

Policy Brief

SUSSEX SUSTAINABILITY RESEARCH PROGRAMME | JUNE 2021



Sustainable food systems for global biodiversity

EXECUTIVE SUMMARY

Biodiversity is declining faster than at any time in human history and unsustainable food and agriculture systems are a major contributor. Goals of the UN Convention on Biological Diversity (CBD) calling for sustainable production and consumption by 2020 were unmet. The CBD's post-2020 global biodiversity framework provides an opportunity to steer transformative shifts towards sustainable food production and consumption to support biodiversity and the UN Sustainable Development Goals (SDGs). Firstly, this policy briefing recommends eight actions and proposes targets and indicators to be included in the post-2020 global biodiversity framework: removal of harmful incentives, accounting for the true value of biodiversity, reducing food waste and loss, strengthening sustainability standards, promoting lifecycle assessments, promoting sustainable diets, mainstreaming biodiversity in food systems and strengthening governance. Secondly, creating enabling conditions for transformative change within and beyond the CBD – to support these actions and drive broader sustainable change in food systems – is essential. Actions by a broad range of 'agents of change' are needed to generate enabling conditions, including: small-medium scale farmers, large-scale producers, citizens, local communities, local-regional governments, non-governmental organisations/civil society organisations, consultants/experts, standards bodies, research communities, funders, and private investors. Actions to redress power are key to developing enabling conditions, alongside strengthened policy frameworks for sustainable food systems.

ABOVE IMAGE: AGRICULTURAL PRODUCTION NEAR THE WESTERN FRONTIER OF THE AMAZON RAINFOREST. PHOTO: ANTHONY ALEXANDER

RECOMMENDATIONS

Address the sustainability of food systems in the Convention on Biological Diversity (CBD) post-2020 global biodiversity framework by adopting the proposed targets and indicators (Table 1).

Seek synergies with UN Sustainable Development Goals (SDGs) to ensure greater recognition of biodiversity implications and harmonise CBD and SDG indicators for reporting.

Strengthen governance of sustainable food production and consumption including inclusive decision making, Specific, Measurable, Achievable, Relevant and Time-bound (SMART) targets, increased transparency of country progress and stronger accountability mechanisms.

Work with and mobilise agents of change to develop enabling conditions for sustainable food production and consumption beyond the conservation community.

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TABLE 1: KEY ACTIONS FROM SCIENCE-POLICY FORA AND THEIR PROPOSED TARGETS AND INDICATORS

ACTION	CBD UPDATED ZERO DRAFT TARGET	PROPOSED TARGETS	PROPOSED INDICATORS
1. Remove incentives that make food production and consumption harmful to biodiversity	E. 12. (c) 17.	By 2025, parties identify incentives harmful to biodiversity.	Number of countries with policy plans for removal or reform of incentives harmful to biodiversity. Percentage of harmful subsidies removed and/or redirected (e.g., at least 50% by 2030, 100% for 2050).
		By 2025, develop policy plans, including a prioritised list of measures, with timelines, leading to the eventual removal, phase-out, or reform of incentives harmful to biodiversity.	Sector-level government financial transfers to agriculture [Organisation for Economic Co-operation and Development (OECD) databases].
		By 2025, redirect capacity-enhancing subsidies (subsidy programs that lead to disinvestments in natural capital assets once the fishing capacity develops to a point where resource exploitation exceeds the Maximum Economic Yield) to support sustainable activities.	Proportion of assessed fish stocks that are overfished [Food and Agriculture Organisation of the United Nations (FAO) statistics].
2. Accounting for true value and true costs of production by sector	E. 12. (c) 13.	By 2025, a system of natural capital accounting is developed including economic, cultural, social, intrinsic, and intergenerational values of biodiversity, including diverse conceptualisation of multiple values of nature.	Frequency of use of valuation tools that assess the diverse conceptualisation of multiple values of nature and its benefits.
			Number of countries that have developed natural capital accounting systems in their National Development Plans, which take into account the explicit role of nature into poverty reduction strategies and other key development plans, by including economic, cultural, social, intrinsic, and intergenerational values of biodiversity.
3. Reduce food waste and loss across supply chains	Not explicitly mentioned. Other relevant targets: E. 12. (b) 9, E. 12. (c) 14, E. 12. (c) 15.	By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses.	Use of Accounting and Reporting Standard (Food Loss and Waste Protocol Standard).
			Number of countries reporting to Global Food Loss Index and National Food Loss Index.

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4. Strengthen sustainability standards and certification	Not explicitly mentioned. Relevant targets: E. 12. (b) 9, E. 12. (c) 14, E. 12. (c) 15.	By 2025, sustainability certification standards strengthen biodiversity requirements, including No Net Loss as a minimum and management and monitoring of conservation areas (e.g., areas of High Conservation Value as specified in standards).	Number of companies with biodiversity commitments/policies and their market share.
		By 2025, producing governments require minimum sustainability standard for export.	Number of companies reporting against SMART biodiversity indicators.
		By 2025, consuming countries require sustainability certification for import of high-biodiversity risk commodities.	% of ISEAL Alliance members with stronger biodiversity requirements, including No Net Loss as a minimum, and management and monitoring of conservation areas (e.g., High Conservation Value areas).
		By 2025, sustainable public procurement plans adopted by governments.	
		By 2025, sustainability certification standards include recognition of need for enhancing agrobiodiversity, land sharing, and multifunctionality.	Use of Biodiversity Impact Indicators for Commodity Production (BIICP).
		By 2025, standards include recognition and autonomous rights of indigenous people and local communities.	
5. Promote the use of life cycle assessments	Not explicitly mentioned. Other relevant targets: E. 12. (b) 9; E. 12. (c) 14; E. 12. (c) 15.	By 2025, Life Cycle Assessment and ecological footprints are made freely available to the consumer when buying a product.	Ecological footprint across life cycle of product.
		By 2025, data are aggregated and monitored at municipal/national levels using standardised protocols.	
		By 2025, Life Cycle Assessment reporting includes multiple stakeholders, e.g., small-scale farmers and informal markets.	Number of products with life cycle assessments.
		By 2025, waste management is tracked and disclosed at all levels of Life Cycle Assessments.	

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6. Promote sustainable and varied diets	Not explicitly mentioned. Relevant targets: E. 12. (b) 8, E. 12. (b) 9; E. 12. (c) 15.	By 2025, develop dietary guidelines that address health and environmental sustainability, promoting a more diverse and nutritionally balanced diet of fruits, vegetables, meat, and seafood.	Number of countries with dietary guidelines that address both health and sustainability. Meat consumption kilograms per capita. Seafood consumption kilograms/capita (FAO statistics).
		By 2025, develop incentives for redirecting reduction fisheries (i.e., fisheries, often on lower trophic levels, that process their catch into fish meal or fish oil) to direct human consumption.	Quantities of reduction fisheries (FAO statistics).
		By 2025, develop incentives for increased mariculture of edible sea plants and filter feeders.	Quantities of maricultured sea plants and filter feeders (FAO statistics).
		Financial incentives for environmentally friendly and healthy food production and consumption.	SDG 12.1.1 Number of countries with sustainable consumption and production (SCP) national action plans or SCP mainstreamed as a priority or a target into national policies.
		By 2025, schools provide sustainable varied meals to children up to the age of 12, following the dietary guidelines.	SDG 2.1.2 Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES).
7. Mainstream biodiversity considerations in food systems (cross-cutting)	E. 12. (c) 13, E. 12. (c) 14, E. 12. (c) 15, E. 12. (c) 16; E. 12. (c) 17; E. 12. (c) 18; E. 12. (c) 19, E. 12. (c) 20.	Cross-cutting action: Implementation of actions contributes to mainstreaming biodiversity. Includes integrating biodiversity into national and local planning, development processes, and poverty reduction and accounts.	
8. Strengthen governance of sustainable food production and consumption (cross-cutting)	G. 14. (a), G. 14. (b), G. 14. (g), H. 15, H. 16, H. 17, H. 18.	Cross-cutting action: Strengthening governance within and beyond the CBD contributes to the implementation of actions and creates “enabling conditions” for effectiveness. Undertaken through implementation of relevant laws and policies, agreeing to harmonised indicators to measure progress, allocating and funding monitoring bodies, and creating a system of robust and transparent reporting and use of enforcement mechanisms.	

BACKGROUND

Food is ultimately underpinned by biodiversity¹, yet food systems are responsible for around 60% of global terrestrial biodiversity loss and the overexploitation of 33% of commercial fish populations². At the same time, one third of all food goes to waste between the points of production and consumption³. Around 11% of the world's population are undernourished and 39% are overweight or obese⁴. Recognising inequalities in global food production and consumption, such pressures push far beyond our planet's safe ecological limits.

The CBD's vision is 'living in harmony with nature by 2050', and Aichi Target 4 addressed sustainable production and consumption to keep natural resources use within safe ecological limits. Yet, little progress has been made towards achieving sustainable production and consumption, Aichi Target 4 was not met by 2020⁵, nor were associated Targets 5, 6, and 7 referring to land-use change, fisheries, and sustainable use.

New global targets will be agreed in 2021 as the CBD negotiators decide its next strategic plan, and the Covid-19 pandemic presents a critical juncture in considering human-nature relationships. Consequently, a distinct opportunity is presented to: (i) adopt Specific, Measurable, Achievable, Relevant, and Time-bound (SMART) targets addressing scientifically informed actions for production and consumption of food, (ii) agree strengthened governance measures and (iii) facilitate wider enabling conditions through the actions of diverse 'agents of change', to enable effective implementation and transformation.

Our analysis based upon outputs from major science-policy fora (the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), International Union of Biological Sciences (IUBS), Trondheim Conference on Biodiversity) intended to inform the post-2020 global biodiversity framework: (i) identified eight key actions on sustainable food production and consumption from four science-policy fora intended to inform the post-2020 global biodiversity framework, (ii) examined the extent to which the eight key actions were addressed by the Aichi Targets, the SDGs, the CBD Zero Draft of the post-2020 global biodiversity framework, and the updated Zero Draft, and (iii) examined barriers and opportunities in implementing the key actions in Peru and the United Kingdom.

We identify eight key actions on sustainable food production and consumption and make proposals for corresponding targets and indicators which we urge CBD state parties to adopt for the post-2020 Strategic Plan (see Table 2).

KEY FINDINGS AND RECOMMENDATIONS

- Ensure synergies with the SDGs

Food production and consumption are addressed by the CBD and the SDGs, but synergies, tensions, and gaps exist. States could prioritise the SDGs related to economic development over sustainability and biodiversity conservation, missing how nature underpins most SDGs and is fundamental to human well-being⁶.

Recommendation: Harmonise indicators within the SDG and CBD frameworks on sustainable food production and consumption in Member States' reports to the CBD, to track progress and reduce reporting burden.

- Explicitly address the sustainability of food systems in the CBD post-2020 framework.

Action 1. Remove incentives that make food production and consumption harmful to biodiversity.

Incentives are often difficult to reform due to strong opposition from recipients and tight linkages with regional and international trade, and possible negative economic impacts on low-income producers. Harmful incentives are often difficult to identify as effects on biodiversity may be indirect, diverse, and context specific.

Recommendation: Parties should initially clearly identify incentives harmful to biodiversity by 2025. Compile a list of measures, with timelines, leading to the eventual removal, phase-out, or reform of incentives harmful to biodiversity by 2025. An optional target: "By 2025, subsidies are redirected to support sustainable activities."

Action 2. Account for the true value and costs of production by sector.

The full value of nature’s contributions to people is not typically reflected in policies or market transactions⁷. Natural capital accounting faces challenges: (i) the lack of integration of diverse knowledge systems and scant consideration of nature’s nonmonetary values (ii) telecoupled impacts may not be included.

Recommendations: Natural capital accounting needs to be fully integrated into national information systems and continuously measured. Alternative forms of valuation of nature and its benefits to be developed further. A proposed initial target: “By 2025, a system of natural capital accounting is developed, which includes economic, cultural, social, intrinsic, and intergenerational values of biodiversity.”

Action 3. Reduce food waste and loss across supply chains.

Food waste is addressed by SDG targets, but not by the CBD. In Peru, an estimated 2.5 million people suffer from hunger, yet 33% of food produced goes to waste, but a new law has been introduced to tackle food waste. In the UK, food prices are relatively low, and retailers encourage overspending which may contribute to food waste.

Recommendations: CBD to endorse SDG target (12.3) on global food waste to support and mobilise action: “By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses.” Change behaviour of businesses (e.g., set targets and report on food loss and waste reduction) and consumers (e.g., reduce food waste, increased awareness of biodiversity impacts in supply chains, hold industry and government to account).

Action 4. Strengthen sustainability standards and certification.

Standards and certification offer potential to influence production practices at a distance. Their use is not explicitly mentioned in the SDGs, or by the CBD. Despite some reported incremental environmental benefits, drawbacks of sustainability standards include: sparse evidence for standards effectively addressing

biodiversity loss; requirements are too lenient and ambiguous; and standards may be limited unless broader conditions of inequality are addressed.

Recommendations: Strengthen biodiversity requirements in standards and certification. “No Net Loss” incorporated in standards by 2025 as a minimum, long-term management, and monitoring for conservation areas. To avoid exclusions and large-scale bias, incorporate agrobiodiversity and multi functionality. Recognise rights of indigenous people and local communities. Countries to provide more support for the uptake of standards e.g., minimum sustainability standard for export and sustainability certification for import of high-biodiversity risk commodities. Governments’ public procurement plans to incorporate sustainability requirements.

Action 5. Promote the use of life cycle assessments.

Lifecycle assessments give consumers greater access to information about environmental impacts of agricultural products and can support environmental policies but are not explicitly mentioned in the SDGs or by the CBD. There are complexities in capturing all impacts in current Life Cycle Assessment methodologies, which tend to favour high-input intensive agricultural systems.

Life Cycle Assessments may underestimate life cycle impacts at certain stages. For example, a Life Cycle Assessment of Peruvian industrial anchoveta (anchovy) showed that a focus on the main fishing activities (rather than fleet construction and maintenance) leads to an underestimation of impacts. In the UK there are uncertainties in Life Cycle Assessment arising from the embedded impacts of cattle feed, and temporal variations in environmental impacts due to variable weather conditions and yields.

Recommendations: Ensure consumers have greater access to information on life cycle impacts and ecological footprints of products that they purchase (e.g., by 2025). Address transparency of agricultural products and fisheries in opaque supply chains. Address the drawbacks of lifecycle assessment methodologies, involve multiple stakeholders, and develop standardised protocols by 2025.

Action 6. Promote sustainable and varied diets.

Shifting towards diets that include fewer animal products could support people (particularly in the global North) in reducing their high environmental footprints. Economic and political barriers to doing so include: powerful meat and dairy industries; subsidies supporting unsustainable production and consumption; lack of uptake of the issue by environmental groups; and the possibility of 'rebound effects'.

In Peru, the average protein intake is 20% lower than the USDA recommended diet. Dietary choices are limited in many places, so food options are based on availability rather than preference. Personal and cultural connections with food and issues of food justice and access make actions to influence demand challenging.

Recommendations: Reductions in animal products should be context specific, and scenarios for shifts in diets should account for trade-offs between sustainability indicators. By 2025, member states develop dietary guidelines that address health and environmental sustainability, promoting a more diverse and nutritionally balanced diet of fruits, vegetables, meat, and seafood. Transforming "reduction" fisheries (i.e., fisheries that process their catch into fish meal or fish oil) into fisheries that directly provide food for human consumption by 2025. By 2025, schools provide sustainable and varied meals to children up to the age of 12 to help address child hunger and malnutrition. Tighter restrictions on advertising of unsustainable products or overconsumption, as well as labelling, and awareness campaign.

Action 7. Mainstream biodiversity considerations in food systems (cross-cutting).

A key barrier to the adoption of biodiversity policies has been their lack of integration in mainstream economic sectors, especially the food system. The SDGs and the CBD have targets on mainstreaming, but effective implementation is challenging.

Recommendation: Adoption of Actions 1-6, in the context of a number of enabling conditions, will support mainstreaming biodiversity in food systems.

Action 8. Strengthen governance of sustainable food production and consumption (cross-cutting).

Recommendations: Agreement of SMART international and national targets through inclusive processes involving multiple stakeholders. Strengthen reporting mechanism, improve accountability through increased transparency of individual state progress. Strengthen National Biodiversity Strategies and Action Plan (NBSAP) implementation and facilitate stronger links between national and global goals. Introduce compulsory peer review mechanism for NBSAPs⁸.

- Work with 'agents of change' for mainstreaming biodiversity into sustainable production and consumption

Fulfilment of a transformative post-2020 biodiversity agenda transcends the mandate of the CBD framework and requires broader enabling conditions to ensure greater compliance, transparency, and accountability of the activities of incumbent actors and industries.

Developing enabling conditions requires redressing power through the actions of a broad range of agents including small-scale farmers and fishers, large-scale producers, consumers/citizens, local communities, local/regional and national governments, non-governmental organisations/civil society organisations, businesses, consultants and experts, standards bodies, academic communities, international organisations, funding agencies and the finance sector. Actions by these agents can support a more transformative post-2020 global biodiversity framework. Recognising diverse knowledge systems and uneven responsibilities of unsustainable practices and biodiversity loss, collective action is needed to make the wider shifts needed towards more sustainable production and consumption systems.

Recommendations: Suggestions of actions for agents of change (table 4) include: diversification of production activities by farmers and large scale producers; targets and reporting for large scale producers; holding industry to account by citizens, local communities and indigenous peoples, NGOs and local governments; commitments to "No Net Loss" and restoration activities by businesses and large scale producers; transparent systems of reporting; strengthen assurance mechanisms of standards and compliance by standards bodies; including biodiversity concerns in funding and investment decisions.

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TABLE 2: AGENTS AND ACTIONS FOR CHANGE TO CREATE ENABLING CONDITIONS FOR TRANSFORMATIVE CHANGES IN FOOD PRODUCTION AND CONSUMPTION FOR THE POST-2020 BIODIVERSITY FRAMEWORK

AGENTS	ACTIONS FOR CHANGE	KEY ACTIONS
Small/medium scale farmers	Diversification of production activities; recognising importance of biodiversity; collective action with other farmers, including to establish wildlife corridors with other land users; engagement with standards and ecological intensification.	3, 4
Large-scale producers	Diversification of production activities; integrating values/costs of biodiversity; science-based commitments and targets and transparent reporting on progress (including to “No Net Loss” and restoration activities); promote agrobiodiversity, ecological intensification, agro-ecology; compliance with sustainability standards and legal requirements; scrutiny over transactions including ‘publish what you pay’ for agribusiness.	2, 3, 4, 5, 7
Citizens ('consumers' and 'conservers')	Awareness of biodiversity impacts in supply chains; shifts in perceptions and behaviour (reduced consumption of unsustainable foods, diet); social learning; citizens assemblies; hold industry and government to account; citizens assemblies; local green politics; urban farming.	3, 6, 8
Local communities and indigenous peoples	Hold industry and government to account; citizens assemblies; local green politics; urban farming; value and maintain local and traditional knowledge related to food.	2, 4, 8
Local/regional governments	Hold industry to account; sustainable procurement; taxation; awareness campaigns; stronger anti-corruption measures.	7, 8
Non-governmental organisations/civil society organisations	Holding governments and industry to account to recognize and address biodiversity loss and links with production and consumption of food; education of consumers; supporting activist groups; strengthening standards; strict requirements for engaging with business.	1, 2, 3, 4, 5, 6, 7, 8
Businesses	Legal compliance; companies adopt doughnut economics model; science-based commitments (including to “No Net Loss” and restoration activities); companies held to account and able to demonstrate compliance with regulations and standards; transparency of reporting; resources dedicated to implementation of strong commitments including social aspects and meaningful engagement with diverse range of stakeholders; financing independent legal support where needed; internalising costs of monitoring; sustainable procurement; diverse business models including social enterprises and cooperatives.	1, 2, 3, 4, 5, 6, 7, 8
Consultants/ Experts	Greater independence and codes of conduct on representation of private interests; peer review; integrating local and traditional knowledge.	2, 3
Governments	Monitoring; review current incentive programmes; enforcement of regulations; support to low-income groups for sustainable healthy diets; stronger controls of advertising encouraging unsustainable product purchases; taxation/levies; supporting alternative development pathways: GDP alternatives (incorporation of quality of life/well-being/just sustainability); anti-corruption measures; delivering awareness campaigns to citizens and businesses; develop and democratise natural capital accounting systems that incorporate non-economic values; regulate companies to reduce and report on food loss and waste reduction; require, develop and support standards for sustainable production and consumption.	1, 2, 3, 4, 5, 6, 7, 8

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(CONTINUED) TABLE 2: AGENTS AND ACTIONS FOR CHANGE TO CREATE ENABLING CONDITIONS FOR TRANSFORMATIVE CHANGES IN FOOD PRODUCTION AND CONSUMPTION FOR THE POST-2020 BIODIVERSITY FRAMEWORK

AGENTS	ACTIONS FOR CHANGE	KEY ACTIONS
Standards bodies	Strengthen compliance and assurance mechanisms of standards; introducing stronger biodiversity aspects in standards; strengthen transparency measures; shift from single commodity certification to valuing diverse landscape use and agroecology; valuing diverse perspective and knowledges.	3, 4, 8
Research communities	Exchanging multidisciplinary knowledge with policy communities; valuing diverse perspective and knowledges; supporting social and technological innovation; attention to justice and equity concerns, capacity building, methodologies for accountability including in “No Net Loss” and restoration activities.	2, 5, 6, 8
Funding agencies	Consistently including biodiversity concerns in financing decisions; use of mitigation hierarchy (for limiting as far as possible the negative impacts on biodiversity from development projects) including clear ‘no development’ option if biodiversity loss too great; considerations of funding habitat restoration; microcredit schemes for biodiversity.	7, 8
Private investors	Engagement with biodiversity issues and sustainable production and consumption; incorporating strong environmental, social and governance ‘(ESG)’ criteria into screening processes; divestment from most harmful industries; promotion of, or engagement in, development and inclusion of biodiversity driven standards along the supply chain, Life Cycle Assessment; invest in income-sensitive, efficient storage technologies.	5, 7, 8

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as a result of its text and strategic plan? Doctoral thesis (PhD), University of Sussex.

FURTHER INFORMATION

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