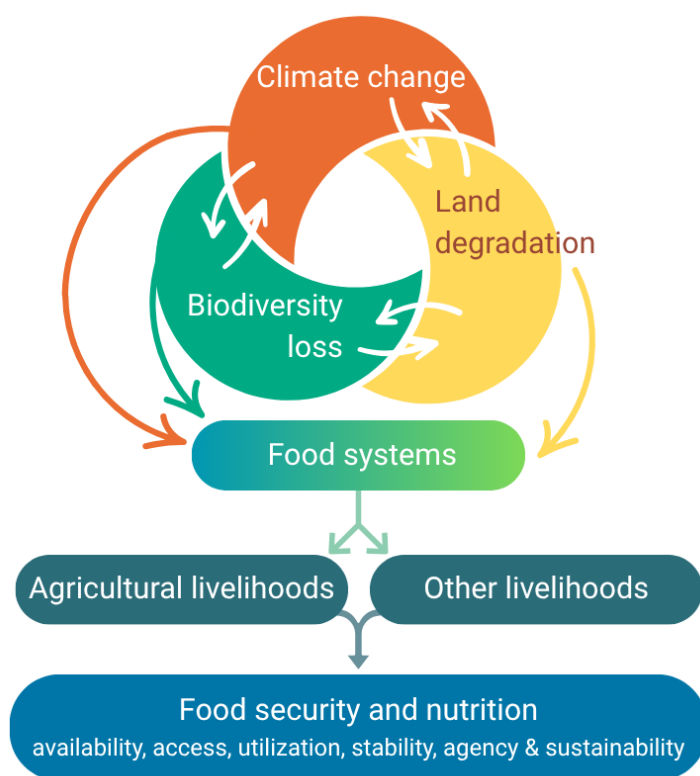


Source: Authors' own elaboration.

Climate change is already affecting food security and will increasingly do so, through increasing temperatures, changing precipitation patterns, the distribution of pests and diseases, and a greater frequency of extreme events that impact yields and lower nutritional quality (e.g. the content of zinc, protein and iron of wheat). By 2050, cereal prices could increase by as much as 50 percent due to climate change. Fruits and vegetables, a key component of healthy diets, are also vulnerable to heat stress and some need a period of cold accumulation in winter. As a result, food systems disruptions will be more likely.

The IPCC noted that “cascading impacts of climate change can now be attributed along chains of evidence from physical climate through to intermediate systems and then to people” (IPCC, 2014, p. 51). Physical, biological and biophysical changes modify the functioning of ecosystems and agroecosystems, translating into impacts on agricultural production, including forestry, fisheries and aquaculture. This affects quantity and quality of products, with effects on prices and trade, and on both the income of food producers and the purchasing power of food consumers (FAO, 2015). Climate change therefore affects food systems in their entirety, from production through to supply chain to the ability to access food and the conditions under which food is prepared and consumed, including its safety. Impacts on specific countries and groups depend on exposure and vulnerability, itself defined as the characteristics that affect their ability to anticipate, cope with, resist and recover from adverse effects of climate hazards (IPCC, 2022). Overall, vulnerability is particularly high in sub-Saharan Africa and South Asia (Portner et al., 2022). Other regions, including Oceania and Small Island Developing States (SIDS) also face high levels of climate risks.

Figure 2: Cascading impacts of climate change, biodiversity loss and land degradation on food systems



Note: Climate change, biodiversity loss and land degradation feed each other, and have “cascading impacts” on food systems and people. Increasing temperature, erratic rainfalls, changing distribution of pests and diseases, and more frequent extreme weather events modify the ecosystems, more and more. This impacts crops, livestock, forestry, fisheries and aquaculture, not only the quantity of food, but also its safety and its nutritional content. This will also translate on prices, affecting the incomes of producers and workers along the supply chain and the consumer’s access to food.

Source: Authors' own elaboration, adapted from FAO. 2015. Climate change and food security: risks and responses. Rome.

<https://openknowledge.fao.org/handle/20.500.14283/i5188e>

Intersectionality of different individual and household and community characteristics determining social position such as age, gender, tribe/caste, poverty, type of employment and rurality, as well as dependence on rain-fed agriculture, contribute to higher exposure and vulnerability (HLPE, 2023). For instance, the vulnerability of pastoralists is compounded by non-climate factors such as land tenure rights, changes in traditional institutions, invasive species, lack of markets and conflicts. Moreover, repeated extreme weather events have also long-term effects, undermining households’ coping strategies through labour, trade and family transfers, pushing them to disinvest or sell assets (Vermeulen, 2012).

Small holders and marginalized groups are particularly dependent on ecosystem goods and services for their food security and nutrition. Ecosystem services are central to sustain their agricultural practices and livelihoods. Poor and marginalized groups often rely on multiple sources of food and income, including secondary rights on “common property” natural resources, which include fallow fields, forests, coastal and riparian ecosystems, fishing grounds, pastureland and wetlands. Sustainable use of wild species is central to the livelihoods and resilience of billions of people, particularly for people in vulnerable situations, Indigenous People and women (Fromentin et al., 2022). Forest and aquatic foods often play a crucial role in nutrition as well as in times of crisis (HLPE, 2014, 2017).

Human activities are driving ecosystem degradation and global biodiversity loss worldwide, leading the world towards a “sixth mass extinction” (Pörtner et al. 2021). It has been estimated that human activities have reduced

plant biomass by 50 percent (Bar-On et al. 2018) compared to pre-human times. Climate change has a considerable impact on species distribution and abundance, as well as on major ecological interactions such as competition, predation, pollination, symbioses, parasitism and diseases (Jia et al., 2019; IPBES, 2018; Pörtner et al., 2021). Overall, ecosystems' degradation reduces their capacity to provide goods and services, to stock carbon as well as their resilience and adaptive capacity.

Ecosystems play a central role in the carbon, nitrogen and water cycles that interact with the climate system, they also affect albedo, evapotranspiration and emissions of aerosols (Jia et al., 2019). Changes in ecosystems thus affect climate globally and locally. Deforestation contributes to global warming, through both CO₂ emissions and various biophysical processes particularly in the tropics. At all latitudes, forest biophysical impacts reduce extreme temperatures in all seasons and times of day (Lawrence et al., 2022). Forests and trees also play a crucial role in regulating the water cycle from rainfall generation to water infiltration in the soil and extraction during the dry season (Ellison et al., 2017). The decline of pollinators is a major concern for the cultivation of numerous crops, including many that are important for a diversified and balanced diet (IPBES, 2016). Overall, landscape simplification and loss of diversity, including genetic diversity, undermine the resilience of many agricultural systems to climate change, pests and diseases, as well as economic shocks on specific value chains.

It is estimated that human-induced degradation affects 35 percent (1,660 million ha) of agricultural land (FAO, 2021). Up to 1.5 billion people rely on degraded lands for their subsistence and livelihood and over 40 percent of the world's poor live within degraded areas (IPBES, 2018). Land degradation not only reduces productivity but also contributes to climate change, directly by releasing carbon stocked in above ground biomass and in soils and by reducing the capacity of degraded land to absorb and stock carbon, and indirectly by driving deforestation to replace the land that is no longer productive.

Land use is central to climate action, biodiversity conservation, land restoration and the right to food. The potential of land-based mitigation measures, including afforestation and reforestation, has been estimated at about 15 GtCO₂eq per year – roughly 30 percent of the global mitigation effort needed by 2050 to meet the 1.5°C target (Roe et al., 2019). This includes optimizing carbon sinks through the protection, improved management, and restoration of forests and other ecosystems (Nabuurs et al., 2022). However, some measures, such as large-scale monoculture plantations or bioenergy crops, risk exacerbating biodiversity loss, land competition, and food insecurity (FAO, 2017; Pörtner et al., 2021). Studies suggest that large scale land-based mitigation could disrupt food security more than climate change itself, due to impacts on prices and supply chains (Hasegawa et al., 2018; Ruane et al., 2018).

Ecosystem restoration, species protection, and habitat conservation can simultaneously advance biodiversity, climate adaptation, and mitigation (Pörtner et al., 2021). Biodiversity – encompassing ecosystems, species diversity, and genetic diversity – enhances resilience and adaptive capacity (HLPE, 2017; Mbow et al., 2019). However, protected areas may threaten local food security by restricting access to resources (West et al., 2006).

Indigenous Peoples and local communities manage 50-65 percent of the global land surface, yet only 10 percent of these rights are formally recognized (UNEP, 2019). Securing their legal tenure is critical to preventing deforestation, enhancing resilience, and aligning climate and biodiversity goals (IPBES, 2018; de Coninck et al., 2018). Communal resource management, such as community forestry, rangelands, or fisheries, can achieve conservation through ‘Other Effective Area-based Conservation Measures’ (OECMs). These systems balance biodiversity protection with livelihoods, often outperforming top-down approaches (Rohadi et al., 2017; Libois et al., 2021). Customary practices – such as seasonal bans or kinship-based resource allocation – further support sustainable use (IPBES, 2022). The CFS Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests (VGGT) (FAO, 2022) and Principles for Responsible Investment in Agriculture (CFS-RAI) (FAO, 2014) provide frameworks to secure land rights, combat hunger, and align environmental policies with the right to food.

2. THE RIGHT TO FOOD IN THE RIO CONVENTIONS

The right to food was first recognized in Article 25 of the 1948 Universal Declaration of Human Rights (UDHR), which established it as essential for an "adequate standard of living". Though the UDHR lacks legal binding force, its principles are widely accepted as obligatory. In 1966, the International Covenant on Economic, Social and Cultural Rights (ICESCR) codified this right into law, obligating 170 ratifying states to progressively realize the right to adequate food (UN, 1966). Article 11 of the ICESCR explicitly guarantees freedom from hunger and the right to adequate food, later reinforced in other conventions such as the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) and the Convention on the Rights of the Child (CRC).

Implementation challenges led the UN to clarify the right’s normative content. In 1999, General Comment No. 12 by the UN Committee on Economic, Social and Cultural Rights outlined states’ obligations to respect, protect, and fulfil the right to food (CESCR, 1999). Institutional mechanisms followed, including the creation in 2000 of the UN Special Rapporteur on the Right to Food and the UN Food and Agriculture Organization’s (FAO) Right to Food Unit, which strengthened monitoring. In 2004, the Voluntary Guidelines on the Right to Food provided further guidance, linking food security to human rights principles such as accountability, participation, and non-discrimination. While non-binding, these instruments have influenced over 30 countries to explicitly recognize the right in their constitutions (Elver, 2023).

The UNFCCC, food security and the right to food

The ultimate objective of the UNFCCC, defined in its Article 2, is to stabilize greenhouse gas (GHG) concentrations in the atmosphere “at a level that would prevent dangerous anthropogenic interference with the climate system.” (UNFCCC, 1992). The same article adds that “such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not

threatened and to enable economic development to proceed in a sustainable manner". In 2015, the Paris Agreement reaffirmed "the fundamental priority of safeguarding food security and ending hunger, and the particular vulnerabilities of food production systems to the adverse effects of climate change" (UNFCCC, 2015). Despite these clear linkages, the UNFCCC originally omitted explicit reference to human rights, including to the right to food. The 2010 Cancun Agreements (UNFCCC, 2010) marked the first explicit human rights reference in a COP decision, while the 2015 Paris Agreement preamble acknowledged climate change impacts on human rights though the right to food was not specifically mentioned.

The discussions on agriculture that started as a mitigation topic have gradually evolved to cover adaptation, driven by food security concerns. In 2007, COP13 (Bali, Indonesia, December 2007) established the Ad-Hoc Working Group on Long-term Cooperative Action (AWG-LCA) and adopted the Bali Action Plan (UNFCCC, 2007) that invited consideration of "cooperative sectoral approaches and sector-specific actions" to increase mitigation efforts. Discussions were conducted under the AWG-LCA in relation to agriculture in mitigation with very contrasted positions between countries wishing to establish a specific work programme on agriculture under the Subsidiary Body for Scientific and Technological Advice (SBSTA) and countries considering that agriculture should not be part of discussions on mitigation (Pingault et al., 2024).

During COP18 (Doha, Qatar, 2012) FAO and some parties reported in SBSTA37 on the CFS plenary discussions of October 2012, informed by the HLPE-FSN report on Food security and climate change (HLPE, 2012). This contributed to the SBSTA pursuing its work with a broader perspective, including impacts of climate change on agriculture and food security as well as adaptation (Pingault et al., 2024). COP23, held in November 2017 in Bonn, Germany, adopted the decision creating the "Koronivia Joint Work on Agriculture" (KJWA) (UNFCCC, 2017). The Koronivia decision requested the Subsidiary Body for Scientific and Technological Advice and the Subsidiary Body for Implementation to jointly address issues related to agriculture, taking into consideration the vulnerabilities of agriculture to climate change and approaches to addressing food security".

The KJWA was followed by the decision of COP27 (Sharm el-Sheikh, Egypt, 2022) establishing the "Sharm el-Sheikh joint work on implementation of climate action on agriculture and food security" (UNFCCC, 2022). This decision starts by recognizing the fundamental priority of safeguarding food security and ending hunger, highlights the important role of farmers, including smallholders and pastoralists as "stewards of the land" and "key agents of change" and recognizes that solutions must be context-specific and take into account national circumstances. The decision also noted, from the results of the KJWA, the importance of sustainable land and water management to deliver a range of multiple co-benefits for adaptation, mitigation, food security and nutrition and sustainable development, encouraging inclusive and participatory approaches that involve farmers, pastoralists, Indigenous Peoples, local and vulnerable communities, women and youth.

While the UNFCCC acknowledges food production threats, the regime lacks enforceable human rights safeguards. Climate policies frequently neglect their disproportionate impacts on vulnerable groups, focusing

instead on emissions targets rather than accountability for rights violations. This gap persists despite growing evidence that mitigation and adaptation measures – without rights-based approaches – risk exacerbating food insecurity for those most affected (UNGA, 2015).

The CBD and the right to food

The foundational principles of the CBD (1992) implicitly support the right to food through commitments to sustainable use and equitable benefit-sharing of biodiversity, even though the right is not explicitly mentioned. The initiative on biodiversity for food and nutrition established by the COP, in 2006 aims to promote the sustainable use of biodiversity in programmes for food security and human nutrition (CBD, 2006). This initiative explicitly refers to the Voluntary Guidelines to Support the Progressive Realization of the Right to Adequate Food in the Context of National Food Security (the “Right-to-Food Guidelines”) (FAO, 2004).

The Kunming-Montreal Global Biodiversity Framework (2022) represents significant progress through targets that indirectly safeguard the right to food: Target 10 promotes agroecological approaches for resilient food systems; Target 21 protects Indigenous knowledge for agrobiodiversity; and Target 22 ensures participatory rights in environmental decision-making (CBD, 2022). These align with broader UN recognition of biodiversity's role in fulfilling the right to a healthy environment (The United Nations General Assembly -UNGA - 76/300, 2022).

However, implementation gaps persist. National Biodiversity Strategies (NBSAPs) frequently fail to integrate human rights, particularly regarding high-impact sectors like extractive industries. The recent guidance of the UN Office of the United Nations High Commissioner for Human Rights (OHCHR) on integrating human rights in National Biodiversity Strategy and Action Plans (NBSAPs) provides a corrective blueprint, identifying specific rights-holders (Indigenous communities, smallholder farmers) and duty-bearers (states, corporations) (OHCHR, 2022). Without binding safeguards, conservation initiatives risk replicating past failures where ecological targets overshadowed food sovereignty concerns – as seen in early Biodiversity Action Plans (1996-2003), which often excluded community participation.

The UNCCD and human rights: progress and challenges

The UNCCD original text notably omitted human rights protections, framing land restoration through environmental and developmental lenses rather than rights obligations (UN, 1994). Subsequent developments introduced limited rights language: the 2017-2030 Strategic Framework referenced rights-based approaches (Decision 3/COP.12), while COP14 (2018) encouraged voluntary application of the CFS Voluntary Guidelines on Tenure (VGGT). Traditional knowledge receives nominal recognition under Article 16.1(g), and COP10 (2011) weakly referenced the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) - all non-binding provisions.

This weakness in addressing human rights is problematic in the implementation of Land Degradation Neutrality (LDN) projects. Germany's Land Degradation Neutrality (LDN) guidelines is a positive example of taking human rights into account by conditioning funding on UNDRIP compliance (Cowie, A. 2020).

The convention's Land Degradation Neutrality goal inherently supports food security through sustainable land management, yet without rights safeguards, restoration risks harming vulnerable communities. Its emphasis on participatory governance and land tenure security aligns with CFS's VGGT, but policy coherence needs to be strengthened in implementation.

3. OPPORTUNITIES TO STRENGTHEN SYNERGIES IN IMPLEMENTATION

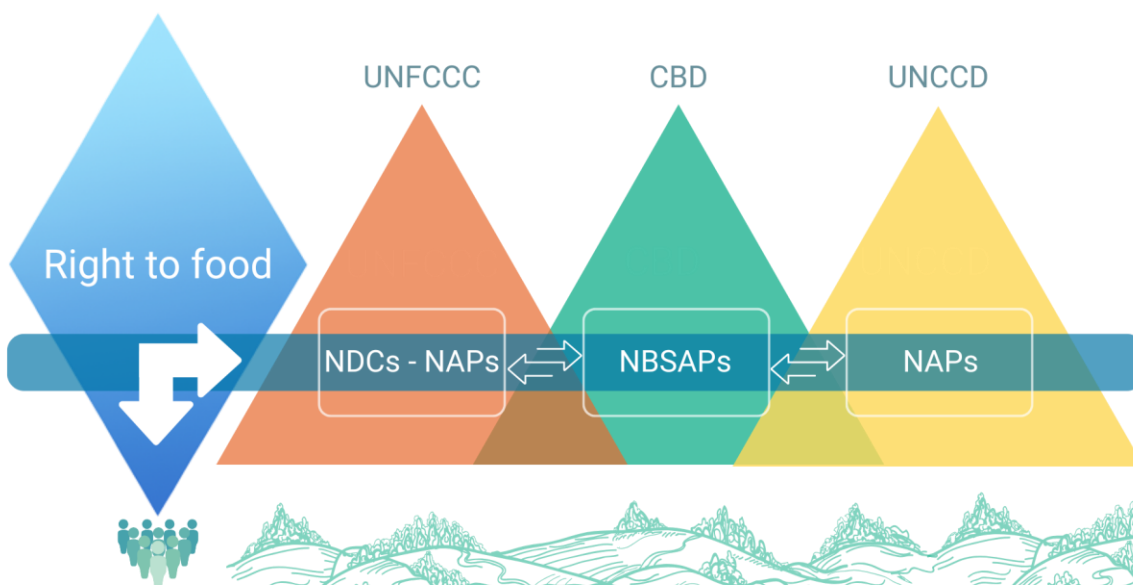
The three Rio Conventions operate through their COPs, where member states establish common objectives and global standards for national implementation. While primarily addressing large-scale environmental challenges, their work and especially their implementation critically intersects with agrifood systems, food security, and the right to food. Recognizing these linkages, joint initiatives like the Rio Conventions Pavilion as well as the UN Decade on Ecosystem Restoration promote integrated responses to the interconnected crises of climate change, biodiversity loss and land degradation.

The United Nations Decade on Ecosystem Restoration (UNDER) 2021-2030, aims for the large-scale restoration of degraded ecosystems. This could achieve multiple objectives, combat climate change (through mitigation and adaptation) and enhance food security, water supply, and biodiversity while managing risks related to conflict and migration, by balancing ecological, social, and development priorities in areas where different land-use patterns interact.

Recent discussions at the UN 2024 Summit of the Future highlighted the pivotal role of sustainable agrifood systems in addressing these triple planetary challenges. With 75 percent of the world's poorest depending on agriculture and 30 percent of Earth's surface affected by dryland degradation, coordinated action is urgent. However, current frameworks lack explicit incorporation of human rights approaches, despite their potential to address vulnerabilities for 2.5 billion small-scale farmers.

There are considerable opportunities to strengthen policy coherence by aligning Nationally Determined Contributions (NDCs, UNFCCC), National Biodiversity Strategies and Action Plans (NBSAPs, CBD), and National Action Programmes (NAPs, UNCCD). Integrating rights-based frameworks would add crucial climate justice dimensions to these efforts, as emphasised by the UN Special Rapporteur on the Right to Food (UNGA, 2015). Such synergies could transform agrifood systems into solutions for both ecological restoration and poverty reduction (see figure 3).

Figure 3: The right to food can be a catalyst for synergies in implementation



Note: There are considerable opportunities to strengthen policy coherence by aligning Nationally Determined Contributions, NDCs of the UN Framework Convention on Climate Change (UNFCCC), National Biodiversity Strategies and Action Plans, NBSAPs of the Convention on Biological Diversity (CBD), and National Action Programmes, NAPs of the Convention to combat desertification (UNCCD) and integrating the right to food.

Source: Authors' own elaboration.

Plans for the implementation of national commitments to the Rio Conventions (NDCs, NBSAPs, NAP of the UNCCD) are increasingly considering multiple objectives and their impacts on food security and nutrition. Their preparation and implementation are becoming more inclusive and participatory. This evolution is currently mainly visible in the successive versions of the NDCs, as they are more often updated.

The UNFCCC Secretariat synthesis report on NDCs released in 2021 (UNFCCC, 2021) noted that Parties increasingly acknowledge the importance of policy coherence and synergies between their mitigation measures and development priorities, including food security. The first three adaptation priorities most often mentioned in the NDCs were food production and nutrition security (mentioned in over 80 percent of the NDCs); freshwater resources (about 80 percent); terrestrial and wetland ecosystems (over 70 percent). Updated NDCs also highlight adaptation actions with mitigation co-benefits including afforestation and reforestation activities, climate-smart agriculture, reducing food waste, vertical farming, adapting coastal ecosystems, conservation plans for protected areas, and nature-based solutions (UNFCCC, 2024).

There has been a significant evolution towards more consultative and participative formulation of the NDCs (Crumpler et al., 2021). Most of them refer to multi-stakeholder engagement processes, compared to only some in previous NDCs. Some explicitly mention marginalized groups, smallholders, women, Indigenous Peoples, and youth. Many of the new and updated NDCs describe governance models that integrate sub-national, sectoral, and central government bodies. A range of countries refer explicitly to human-rights based approaches in their NDC, including in some cases explicit mention of the right to food. About 60 percent of the latest NDCs recognize

the rights and importance of Indigenous Peoples, as well as of local communities, in relation to climate adaptation (UNFCCC, 2024). Many NDCs acknowledge the vulnerabilities faced by Indigenous Peoples and local communities and highlight their importance for climate action (Crumpler et al., 2021).

Importantly, these evolutions towards more convergence between objectives and more consultative and participatory formulation of the NDC could support the elaboration of policies to make smallholders and family farmers beneficiaries of climate mitigation measures, including financial resources. There is increasing recognition by the conventions and their instruments, as well as by their funding instruments (Green Climate Fund, Global Environment Fund), of the various co-benefits that can be provided by action in the agriculture sectors. This can facilitate the design of policies that pursue multiple objectives, answering global environmental concerns, like mitigation or global biodiversity erosion, through measures that directly address immediate concerns of small holders, like adaptation. Such policies and measures can for instance support land restoration, sustainable land management and integrated landscape management.

Incorporating human rights impact assessments into environmental planning and strengthening civil society's participation in convention programmes would enhance rights-based accountability. The emerging concept of "environmental human rights integration" (Boyle, 2020) offers a framework for interpreting environmental treaties through states' existing rights obligations. Such an approach could transform the conventions from ecological instruments into vehicles for delivering both sustainability and social justice.

Embedding the right to food into the implementation of all three Conventions requires deliberate integration of human rights principles, such as participation, accountability, non-discrimination, and transparency. Doing so strengthens policy coherence, promotes inclusive governance, and enhances resilience.

4. CONCLUSION AND RECOMMENDATIONS

Climate change, biodiversity loss and land degradation collectively undermine food systems, disproportionately affecting marginalized communities. Addressing these challenges requires adopting a holistic, agrifood systems perspective. While some mitigation efforts risk undermining food security, sustainable natural resource management can simultaneously advance food security, biodiversity conservation, land restoration, and climate resilience. Successful examples also show that the right to food can be a powerful driver of uptake and efficiency of climate action, biodiversity conservation and land restoration, environmental measures and policies.

The Rio Conventions and the policy instruments implementing them, while fundamentally aiming to address environmental agreements, critically impact the realization of the right to food. Addressing the interconnected environmental and food security crises requires bridging environmental action with human rights obligations – not merely as an option, but as an imperative for just and sustainable outcomes.

This note provides the following recommendations:

- There is a need for an updated, comprehensive synthesis of the science and evidence on the compounded impacts of climate change, biodiversity loss and land degradation, as well as of the policies implemented to address these challenges, on food security and nutrition and the progressive realization of the right to food.
- Instruments and policies aiming to address climate change, biodiversity loss and land degradation must formally incorporate the right to food into their operational frameworks, including guidance documents and reporting mechanisms.
- National strategies – such as NDCs, NBSAPs, and NAPs – must adopt rights-based approaches, prioritizing smallholders, Indigenous Peoples, and women.
- Transformative investments are needed to build resilient and equitable food systems. These need to be coordinated, well targeted, and responsible investments in line with the CFS-RAI Principles, and can be mobilized in part by exploring the co-benefits with food systems of investments in climate, biodiversity, and land.
- The CFS should highlight the relevance of the right to food as a strategic nexus for enhancing coherence across the implementation of the Rio Conventions. As climate change, biodiversity loss and land degradation collectively threaten food systems, a rights-based approach offers shared principles – participation, non-discrimination, transparency and accountability – to align the policies taken for their implementation.
- By anchoring collaborative efforts in this existing human rights framework, such policies could: 1) harmonize monitoring of agricultural livelihoods and ecosystem health; 2) integrate traditional knowledge and tenure security into restoration targets; and 3) streamline implementation and reporting across NDCs, NBSAPs, and NAPs. Such convergence would amplify synergies, particularly for vulnerable communities dependent on sustainable land use.

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