



Towards a Framework for Enhanced Trade and Biodiversity Statistics

Informal working group on trade and
biodiversity statistics

Technical cooperation outcome



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This publication has not been formally edited.

Acknowledgements

This UNCTAD study was prepared, under the supervision and guidance of Anu Peltola of the Statistics, Data and Digital Service, and Chantal Line Carpentier of the Division on International Trade and Commodities, by a study team led by Lorena Jaramillo, with substantive contributions from Diana Camerini and valuable inputs from Ludovic Arnaud.

UNCTAD gratefully acknowledges the substantive contributions of Marianne Kettunen and valuable inputs of Helena Cendales, Theodore Koukis, Ivana Padierna, Mariyam Raziyevea and Vicente Paolo Yu.

UNCTAD also expresses its appreciation to the members of the informal working group on trade and biodiversity statistics for the comments and ideas contributed, presented in annex 1.

Daniele Arbinet-Boglio of UNCTAD undertook desktop publishing.

This paper builds on the work undertaken by UNCTAD under the “Global BioTrade Programme: Linking Trade, Biodiversity and Sustainable Development”, funded by the Swiss State Secretariat for Economic Affairs. (<https://unctad.org/meeting/sixth-meeting-informal-working-group-trade-and-biodiversity-statistics>)



List of abbreviations

ABS	Access and benefit sharing
AI	Artificial intelligence
AIS	Automatic Identification System
ASEAN	Association of Southeast Asian Nations
CBD	Convention on Biological Diversity
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
COP	Conference of the Parties
CPC	Central Product Classification
DNA	Deoxyribonucleic acid
ECE	United Nations Economic Commission for Europe
ECLAC	United Nations Economic Commission for Latin America and the Caribbean
ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
ESG	Environmental, social, and governance
EU	European Union
FAO	Food and Agriculture Organization
FRA	FAO's Global Forest Resources Assessment
FTA	Free trade agreement
GDP	Gross domestic product
GEIC	Global Environmental Impacts of Consumption
GIS	Geographic Information System
HS	Harmonized Commodity Description and Coding System
IAEG-SDGs	Inter-agency and Expert Group on SDG Indicators
ILO	International Labour Organization
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
ISIC	International Standard Industrial Classification of All Economic Activities
ISSB	International Sustainability Standards Board
ITC	International Trade Centre
IUCN	International Union for Conservation of Nature
IUU	Illegal, unreported, and unregulated (fishing activities)
iWG	Informal Working Group
JNCC	Joint Nature Conservation Committee
KMGBF	Kunming-Montreal Global Biodiversity Framework
LCA	Life Cycle Assessment
MEA	Multilateral Environmental Agreement
NGO	Non-governmental organization
NTM	Non-tariff measure
OECD	Organisation for Economic Co-operation and Development



RLI	Red List Index
SDG	Sustainable Development Goal
SEEA	System of Environmental Economic Accounting
SEI	Stockholm Environment Institute
UNCTAD	United Nations Trade and Development
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNODC	United Nations Office on Drugs and Crime
UNSD	United Nations Statistics Division
WCMC	World Conservation Monitoring Centre
WWF	World Wide Fund for Nature
WTO	World Trade Organization



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Chapter 1

Introduction



1. Introduction

Biodiversity underpins all life on Earth. It provides us with food, medicine, shelter, and other goods, as well as with services – for example climate regulation, water filtration, and even recreational, cultural, and spiritual inspiration, among others (UNCTAD, 2023). Its importance is reflected in the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs), with two biodiversity-focused SDGs, Goal 14, Life below Water, and Goal 15, Life on Land. Moreover, biodiversity contributes to the achievement of all other SDGs.

Multilateral Environmental Agreements (MEAs) and processes such as the Convention on Biological Diversity (CBD), the Kunming-Montreal Global Biodiversity Framework (KMGBF) to implement the CBD's objectives, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), as well as the United Nations Framework Convention on Climate Change (UNFCCC),¹²³⁴ have been designed to set global pathways for environmental protection and promote sustainable development while fostering international collaboration to achieve their goals. These MEAs and the KMGBF set specific targets to protect biodiversity and prevent harmful practices impacting it, such as monitoring emissions targets as set out in the Kyoto Protocol through the UNFCCC, regulating the trade in endangered species, or a range of targets set out in the KMGBF to halt and reverse biodiversity loss and implement sustainable practices.

While all these MEAs and the KMGBF have been confronting increasing threats posed by climate change, biodiversity loss, and pollution (i.e. triple planetary crisis⁵), global trade in goods and services presents both challenges and opportunities. Addressing challenges and capturing opportunities require an

increased understanding of the dynamics between trade and biodiversity, not only to prevent and mitigate practices that undermine biodiversity and climate targets, but also to foster positive action to achieve the biodiversity and climate goals. Adopting a multidisciplinary and structured approach can also help integrate aspects concerning social and economic dimensions of sustainability, and a human rights perspective to this field.

Data are essential to assess and monitor the impact of any intervention, guiding evidence-based policies in their efforts to protect biodiversity (Moersberger et al., 2024). Trade data related to products derived from ecosystems can contribute to supporting governments, private sector stakeholders and civil society to put in place actions that ensure that human demands of nature and its services do not exceed the supply and nature's regeneration capacity is increased relative to its current level. In this sense, trade data need to be coupled by metrics that can shed light on impacts or risks of trade to nature.

UN Trade and Development (UNCTAD) has been engaging, through its BioTrade Initiative⁶, in promoting trade and investment in biological resources to

¹ <https://www.cbd.int/>

² <https://www.cbd.int/gbf>

³ <https://cites.org/eng/disc/what.php>

⁴ <https://unfccc.int/>

⁵ <https://unfccc.int/news/what-is-the-triple-planetary-crisis>

⁶ <https://unctad.org/topic/trade-and-environment/biotrade>



support sustainable development and poverty alleviation, in line with the CBD's objectives (UNCTAD, 2017). The core of the Initiative is the BioTrade Principles and Criteria (P&C) that cover the social, economic and environmental dimensions of sustainable development and are applied to terrestrial, marine and other aquatic biodiversity-based products and services. These were first published in 2007 and updated in 2020 (UNCTAD, 2020a). These are a set of guidelines for promoting sustainability across the entire value chain, which are implemented in over 80 countries by governments, businesses and civil society across various biodiversity-based sectors, illustrating the positive impact of legal, sustainable and traceable trade in conserving biodiversity, generating livelihoods and promoting the economic diversification of countries.

UNCTAD developed the Trade and Biodiversity (TraBio) statistical tool⁷, which disseminates open data on trade in biodiversity-based products and offers a data visualization tool for ready-to-use analysis. TraBio was launched in September 2022 and provides information on trade flows of biodiversity-based products and other selected trade and market indicators on 193 economies from 2010 onwards, and is updated annually. A classification and a list of over 1,800 biodiversity-based products (UNCTAD, 2023) was also developed and is the basis of the TraBio database.

To enhance data collection and analysis for informed decision-making on biodiversity-based trade, including its environmental and socio-economic impacts, and to support SDG monitoring and other processes like the KMGBF, UNCTAD established the informal Working Group (iWG) on Trade and Biodiversity Statistics in 2023. The iWG gathers experts from international organisations, national agencies, non-governmental organizations (NGOs), academia and think tanks to discuss existing concepts

and definitions around biodiversity and trade statistics, identify existing data gaps and challenges in data compilation and dissemination, and advance understanding of pathways that experts can follow to best contribute with statistics as an open-source asset to inform MEAs and monitor the sustainability of trade practices (cf. Annex 1 for the list of members).

The iWG met six times between October 2023 and August 2025. Under the guidance of UNCTAD, the working group members presented major challenges on measuring trade and biodiversity, showcased existing statistical initiatives on trade and biodiversity (cf Annex 3), defined a broad scope and coverage of trade and biodiversity statistics, and identified the first list of relevant indicators on trade and biodiversity, while agreeing on future statistical areas of work.

As of September 2024, the iWG involves over 80 experts from over 50 organisations with various background expertise, and balanced geographic and gender representation (41 per cent women). The work undertaken under the iWG and TraBio was carried out with the financial support of the Swiss State Secretariat for Economic Affairs - SECO - under the Global BioTrade Programme "Linking trade, biodiversity and sustainable development" from April 2018 to January 2025.

Taking stock of the progress made by the iWG around core key definitions, scope and metrics on trade and biodiversity, this paper aims to set foundational elements for improved trade and biodiversity statistics and define statistical development pathways for future work (Annex 6 lists resources for promoting socially responsible corporate and supply chain reports). Its target audience are policymakers, researchers and experts on trade, statistics, biodiversity and development.

⁷ <https://unctadstat.unctad.org/EN/Biotrade.html>





Chapter 2

Background





2. Background

Biodiversity is an indispensable asset for Earth and provides essential resources to the livelihood of humankind. More than half the world's population depends on biodiversity for their livelihoods (CBD et al., 2016), with 70 per cent of the world's poor and vulnerable living in rural areas depending directly on it (CBD, n/d).

More than half (55 per cent) of the world's gross domestic product (GDP), equivalent to an estimated \$58 trillion, is moderately or highly dependent on nature (PwC, 2023, based on WEF, 2020). Biodiversity underpins a vast array of ecosystem services that are crucial for human survival and economic activity, including provision of services like food, fibre, and medicinal plants; regulating services such as climate regulation, flood control, and disease regulation; supporting services like soil formation and nutrient cycling; and cultural services including recreational, spiritual, and aesthetic benefits. Conserving biodiversity and ensuring healthy ecosystems are essential to meet the needs of present and future generations. Biodiversity and its ecosystem services are also crucial for addressing climate change and pollution, as well as for achieving the SDGs, yet they are imperilled by current human activity.

Human activities have a profound impact on biodiversity across the globe. 90 per cent of biodiversity loss is caused by resource extraction and processing (UNEP, 2024). Human actions threaten more species with global extinction now, than ever before. Already 25 per cent of species are threatened and an estimated 1 million species face extinction, which is tens to hundreds of times higher than the average over the past 10 million years (IPBES, 2019). 75 per cent of the land surface is significantly altered, over 85 per cent of wetlands have been lost, as well as approximately half of the live coral cover on coral reefs (IPBES, 2019).

Trade is an indispensable component of the global economy and the relationship between trade and biodiversity is complex

and multifaceted. Trade is associated with negative impacts on biodiversity such as overexploitation of resources, habitat destruction, and the spread of invasive species, which can occur when goods and services are produced and transported across the globe, often driven by unsustainable consumption (European Parliament, 2020). However, trade and trade policies can also have positive effects on biodiversity, for example when social and environmental considerations are taken into account (Sauvage, 2014, UNCTAD, 2025). The production and trade of biodiversity-based products and services, guided by social and environmental considerations, not only generate direct and indirect employment but also foster resilient livelihoods, particularly in developing countries (UNCTAD, 2017, 2020a, 2021, 2025; WTO and UN Environment, 2018). It can also provide economic incentives for the conservation and sustainable use of biodiversity-rich areas by creating markets for products that are sustainably sourced or produced. Additionally, trade can facilitate the exchange of knowledge and technologies that contribute to conservation and sustainable use of biological resources.

The importance of biodiversity, trade and particularly trade in biodiversity-based products is recognised by the international community and reflected in several international - and in some cases legally binding - agreements. Those priorities are set out in the 2030 Agenda for Sustainable Development, the Addis Ababa Action Agenda of the Third International Conference on Financing for Development (AAAA) (United Nations, 2015), and Multilateral Environmental



Agreements such as the Convention on Biological Diversity (CBD), Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the United Nations Framework Convention on Climate Change (UNFCCC), among others. Moreover, the implementation of the KMGBF, adopted under the auspices of the CBD in 2022, revitalizes and aims to mobilize all of society, including trade, biodiversity and statistical stakeholders, in halting and reversing biodiversity loss and achieving the vision of living in harmony with nature by 2050⁸.

Free trade agreements (FTAs) are increasingly including environmental provisions, such as those aimed at protecting biodiversity and the environment.⁹ FTAs that address forest and biodiversity protection typically have stronger enforcement mechanisms in place and often reference MEAs (i.e. CITES and CBD), advocate for cooperation in biodiversity conservation and sustainable use, and regulate trade in endangered species (UNCTAD, 2025). There is anecdotal evidence that some FTAs have effectively supported the implementation of MEA commitments such as CITES, and have helped establish frameworks to combat illegal trade related to timber, mining and fisheries (e.g., see in OECD, 2023a). These provisions can mitigate negative environmental impacts that may arise from increased trade activities, however some include general commitments to biodiversity conservation without specific, enforceable measures. This makes it difficult to hold parties accountable for non-compliance. For example, a recent review by García (2025) highlights that the strength and effectiveness of environmental provisions

in FTAs vary significantly, with many lacking robust implementation and enforcement mechanisms, particularly in agreements involving developing countries. Similarly, a review of European Union trade agreements found that the sustainability chapters' impact remains limited, prompting the development of new methodologies for assessing biodiversity and environmental outcomes in future European Union FTAs (Garcia, 2025). While progress has been made, enhancing data collection and analysis is needed.

Limited resources available to address the biodiversity crisis versus what is required pose challenges for their efficient allocation. Global biodiversity finance currently amounts to around \$208 billion per year, falling significantly short of the estimated \$1.15 trillion annually required to restore and maintain biodiversity by 2030 (Bloomberg, 2024).

Data offer a powerful instrument to address efficient allocation of the declining resources and to mitigate the negative impact of trade. Reliable data are crucial for coherent biodiversity and trade policies. By providing insights into biodiversity patterns, trends, and threats, data help prioritize areas of greatest need, ensuring that resources are directed where they will have the most significant impact. By relying on empirical evidence, policymakers as well as private sector and civil society can make informed decisions that are more likely to optimise the response to conservation and sustainable use of biodiversity issues and generating sustainable livelihoods. Additionally, data support benchmarking, helping to set and

⁸ <https://www.cbd.int/gbf/vision>

⁹ Overall, the inclusion of environmental provisions in FTAs is a positive trend, but it's crucial to ensure that these provisions are robust, effectively implemented, and contribute to environmental goals. The strength and effectiveness of environmental provisions in FTAs can vary significantly, some agreements may have more ambitious goals and stronger enforcement mechanisms than others. Even with strong provisions, implementation can be challenging due to factors like differing priorities, limited resources, and enforcement difficulties. Some critics argue that environmental provisions in FTAs are often insufficient to address the environmental impacts of trade liberalization and that they may be used to promote a narrow agenda of developed countries. Some environmental provisions are: European Union Free Trade Agreements (e.g., European Union-Mercosur, European Union-Canada CETA) include Trade and Sustainable Development (TSD) chapters addressing biodiversity conservation, deforestation, and climate action, the European Union-Mercosur agreement yet to be adopted contains commitments to combat deforestation and protect ecosystems (European Union-Mercosur, TSD chapter; and CETA chapters 22 and 24). The new USMCA agreement also has an Trade and environment chapter mentioning 6 MEAs including CITES.



measure performance against defined measurable goals.

Such data can inform efforts to progress on metrics monitoring sustainable development beyond GDP. The United Nations Secretary General launched in May 2025 the High-Level Expert Group on Beyond GDP, to which UNCTAD, the United Nations Department of Economic and Social Affairs (UNDESA) and the United Nations Development Programme (UNDP) provide a co-secretariat. The High-Level Expert Group is developing recommendations on measures of

broader progress for the 80th session of the General Assembly in 2026, including inclusion, wellbeing and sustainability considerations, as well as rethinking the economy, trade, investment and financing to facilitate sharing of innovation, providing decent jobs and advancing sustainable technology. This work could require development of more integrated and interlinked indicators on trade and the environment to support the policy integration needed for pursuing inclusive and sustainable development.





Chapter 3

Key concepts and scope/coverage





3. Key concepts and scope/coverage

Key concepts, definitions and classifications related to trade and biodiversity statistics

The present chapter is set to bring clarity around definitions, concepts and scope which will be adopted in future activities and outputs of the informal Working Group. They also may guide the development of trade and biodiversity statistics by individual organisations, governments, NGOs, academia and other actors in the future.

For the purpose of this paper, definition, concepts and scope adopted are guided primarily by consensus established in MEAs and global frameworks, such as the CBD and its KMGBF, the SDGs, and other international conventions, regulations and frameworks set by major international organisations and other global players. Some concepts are also identified based on the discussions conducted during the IWG meetings.

To achieve this goal, the following key concepts and definitions have been discussed:

- What is biodiversity?
- What are biodiversity-based products?
- What is biotrade, and how does it differ from “BioTrade”?
- How shall sustainability be defined (for statistical purposes) in this context?

According to Article 2 of the CBD, “biodiversity” is intended 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.” While “biodiversity” is sometimes used interchangeably with the broader concept of nature, it is considered explicitly distinct by UNCTAD. In fact, products with a mineral origin could arguably be considered as being natural, while they are not part of the ‘variety of life on Earth’, as defined above.

The understanding of biodiversity-based products varies across regions and cultures due to differences in ecological conditions, economic and consumer priorities, traditional knowledge, and policy frameworks.¹⁰ For example, scientific and conservation perspectives can focus on products derived from ecosystems and ecosystem services, which may (or may not) be produced in ways that maintain ecological balance. Traditional and Indigenous Peoples knowledge can regard them as those products which are integral to their lives and are produced in harmony with nature (Garavito et al., 2021). An economic perspective can focus on biodiversity-based products and services as integral components of economic resources of a country. Ethical and consumer perspectives can privilege those products that are ethically sourced and sustainably supplied (e.g. fair trade) or that are made of natural ingredients.

By adopting a commercial perspective, biodiversity-based products are understood by UNCTAD as all products having a biological origin, including plant and animal species found on land and water. The Trade and Biodiversity (TraBio) product classification (UNCTAD, 2023), developed to measure trade in biodiversity-based products, covers only goods of biological origin. In this regard, water as well as goods produced or derived from the extraction of minerals, ores or metals, such as sands, oil and gas,

¹⁰ A key challenge for measuring biodiversity-related economic activity is that the activities involved are scattered across the industry and product classifications used in the national accounts and in economic surveys, and are combined with other non-relevant economic activities within the same industry classes.



are not considered biodiversity-based goods (UNCTAD, 2023).

The product classification also includes a list of goods selected from the HS nomenclature. This constitutes “the universe” of biodiversity-based goods (as defined above)¹¹ that are included in the TraBio statistical tool. The biodiversity-specific product classification, known as the TraBio product classification, groups these goods into different categories at an aggregated level, such as Live Animals and Plants, Natural Ingredients, Pharmaceutical Products, and more (Table 1).

The term biotrade is often used in reference to the production, transformation and commercialization of goods and services from biological resources (UNCTAD, 2020a). This concept exists regardless of any specific consideration of the impact of these activities on the conservation and sustainable use of biodiversity and the sharing of benefits. A more complex understanding of biotrade has been developed by UNCTAD, that developed

the concept of “BioTrade” (with capital B and T), encompassing activities related to the “collection or production, transformation, and commercialization of goods and services derived from biodiversity (genetic resources, species, and ecosystems) under environmental, social and economic sustainability criteria”. These are known as the BioTrade Principles and Criteria.

The relationship with the environmental, social (including cultural and ethical) and economic dimensions of sustainable development is crucial for the development of information useful for the achievement of the objectives of the CBD, CITES, the SDGs and others. Previous UNCTAD work (UNCTAD, 2015) demonstrated opportunities for informing several policy frameworks and the potential to further upscale this work and identify interlinkages with other statistical frameworks and data adopted and disseminated by major international organizations on products of biological origin. However, the development of metrics exploring aspects of “environmental, social and economic sustainability” is still at its initial phase, partially due to the uncertainty of how “sustainability” is defined, including for statistical purposes, which has no global agreement (see additional discussion).

This poses some limitations for expansion of existing trade metrics. For example, TraBio statistical tool is currently not able to capture all aspects of BioTrade, particularly because:

- “Production and transformation” falling under the understanding of activities related to “BioTrade” (as per UNCTAD definition) are not covered in TraBio - which focuses on trade-related data only.
- The data in the TraBio statistical tool, being based on the HS codes, do not allow distinction between trade in ‘biotrade’ and in ‘BioTrade’ products (see Box 1). Hence, all data – as well as the terms ‘biodiversity-based goods’ and ‘goods of biological origin’



Table 1
Groups of the Trade and Biodiversity product classification

A. Live animals and plants
B. Food and beverages
C. Agricultural inputs
D. Natural ingredients
E. Perfumery, cosmetics, personal care, and room care preparations
F. Pharmaceutical products
G. Hides, skins, leather, furskins, and products thereof
H. Natural fibres and articles thereof
I. Wood and derived products
J. Vegetable plaiting materials and articles thereof
K. Other products of animal origin
L. Other products of plant origin
M. Miscellaneous

Source: UNCTAD, 2023

¹¹ For more information on the limits of HS classification and other details on the criteria used for the selection of products, please refer to the methodological note and disclaimers under “Biodiversity-based goods” at <https://unctadstat.unctad.org/EN/Classifications.html>.

Box 1**BioTrade or biotrade?**

“BioTrade” and “biotrade” appear to be interchangeable. However, for the UN Trade and Development, the capitalization in BioTrade reflects a fundamental difference.

Biodiversity provides inputs and ingredients for a range of industries, including agriculture, cosmetics, pharmaceuticals, pulp and paper, horticulture, construction and waste treatment. In particular, the term “biotrade” is sometimes used to describe the trade in biological resources, such as plant material for use as ingredients or inputs for food, cosmetic or industrial products. Unfortunately, these activities may be conducted without proper consideration of the conservation and sustainable use of biodiversity. On the other hand, BioTrade activities are characterized by respect for environmental, economic and social sustainability criteria. For example, BioTrade activities must maintain the characteristics of ecosystems and natural habitats of the species being collected or cultivated. Income should be generated and distributed at all levels and to all actors of the value chain.

In conclusion, the terms are similar. The products involved may also be comparable, in cases such as non-timber forest products (NTFPs); plant-based extracts, oils and other ingredients or compounds; and natural textiles. However, there is a significant and meaningful difference in the approaches and impacts of “BioTrade” and “biotrade” activities. BioTrade is governed by a set of formal rules (non-binding), which make it an “institutionalized” activity or process.

– refer to ‘biotrade’ products (although this data also contains goods produced as ‘BioTrade’ to a certain, unknown extent).

- TraBio provides information only on the trade flows of biodiversity-based products but does not provide information on environmental and social considerations associated with production or trade in these goods.

Adopting a holistic approach to measuring products of biological origin and exploring their relationship with the environment, society and the economy can help better inform MEAs and support the monitoring of progress towards SDG targets, among others.

Agreed boundaries and scope of trade and biodiversity statistics by the iWG

Boundaries of coverage and scope of trade and biodiversity statistics have been discussed and identified in terms of:

- Supply chain stages;
- Type of products classified as biodiversity-based products; and
- Sustainability criteria.

a) Supply chain stages

The use of resources from biological origin impacts multiple stages of the supply chain, with trade being just one of the phases. The supply chain - intended as the steps and network required to produce and distribute a product - is a complex network of organizations that conduct different activities using various inputs and resources and generate several outputs and information. Environmental sustainability and conservation aspects emerge along many steps of the supply chain. Capturing the complexity of the relationship between trade and biodiversity requires a broader perspective that goes beyond trade-specific information. Statistics on environmental assets and ecosystems (e.g., terrestrial, freshwater, and marine ecosystems), harvesting and catch, cultivation and farming, production, processing, trade, and potentially consumption should be considered highly relevant for this work (Figure 1). Ultimately, expanding the collection of data to other supply chain stages would provide the opportunity to align current statistical work to the definition of BioTrade adopted by UNCTAD, which encompasses “activities of collection / production, transformation, and commercialization of goods and services....”. (UNCTAD, 2020a). At

present, the work of the iWG excludes biodiversity-based services.

The second working group meeting recognised that a broad understanding of trade, with the inclusion of statistics on the overall supply chain of products that are commercialised, is needed. Under the umbrella of trade and biodiversity statistics, information on ecosystems, harvesting, cultivation, farming, catch, production and transformation (and, marginally, consumption) will be considered within the scope of trade and biodiversity statistics (Figure 1).

b) Biodiversity-based products inclusion

Biodiversity-based products, as agreed by iWG members at its second meeting, shall be understood following UNCTAD's TraBio Product Classification (UNCTAD, 2023). The Classification defines them as "all products having a biological origin, including plant and animal species found on land and water, which meet at least one of the following criteria:

- they are intrinsically and integrally based on biological resources themselves at a non- or low-processed stage (e.g., whole pineapples or ground coffee);
- when used as inputs, they are processed products that solely or principally use biological resources-based ingredients (e.g. cotton shirts, wooden furniture, or chocolate bars); and

- when they are derivatives, they are derived mainly from biological resource-based products (e.g. glycerol from natural oils and fats)."

Other products affecting biodiversity, such as fossil fuels and plastics, are not planned to be covered under the iWG work. As a result, under the term "biodiversity-based products" reference will be made to the 1,814 products selected by UNCTAD product list and classification at aggregated levels (e.g. groups, subgroups, categories and subcategories) and covered in TraBio.¹²

c) Sustainability criteria

The iWG acknowledges that there is no common agreement on the definition of sustainability for statistical purposes. The term sustainability is broad and context-dependent, encompassing environmental, social, and economic dimensions. While the United Nations, with its SDG indicators, and the OECD (OECD, 2000) have provided general sustainability measurement frameworks, there is no single, standardized statistical definition that is uniformly applied across industries, regions, or sectors. This lack of definition complicates efforts to develop consistent metrics, compare data across countries, and establish regulatory benchmarks.

At the same time, the existence of multiple voluntary sustainability standards (VSS), which can help businesses and consumers identify sustainable products and services, reflects the diverse priorities and perspectives on sustainability of production and trade. The State of

Figure 1
Recommended core supply chain activities comprised under the scope of trade and biodiversity statistics



Source: UNCTAD, 2023

¹² It is worth noting that the Economics of Ecosystems and Biodiversity (TEEB) (Bishop, 2010) recognizes that there are two ways that business can be linked with biodiversity, firstly through business impacts on biodiversity and secondly through business dependence on biodiversity. While this paper does not cover bioeconomy and businesses as a whole, but focuses on trade, it is important to take this perspective into account for future discussions on enhancing trade and biodiversity statistics.

Sustainability Initiatives (SSI) report indicates that there are currently more than 400 voluntary sustainability standards operating across the globe (International Institute for Sustainable Development, 2023). This multiplicity has led to fragmentation, inconsistencies, confusion from consumers and, at times, difficulties in enforcement and mutual recognition as well as access by smallholders, communities, and collectives.

Despite this fragmentation, it is important to observe a progressive alignment among existing standards, such as the ones offered by the International Sustainability Standards Board (ISSB), the European Union Taxonomy for Sustainable Activities, and the Task Force on Climate-Related Financial Disclosures (TCFD). The ISSB¹³ and the European Union Taxonomy for Sustainable Activities¹⁴ are also increasingly important for harmonizing environmental sustainability-related data and definitions. They achieve this by establishing standardized data collection and classification, improving supply chain traceability, enhancing indicators, and increasing policy relevance through reduced greenwashing. The ISSB provides global disclosure standards for sustainability-related financial information, with an initial emphasis on climate and environmental, social, and governance (ESG) factors, while the European Union Taxonomy defines environmentally sustainable economic activities, creating

a synergistic effect. Frameworks like the two mentioned, along with technological advancements and a growing emphasis on sustainability reporting, offer a strong foundation for further harmonization¹⁵, however challenges remain. Achieving full harmonization requires stronger collaboration and alignment across frameworks and standards, a greater emphasis on mandatory reporting and consistent implementation, and continued development of robust methodologies for measuring and collecting complex sustainability data. Annex 5 compares a group of key standards and frameworks with respect to the potential for harmonizing sustainability definitions and datasets.

In absence of homogeneous and comparable information, the focus can shift to specific aspects of sustainability, such as conservation and sustainable use of biodiversity, the generation of sustainable livelihoods, the role of Indigenous Peoples and local communities and other social and economic dimensions. For example, trade data might be linked to conservation and sustainable use criteria adopted by CITES or the IUCN. Others can adapt to existing targets and metrics developed for the monitoring of the SDG and KMGBF. A proposal to align with sustainability criteria in the identification and development of indicators is discussed in Chapter 7.

¹³ The International Sustainability Standards Board (ISSB) is an independent body, overseen by the IFRS Foundation, that develops and approves global sustainability disclosure standards to facilitate relevant, comparable, and decision-useful information for investors and companies. Currently, the ISSB is conducting research (as part of its 2024-2026 work plan) on sustainability risks and opportunities beyond climate change, specifically, biodiversity, ecosystems, and ecosystem services (BEES), to understand their impact on businesses and investors. More information is available at: <https://www.ifrs.org/groups/international-sustainability-standards-board/>

¹⁴ The European Union Taxonomy for Sustainable Activities is a classification system that establishes criteria for determining which economic activities are environmentally sustainable, aiming to prevent greenwashing and guide investments towards activities that contribute to six environmental objectives: climate change mitigation and adaptation, sustainable use of water and marine resources, circular economy transition, pollution prevention, and biodiversity protection, while ensuring no significant harm to other objectives and compliance with social safeguards. More information is available at: https://finance.ec.europa.eu/sustainable-finance/tools-and-standards/eu-taxonomy-sustainable-activities_en

¹⁵ While no formal mutual recognition exists between the ISSB and the European Union Taxonomy, both frameworks are being developed with an emphasis on interoperability, particularly in climate-related disclosures. Their alignment is supported through ongoing dialogue and participation in global initiatives like the International Platform on Sustainable Finance (IPSF).





Chapter 4

Existing efforts and gaps on measuring trade and biodiversity



4. Existing efforts and gaps on measuring trade and biodiversity

The current data landscape for trade and biodiversity statistics is rich, complex and increasingly interconnected, reflecting the growing awareness of the impact of global trade on biodiversity and the benefits of trade in biodiversity-based products for sustainable development of vulnerable communities. Several actors are playing important roles in this area, with different and at times diverging perspectives. However, a common element characterizing recent trends is the increased prioritization of reliable statistics in support of evidence-based monitoring and policy making (Burgess et al., 2024).

The main players responsible for collecting and disseminating global data on the trade and biodiversity nexus can be categorized into three groups:

National governments, regional bodies and international organizations, providing national, regional and global standards, frameworks, and databases to standardize data collection and promote policies that integrate trade and biodiversity considerations. This includes United Nations related agencies, such as the UN Environment Programme (UNEP), the Food and Agriculture Organization of the United Nations (FAO), UNCTAD, the United Nations Office on Drugs and Crime (UNODC), the UN Statistics Division and the UN Economic Commission for Europe (ECE). CITES Secretariat and other non-United Nations international organizations, such as the International Union for Conservation of Nature (IUCN), respectively focus on international trade of endangered species of wild fauna and flora and on classification and monitoring of the conservation status of species, with the Red List Index (RLI) measuring the level of threat of extinction for numerous species.

NGOs, civil society organisations and think tanks conduct research and provide independent data on biodiversity impacts and trade and play a key role in setting standards for sustainable sourcing and improving regulation, among others. Examples of specific contributions for the KMGBF include the Global Footprint Network, with the Ecological Footprint metrics, which measure “how much nature we have and how much we use” to understand the consequences of overconsumption¹⁶ beyond the planet’s ability to regenerate resources¹⁷.

Academia, addressing scientific research challenges and exploring innovative research initiatives, and promoting the dissemination of knowledge at different levels. A list of main university-based research groups dedicated to the analysis of biodiversity is provided in Annex 4.

Based on the mandates and objectives of each actor, three main approaches to trade and biodiversity statistics can be identified (thematic areas):

¹⁶ <https://www.footprintnetwork.org/our-work/ecological-footprint/>

¹⁷ According to the latest CBD Rome meeting discussion, countries have more information to measure the Ecological Footprint indicator, although the discussion are still open. <https://enb.iisd.org/un-biodiversity-conference-cbd-cop16-resumed-daily-report-25feb2025>



The first approach is focused primarily on monitoring the status of biodiversity, in some cases assessing conservation challenges posed by various threats including human activities. For example, the IUCN Red List Index assesses the risk of extinction of biological species providing information on the population size, threats and conservation actions needed to reverse extinction of specific species. FAO Global Forest Resources Assessment (FRA) disseminates data that monitor the world's forest resources and their conditions. FRA reports on two forest-related indicators of the SDG Goal 15 – Life on Land (indicator 15.1.1 - forest area as a proportion of total land area - and indicator 15.2.1 - progress towards sustainable forest management). Similarly, the Living Planet Index (LPI) developed by the World Wide Fund for Nature (WWF) and Zoological Society of London, indicates the average rate of change in animal population sizes of native species and is used as a component indicator for the KMGBF Target 4.

The second approach is focused on information on the use of biodiversity in human activities, particularly as a supplier of essential assets for human life (nutrition, energy production, health, etc.). Data on the supply of biodiversity-based products and services is one core aspect of this approach. Examples include: FAO data portal - FAOStat - which collects and disseminates a wide range of statistics, including on trade, such as the Global Aquatic Trade Statistics. The Global Material Flows Database from UNEP International Resource Panel (UNEP IRP), providing data that help governments, policy researchers and interested stakeholders understand and trace the linkages between economic growth and raw material usage. The CITES Trade Database on international trade in CITES listed species covers additional information on the supply of products from biodiversity. Within this approach falls also the work of mainstreaming the biodiversity component in merchandise trade statistics, such as the one conducted by UNCTAD's TraBio statistical

tool, a platform that offers open access to data¹⁸ on trade flows of biodiversity-based products and selected indicators.¹⁹ Although this approach offers a rich variety of data, it needs to be complemented by information on the sustainability of such activities, which requires more granular data.

The third approach provides comprehensive information on demand and supply (from harvesting to production and consumption) of products sourced from biodiversity, integrating and mainstreaming additional environmental and social sustainability considerations to various extents. In other words, besides informing how much biodiversity is being used in human activities, it also tries to identify a set of indicators informing how well (sustainable) biodiversity is being used. For example, the INForest data platform, developed by ECE and FAO, disseminates reliable and up-to-date information not only about current forest resources and their changes over time, but also information about how such resources contribute to human's well-being economically, environmentally and socially, including data on imports and exports of forestry products and export prices. Trase, developed by the Stockholm Environment Institute and other partners, provides data on full commodity supply chains (including consumption), with focus on targeted types of commodities associated with high risk of deforestation (e.g. beef, , soy, palm oil, pulp & paper and other selected products). The Stockholm Environment Institute, together with the Joint Nature Conservation Committee (JNCC), jointly host the Global Environmental Impacts of Consumption (GEIC) indicator, that provides data to estimate environmental impacts (for example, deforestation and biodiversity) driven by consumption and production activities. Part of the objectives of this approach is to provide statistical information about the interaction between trade, biodiversity and sustainability, to facilitate the formulation of impact analysis.

¹⁸ <https://unctadstat.unctad.org/datacentre/>

¹⁹ Ten indicators were developed to facilitate the analysis, including indicators specifically designed to inform policymakers such as revealed comparative advantage, product concentration, and market structural change.



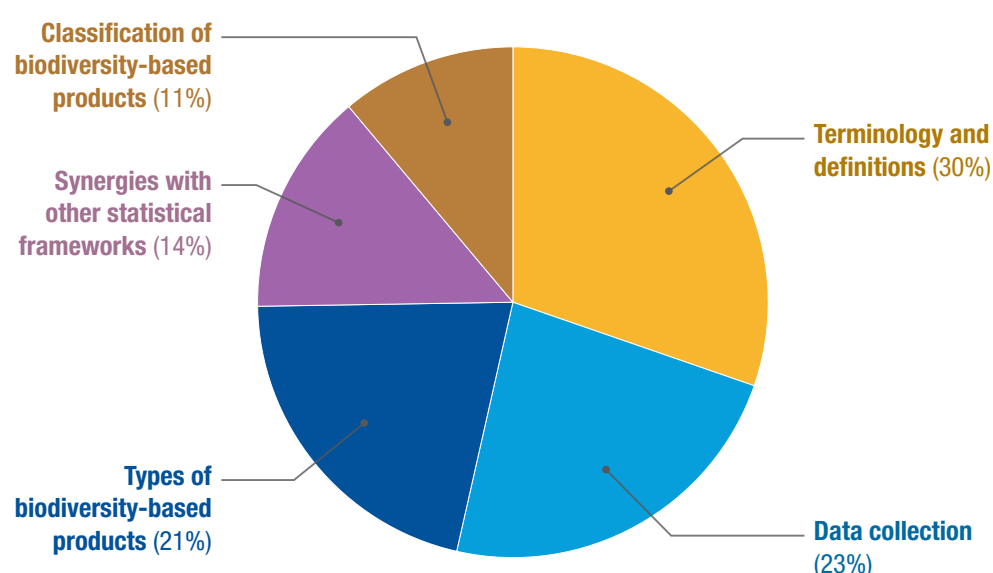
Experts have recognized that, while there are many metrics available on biodiversity and trade, information about the interaction between the two is still limited, particularly on the social, economic and environmental impact of biodiversity-based products (and services) (the third approach illustrated above). Whenever available, information is scattered across many different databases, and it is often not comparable (European Parliament, 2020). Such data suffer frequently from poor interoperability, which hampers the ability of policymakers, researchers, and environmental managers to make informed decisions that balance economic development with biodiversity conservation, while addressing inequalities. Increased efforts to improve data collection, reporting, and analysis of these data are crucial for understanding and mitigating the impacts of trade on biodiversity and unlock the potential of trade of biodiversity-based products to support sustainable social and economic development.

The findings of a survey conducted by UNCTAD (Figure 2) among experts from international organisations, national agencies, academia, and NGOs shed light on relevant information gaps and opportunities in this area. 64 experts participated in the survey. The respondents recognised that existing information on trade and biodiversity statistics suffer limitations in terms of availability and quality of data and access to data sources (30 per cent), inconsistent and incompatible definitions and diverging classifications of biodiversity-based products (over one fifth of responses). Experts recognise that there is a need to identify links and synergies with other statistical frameworks (14 per cent).²⁰ Experts highlighted several priorities, including integrating biodiversity considerations into the Harmonized Commodity Description and Coding System (HS), enhancing data on biodiversity-based trade flows, developing better metrics for Non-Tariff Measures (NTMs) and trade agreements



Figure 2

Priorities for the improvement of trade and biodiversity statistics, as identified by experts (percentage)



Source: UNCTAD, based on responses from survey to members of the informal Working Group on Trade and Biodiversity Statistics in 2023-2024.

Note: N = 56

²⁰ <https://unctad.org/system/files/non-official-document/ditc-ted-17102023-BTLunch-survey.pdf>



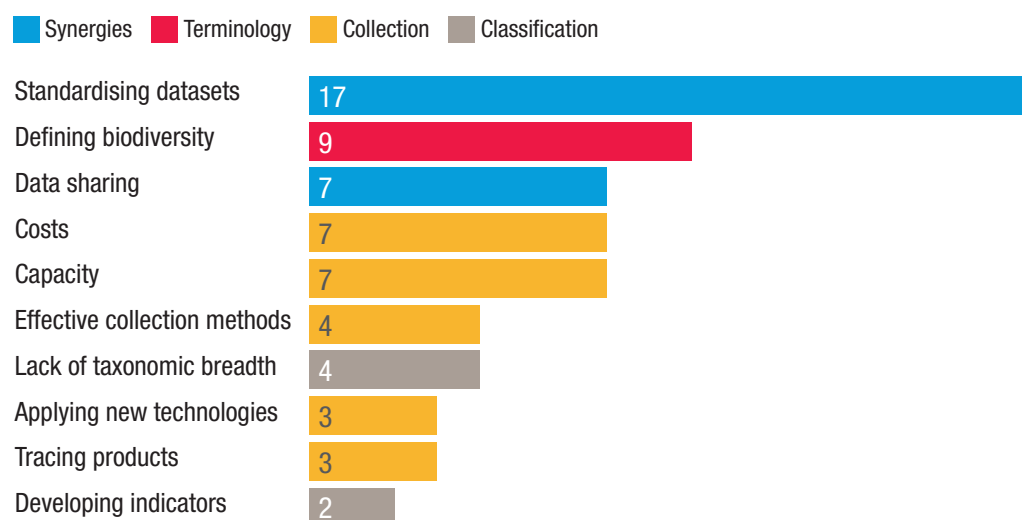
involving biodiversity-sourced products, and assessing their impacts. In addition, mainstreaming aspects such as gender, livelihood, income, employment and human rights into data on biodiversity-based value chains, is essential to enable exploring sustainability aspects of trade in biodiversity-based products.

According to surveyed experts, the three challenges that need to be addressed as priority for developing trade and biodiversity statistics are: standardizing datasets, defining the scope and coverage of trade and biodiversity statistics, and facilitating data sharing. Financial constraints, limited capacity, insufficient use of effective data collection methods, the use of emerging technologies, and the tracking of products are also mentioned as relevant challenges (Figure 3).



Figure 3

Top challenges related to collecting data and measuring biodiversity



Source: UNCTAD, based on responses from survey to members of the informal Working Group on Trade and Biodiversity Statistics in 2023-2024.

Note: N=45. Only challenges identified by at least two respondents are included.





Chapter 5

Opportunities to enhance trade and biodiversity statistics





5. Opportunities to enhance trade and biodiversity statistics

Experts gathering at the iWG on Trade and Biodiversity Statistics had the opportunity to discuss these challenges and identify strategies to address them. This guided coordinated efforts in improving trade and biodiversity statistics, including aspects on the interaction between the two, and economic, social, and environmental considerations.

Based on the above-mentioned survey results, priority areas for the iWG on Trade and Biodiversity Statistics have been identified by experts as follows. First, to establish more consistent definitions and classifications—enhancing uniformity and coherence in data handling and interpretation—the Group should foster both bilateral and multilateral collaboration among participating institutions. Second, to create a more integrated and comprehensive data landscape while minimizing interoperability barriers, it is essential to map existing data initiatives and establish links with relevant databases. Third, to improve data collection efforts, the Group can support capacity-building initiatives that enhance data coverage, strengthen collection processes, and refine analytical methodologies. Finally, coordinated efforts need to be made to issue recommendations for modifications and enhancements to the Harmonized System (HS), contributing to World Customs Organization efforts in making the HS greener²¹. As an overall strategy, engaging a diverse array of stakeholders - including policymakers, secretariats of MEAs, United Nations agencies, and academic institutions – is regarded as essential to transition to a more holistic approach towards trade and biodiversity data, bringing the focus from “trade in biodiversity” to “trade and biodiversity”.

The first meeting of the iWG on Trade and Biodiversity Statistics (23 November 2023) welcomed contributions of the

working group members on existing trade and non-trade related statistical information and their linkages to biodiversity issues. An initial mapping of 20 relevant databases focusing on trade and biodiversity was presented by UNCTAD (cf. Annex 3, with an updated 40 databases mapped as of 31 August 2024). The contribution of the experts demonstrated a wealth of information on statistics related to trade and biodiversity, and great potential for identifying and improving synergies between databases and across data standards. This effort may generate collective benefits through cooperation within the statistical community.

The database mapping demonstrated the need to address several statistical concepts prior to engaging in practical work on trade and biodiversity statistics. A central requirement that emerged from the discussion was the establishment of a shared understanding of the term “Trade and Biodiversity Statistics” to guide the iWG’s efforts. The initial task involves identifying and defining the relevant “universe” of data for the development of these statistics, ensuring clarity on the scope before advancing to practical statistical analysis. This identification of the data “universe” is essential to set up a consistent and widely recognised statistical framework. Harmonizing scope, definitions, and concepts across agencies is at the foundation of the iWG’s activities and is critical for shaping future work.

²¹ <https://www.wcoomd.org/en/events/event-history/2022/visualising-a-greener-hs.aspx>



It is worth noting that the objective of this exercise is not to formulate new statistical concepts or definitions employed by agencies, but rather to take stock of the existing work, identify common elements and define an agreed scope and coverage of trade and biodiversity statistics. This approach aims to align existing definitions, prevent redundancy, build on existing work and outline future statistical priorities. Key questions include, for example, what definition to adopt for biodiversity-based products, whether such statistics should focus solely on trade or encompass additional data on their production and transformation, and how sustainability in the supply, demand, and the use of biodiversity-based products can be captured statistically. Additionally, the potential extension from merchandise trade to services trade should be considered.





Chapter 6

Statistical development areas



6. Statistical development areas

The discussion of the iWG highlighted substantive needs to progress in streamlining sources and data on trade and biodiversity statistics. This led to the identification by the iWG of three possible areas of work (workstreams) (see Table 2) where statistics on trade and biodiversity can be improved, compiled and disseminated.

Workstream 1: classifications and standards

The first workstream focuses on classifications and standards, exploring different existing frameworks, definitions and conventions, identifying and analysing type of information that need to be systematically integrated, detecting critical conceptual misalignments and proposing solutions to the reconciliation of data (e.g. reconciliation of definitions, correspondence tables, etc.).

Addressing main definition gaps and reconciling classifications in biodiversity and trade information can offer multiple advantages. First, it allows for easier integration of information on several supply chain stages. For example, by linking information on biodiversity-based products together with information of economic sectors that use resources from biodiversity, such as companies that are active in the transformation and processing of such products. Exploring information on economic sectors and industries involved in the use and supply of products from biodiversity, as well as on their interaction, can help assess the impact of these activities on biodiversity conservation and restoration efforts, as well as on pollution and climate change.

For example, while links between the Central Product Classification, the HS and the International Standard Industrial Classification of All Economic Activities (ISIC) already exist, opportunities (and challenges) to link them to the TraBio

product classification can be explored. In addition, recent interest shown in UNCTAD's product classification (and its possible applications in classifications already adopted by agencies and researchers), can reveal opportunities to harmonise official accounting statistics in the System of Environmental Economic Accounting. It may also contribute/ play a role in the compilation of material flows accounts and in circular economy statistics.

Understanding and addressing misalignment on concepts, definition and standards used to develop metrics can be then regarded as a key step to improve the quality, availability and interoperability of statistics on trade and biodiversity.

Workstream 2: metrics and indicators

The importance of metrics and indicators to monitor progress towards sustainability targets and develop evidence-based policies has been widely and increasingly recognised. The SDG Global Indicator Framework, developed by the Inter-Agency and Expert Group on SDG Indicators (IAEG-SDGs) and agreed in March 2017²², has been built around the idea of establishing measurable targets around the Goals of the 2030 Agenda of Sustainable Development and propose a set of indicators to monitor progress towards achieving the SDGs. By identifying specific indicators, the framework helps governments and other stakeholders focus their policies and actions on key priorities. It also highlights where progress is being made

²² <https://unstats.un.org/sdgs/indicators/indicators-list/>



and where efforts need to be intensified, while promoting transparency and accountability.

Following similar principles, progress is currently being made in identifying indicators to monitor the ambitious environmental sustainability and conservation objectives of the KMGBF, which was further negotiated by CBD Parties at the 16th meeting of the Conference of the Parties (COP16) to the CBD in October-November 2024 and the resumed session in Rome in February 2025²³. The KMGBF outlines a series of targets and goals for the period leading up to 2030, with the overarching aim of halting and reversing biodiversity loss by 2050. To monitor the progress of these goals and targets, the KMGBF proposes to define a set of indicators under its monitoring framework. These indicators can be categorized into headline, component (primary), binary (“yes/no” or “completed/incomplete” indicators), and complementary indicators (that add extra depth or context to the component indicators). Countries are required to report on headline indicators, whereas reporting on component and complementary indicators is voluntary. Through Decision 15/5 (CBD/COP/DEC/15/5), CBD members adopted a monitoring framework and established an Ad Hoc Technical Expert Group (AHTEG), subsequently reviewed at COP16 (CBD/COP/DEC/16/31).²⁴²⁵ The framework is bound to provide a robust system for tracking progress, ensuring that efforts are both effective and sustainable over the long term.

In parallel, international organisations, academia and NGOs are strengthening the role of data and indicators in the dissemination of their research findings and/or in providing quick access to information tools that have facilitated access to critical information in support of environmental, business and trade decision-making and policies. For example, the System of Environmental-Economic Accounting and the Natural Capital Protocol & Capitals Coalition²⁶ offer

methodologies to integrate environmental and economic data and on the social domain, the Global Living Wage Coalition monitors equity and participation in sustainability efforts. Other similar tools are shown in Annex 5.

There is a wide variety of sources of metrics and indicators in the area of biodiversity (Burgess et al., 2024), including on its interaction with trade. The complexity of existing metrics with information on trade and biodiversity is being reflected in UNCTAD’s database mapping, which includes 40 databases as mentioned above (cf. Annex 3). However, there is a need to understand which indicators are best suited to:

- Explore/describe the interaction between trade and biodiversity (descriptive indicators)
- Detect sustainability aspects and implications (e.g. assessing to which extent situations, actions or policy align with pre-defined objectives/targets – e.g. the SDG, KMGBF...) (normative indicators),

while providing more accessible instruments of information for analysts and policymakers. This may require in the future identifying criteria to prioritize indicators (for example, based on data availability, relevance, etc.).

The survey among iWG members and the following discussions at the meetings are indicating a demand for:

1. assessing and streamlining existing metrics and indicators to understand which ones are best suited for monitoring different aspects of trade and biodiversity; and
2. evaluating and proposing possible new metrics that address existing data gaps.

Four thematic areas are proposed for the selection of metrics of sustainability in trade and biodiversity. These include:

²³ <https://www.cbd.int/doc/decisions/cop-16/cop-16-dec-31-en.pdf>

²⁴ <https://www.cbd.int/doc/decisions/cop-15/cop-15-dec-05-en.pdf>

²⁵ <https://www.cbd.int/doc/c/1e13/f20d/81cd8447744640bbd21e008f/cop-16-l-26-rev1-en.pdf>

²⁶ <https://capitalscoalition.org/>



1. Environmental indicators, including indicators of land and water use, waste generation, energy consumption, and others.
2. Social indicators, such as indicators of employment, of human rights and gender balance, among others.
3. Economic indicators, such as indicators on (licit and illicit) trade, investments, enterprises, subsidies, among others
4. Cross cutting series of indicators of policies, such as trade policies and measures.

These thematic areas are being discussed in more depth in Chapter 7.

The work on indicators can contribute to the monitoring framework of the KMGBF, adopted at COP16 resumed session in February 2025 (Decision 16/31). This work offers also an opportunity to align the progress made by United Nations system on environmental indicators, including work on indicators by ECE and on the System of Environmental Economic Accounting (SEEA).

Workstream 3: new technologies for data collection and dissemination

iWG experts have recognised several challenges in collecting data related to the biodiversity, reporting complexity of data sources, diverging data standards, the absence of harmonized methodologies and high costs of monitoring. The dynamics and interaction between trade and biodiversity are complex and require structured interdisciplinary approaches to overcome limitations in data availability and quality. Developing regions, which are among the most vulnerable to the consequences of biodiversity loss, face the widest data gaps (OECD, 2023b; IPBES, 2019). This complicates the efforts to link biodiversity with trade related activities and assess environmental sustainability. Addressing these challenges requires coordinating efforts for better data collection, standards and systems.

Even when data exist and meet quality standards, accessibility has been reported as complex and critical by many iWG experts. Data are sparse across different dataset and when available, do not offer a perspective on the interaction on trade and biodiversity, but rather cover these aspects separately. There is a need to streamline access to information on trade and biodiversity and improve its dissemination.

Besides traditional methods and tools, new technological advances seem to offer promising solutions in collecting and disseminating data, both on trade and biodiversity. Geospatial analysis and satellite imagery are, for example, powerful tools for biodiversity research and conservation. They enable scientists and conservationists to monitor ecosystems, model species distributions, assess environmental impacts, and plan effective conservation strategies on a global scale. Satellite imagery can provide a large-scale, continuous, and repeatable source of data that can be used to monitor changes in ecosystems, land cover, vegetation health, and other environmental factors over time. This enables observation of areas that are difficult or impossible to reach on the ground. Geospatial analysis and satellite images can be integrated with biodiversity for monitoring and mapping habitats quality, fragmentation and loss, to model species distribution, to undertake climate impact studies and to formulate and implement conservation measures and policies related to trade in biodiversity-based products.

The survey results of the iWG members highlighted great opportunities offered by innovative methods to monitor biodiversity, such as environmental DNA/RNA²⁷ (e.g. eDNA, which enables to evaluate ecosystems by collecting DNA species left in the environment), remote sensing (e.g. analysis at scale time/space), non-target analytics (e.g. mass spectrometry to identify unexpected chemicals in a sample), and other innovative data collection and analysis techniques based on big data and artificial intelligence.

²⁷ Deoxyribonucleic acid (DNA) and ribonucleic acid (RNA) carry genetic information



Geospatial information can be integrated with systems that monitor real time trade data flows, playing an increasingly important role in assessing the environmental impacts of trade in biodiversity-based products. For example, the Automatic Identification System (AIS)²⁸, is used in platforms like the Global Fishing Watch²⁹ to detect illegal, unreported, and unregulated (IUU) fishing activities. In parallel, tools like the Integrated Biodiversity Assessment Tool (IBAT) platform³⁰ supports environmental risk assessments by providing access to spatial data on threatened species, protected areas, and key biodiversity areas. For supply chain transparency and trade monitoring, the World Resources Institute's- Global Forest Watch Pro³¹ links deforestation alerts to commodity production zones, helping identify risks associated with agricultural trade. Together, these tools offer valuable insights for assessing and managing the

biodiversity impacts of global trade flows. Annex 6 provides further information on such initiatives.

At the same time, advanced IT technologies and infrastructure can help in gathering and accessing information in a more clear and easy-to-use manner, both in visual form and in tabular formats. For example, ASYCUDA eCITES³², a cloud-based electronic system, supports CITES parties to automate CITES related permit application, processing and issuance, as well as generating statistics for reporting to CITES secretariat. ASYCUDA eCITES also enables instant access to all pending and issued permits, online recording of interactions between traders and government agencies, offers highly flexible and customizable interfaces and can be accessed from any device with an internet browser. This can help reduce fraud and corruption in customs declarations involving trade in CITES-listed species.



Table 2

Proposed areas of statistical work for the development of trade and biodiversity statistics

Classifications, standards and correspondence tables	Data/Indicators	Data dissemination and new technologies
- Correspondence tables across different standards (e.g. HS, ISIC, CPC, CITES Listed Species...) - Relevant for dataset linkages/interoperability	- Indicator frameworks (Circular economy, SEEA, KMGBF, SDG...) - Indicators areas and grouping - Indicators list - Concrete data sources and datasets	- New data viz - AI/ML - Geospatial - Big data - Other?

Source: Deliberations of the 3rd informal Working Group meeting on trade and biodiversity statistics, April 2024.

²⁸ <https://unstats.un.org/bigdata/task-teams/ais/index.cshhtml>

²⁹ <https://globalfishingwatch.org/our-platform/>

³⁰ <https://www.ibat-alliance.org/>

³¹ <https://pro.globaforestwatch.org/about>

³² <https://www.ecites.org/>





Chapter 7

Identification and development of trade and biodiversity indicators





7. Identification and development of trade and biodiversity indicators

Advancing the understanding of available metrics to measure the nexus of trade, biodiversity and sustainability issues was prioritised among the three prospective workstreams of the iWG (as discussed in the previous section). To this end, the iWG conducted mapping, identification, and analysis of relevant sustainability-related indicators in the existing global monitoring frameworks.

The rationale behind this activity is to explore metrics that already provide information about trade, biodiversity and their nexus, avoiding duplicated work and promoting coordination with agencies that have a mandate to collect and report statistics on such indicators. Additionally, leveraging existing indicators allows the work of the iWG to be closely aligned with globally agreed and well-established metrics by experts at the international level. Finally, by linking and creating interoperable solutions, this work minimizes efforts required for collection of new data – important for all countries, in particular developing ones – and instead focuses on the re-use of existing data produced by member States.

To identify relevant trade and biodiversity indicators, two existing frameworks were scrutinized: the 2030 Agenda and its SDGs, and the KMGBF. The 2030 Agenda for Sustainable Development, with its Global Indicator Framework, includes 234 unique indicators, refined periodically, and a number of these indicators cover relevant aspects of trade and biodiversity. The reference to the KMGBF is made to the indicators identified in its monitoring framework, particularly by COP Decision 15/5.³³

The first round of indicator selection discussed by the iWG experts in July 2024 followed a four-step approach:

1. Pre-screening, with a full review of indicators proposed by the KMGBF monitoring framework and the Global Indicator Framework of the SDGs. All indicators of the two frameworks were reviewed and pre-selected based on their overall relevance to trade and biodiversity, consistently with the scope of action identified by the iWG. Indicators by the institutions represented by iWG members were also reviewed and pre-selected based on the same criteria.
2. Scoring and classification of each pre-selected indicator along eight scoring criteria (see Table 1), and classification along four thematic areas of sustainability.
 - a. The scoring was carried out by UNCTAD according to three policy-related criteria and five data-related criteria and discussed with members at the 4th meeting of the iWG in July 2024. The policy-related criteria link to conceptual aspects (policy relevance, links to trade, links to other frameworks)

³³ Regarding the first target monitoring framework, reference was made to the Monitoring framework for the KMGBF adopted at the CBD COP15 in December 2022. Additionally, outcome documents of the SBSTTA26 meeting held in May 2024 (Nairobi) were used to inform the work undertaken. Further developments considered included the draft of the monitoring framework developed at COP16 in Colombia in October-November 2024, resulting in the Decision CBD/COP/DEC/16/31 (<https://www.cbd.int/doc/decisions/cop-16/cop-16-dec-31-en.pdf>).



and scores assigned range from “1” to “3” (1 being less relevant, 3 as more relevant). Data-related criteria focus on statistical aspects of the indicators (data availability, interoperability, confidentiality, granularity, frequency of release), with scores ranging from “0” to “3”, where “0” indicates no available or collected data (see Table 3).

- a. Classification of pre-selected indicators based on four thematic areas and sub-areas of sustainability they cover, as agreed by the iWG members (see Table 4).

Weighting of the eight scoring criteria depending on their relevance to the work of the iWG. The scoring criteria attributed a higher weight to availability and interoperability of data.

Table 3
Scoring methodology of sustainability indicators.

Policy-related			Data-related				
1. Policy relevance	2. Links to trade	3. Links to frameworks	4. Availability	5. Inter-operability	6. Confidentiality	7. Granularity	8. Frequency of release
Degree to which the data is relevant for policies related to trade and biodiversity.	Whether there is a conceptual link to trade or other supply chain stages	Whether the indicator is being reported as an indicator for SDG, KMGBF or both frameworks	Degree to which the data is already collected and its coverage	Whether the data includes disaggregation that can be linked to trade statistics either directly (via HS codes) or indirectly (through a correspondence table).	Degree to which the data is available for public access.	Degree to which the data can be disaggregated.	Frequency to which the data are being released.
1 = low 2 = medium 3 = high	1 = no 2 = indirect (linked to production / transformation /consumption, other stages of the supply chain) 3 = direct	1 = No direct link to KMGBF/SDG 2 = direct either KMGBF/SDG 3 = direct both in KMGBF/SDG	0 = N/A no data 1 = very limited (<20 countries available) 2 = available only in limited years or for limited geographical scope 3 = fully and readily available	0 = N/A no data 1 = none 2 = partial/need intensive work (ISIC or similar correspondence needed) 3 = full (HS=YES)	0 = N/A no data 1 = fully confidential 2 = available upon request 3 = public access	0=N/A no data 1 = none 2 = basic disaggregation (e.g. by country) 3 = very detailed disaggregation	0 = N/A no data 1 = one time release, no updates 2 = every 2 or more years 3 = annually or more frequently

Table 4
Thematic areas of sustainability for trade and biodiversity statistics

Environmental	Economic	Social	Policy
Ecosystems	Enterprises	Inclusion	Policy/strategies
Species	Jobs	Ownership	Subsidies/incentives
Emissions	Production	Gender	Benefits
Waste	Income	Livelihood	Funding
Energy	Expenditure		Tariffs
Water	Consumption		Tax
	Trade		Permits

Source: Deliberations of the 3rd informal Working Group meeting on trade and biodiversity statistics, April 2024

Specifically, 70 per cent of the total weight was allocated to the sum of scores for availability and interoperability of a particular indicator. The remaining 30 per cent was allocated to the sum of all other criteria (policy relevance, link to other frameworks, confidentiality, granularity, frequency of release, links to trade (conceptual)).

Shortlisting and preliminary results: the scored indicators were clustered into three groups based on their total weighted score: 1) top 25 per cent – indicators scoring 7.2 points or above; 2) middle 50 per cent – indicators scoring greater than 2.4 but less than 7.2 points; 3) bottom 25 per cent – indicators scoring 2.4 points or lower. The highest possible score was 9.6 points.

Preliminary results of the shortlisting and scoring process indicate 49 indicators ranked within the top 25 percent. These were shortlisted as priority indicators for further analysis by the iWG and beyond. Among such indicators, 19 relate to environmental sustainability, 17 to economic sustainability, 12 to policy, and only one to social sustainability (Figure 4). The resulting list of shortlisted indicators is presented in Annex 2.

Results of this first shortlisting confirm that there is a wealth of indicators on

environmental and economic aspects of trade and biodiversity, also partly covered by the KMGBF Monitoring Framework and the SDG Global Indicator Framework. Some of the indicators developed by agencies represented in the iWG suggest high potential of the work already conducted and a need to explore further in this direction, particularly regarding data interoperability and disaggregation to further investigate environmental and economic dimensions more in detail.

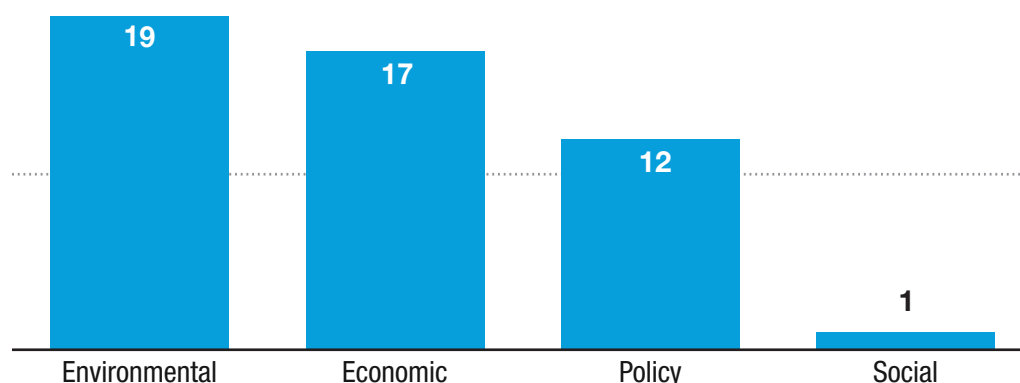
As noticed by iWG members, the first results of this shortlisting exercise reveal a scarcity of metrics that can inform the social aspects of trade and biodiversity. Based on research conducted by UNCTAD in early 2025, areas of linkages between trade, biodiversity and the social dimension could cover metrics on:

- Decent work: the achievement of decent work objectives faces several challenges, including forced labour. Vulnerable people (for example, smuggled migrants and children) are often involved in wild harvesting, agriculture, fishing and handicrafts activities. The International Labour Organization (ILO) developed a database³⁴ for monitoring child labour that contributes to the reporting on SDG target 8.7. Even if SDG Indicator 8.7.1³⁵ does not currently provide



Figure 4

Shortlisted indicators based on thematic areas of sustainability



Source: UNCTAD, 2026.

³⁴ <https://ilostat ilo.org/topics/child-labour/>

³⁵ Indicator 8.7.1: Proportion and number of children aged 5–17 years engaged in child labour, by sex and age.



disaggregation by sector of economic activity, this work could be further explored to identify which forced and child labour activities are conducted in the supply of biodiversity-based products.

- Fair wages: When harvesters and producers receive a fair wage, they have less need to resort to unsustainable practices that deplete natural resources. A living wage can incentivize harvesting and production practices that respect natural cycles and promote ecosystem regeneration. ILO Wage Statistics³⁶ provide several data sets (including those that report directly to SDG target 8.5), a time series that measures the average hourly earnings of employees. Other data sources include the Global Living Wage Coalition³⁷, covering 56 countries and whose methodology is used by labels like FairTrade³⁸. As mentioned before, there is potential to explore these data by activities dedicated to the production and trade of biodiversity-based products.
- Gender equality is a critical dimension in the sustainable trade of biodiversity-based products. Studies from UNDP (2024) and UNCTAD (2020b) monitoring, and reporting for revised or updated National Biodiversity Strategies and Action Plans (NBSAPs and UNCTAD (2020b) have noted the importance of integrating gender and biodiversity issues, including in the implementation of biodiversity programmes and the KMGBF. Women –who often have limited access to resources, land tenure, finance and decision-making– tend to be concentrated in lower value-added roles along biodiversity-based value chains, receiving lower wages for works similar to men. This gendered labour segmentation undermines both social equity and the long-term sustainability of biodiversity

economies. Monitoring gender disparities across these trade flows is essential. For example, ILO Statistics on wages has a dataset that provides a measure of the relative earnings gap between men and women for certain occupations³⁹. These data contribute to report on SDG target 5.5, and KMGBF Targets 22 and 23, which call for full, equitable, inclusive, effective and gender-responsive representation and participation in decision-making in biodiversity management and benefit-sharing.

- Land use and rights: Socio-environmental conflicts arise from the tensions between the economic exploitation of biodiversity and the need to conserve natural resources and protect the rights of Indigenous Peoples and local communities. These conflicts manifest in disputes over resource access, negative environmental impacts, inequalities in benefit distribution, and the misappropriation of traditional knowledge. The Global Atlas of Environmental Justice (EJAtlas)⁴⁰, documents cases of environmental conflicts around the world, including issues such as biodiversity conservation and land use. Raw data is not public but is available upon request.
- Food equity: biodiversity-based products can enhance food equity by providing diverse, nutrient-rich foods. However, economic pressures, land conflicts, and unsustainable harvesting can undermine local food security. FAOStat has begun measuring indicators through the Suite of Food Security Indicators⁴¹. This can contribute to report on various indicators of SDG 2⁴².
- Indigenous Peoples: their traditional knowledge, land stewardship, and cultural practices contribute to

³⁶ <https://ilostat.ilo.org/topics/wages/>

³⁷ <https://www.globallivingwage.org/>

³⁸ <https://www.fairtrade.net/en/why-fairtrade/why-we-do-it/decent-livelihoods/living-wage.html>

³⁹ https://rshiny.ilo.org/dataexplorer29/?lang=en&id=EAR_GGAP_OCU_RT_A

⁴⁰ <https://ejatlas.org/commodity/biological-resources>

⁴¹ <https://gbf-indicators.org/metadata/headline/10-1>

⁴² https://sdgs.un.org/goals/goal2#targets_and_indicators



sustainable food systems, climate resilience and local economies. This is how the Indigenous Navigator⁴³ aims to monitor their own situations, defend their rights, and hold governments and other actors accountable. KMGBF has identified some indicators for monitoring Target 22⁴⁴, although its link to production and trade has yet to be established.

Cross-cutting indicators that may be considered in the future include, for example:

- Environmental impact assessment: Through a product's life cycle, resource depletion, habitat impacts, energy consumption and emissions associated with the transportation and processing of harvested products, and changes in land use can be assessed.

The Global LCA Data Access network (GLAD)⁴⁵ harbours different datasets about Life Cycle Assessment (LCA). Indicators related to this topic that report to SDG 12 and to KMGBF Target 16 are under development. UNCTAD Sustainable Manufacturing and Environmental Pollution (SMEP) programme is currently developing a methodology examining the impacts on biodiversity arising from manufacturing production, through a LCA.

- Monetary and non-monetary benefits received under applicable internationally agreed access and benefit sharing (ABS)⁴⁶ instruments, as recommended in the KMGBF Goal C⁴⁷ and the SDG Target 15.6⁴⁸. The dataset is under construction.

⁴³ <https://indigenousnavigator.org/what-is-the-indigenous-navigator>

⁴⁴ <https://www.cbd.int/gbf/targets/22>

⁴⁵ <https://www.globalcadataaccess.org/search>

⁴⁶ <https://www.cbd.int/abs>

⁴⁷ <https://www.cbd.int/gbf/goals>

⁴⁸ Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed.





Chapter 8

Way forward



8. Way forward

While conducting its work, the iWG identified several issues that may require further research in the development of trade and biodiversity statistics. Close collaboration among international organizations, country representatives, NGOs, academia, think tank and civil society is key to effectively address these issues.

The following agenda is proposed to progress towards the enhancement of trade and biodiversity statistics:

In the short term (immediate actions: less than 2 years):

- Integrate CBD COP16 results: update existing sustainability-related indicators with decisions from the CBD COP16 resumed session, particularly those associated with the monitoring framework of the KMGBF.
- After a thorough assessment of data gaps and needs, consider improving existing or developing new data series, or propose additional data disaggregation to complement the list of relevant indicators listed in Annex 2.
- Improve data availability and integration: identify and close data gaps in trade and biodiversity statistics, address gaps in metadata on definitions and methods and breaks in time series, improve data collection methods, and link sector of economic activities with biotrade statistics, whenever possible (e.g. link HS codes, ISIC, CPC, etc.).
- Enhance stakeholder collaboration: strengthen cooperation between international organizations, academia, NGOs, and policymakers, and foster capacity-building for developing countries to improve data collection and reporting (including existing metrics).

Medium term (structural improvements: 3 to 5 years):

- Develop new sustainability indicators: After evaluation, establish new metrics to measure biodiversity impact in trade flows, integrating social, economic, and environmental dimensions, complementing existing efforts and addressing specific data gaps.
- Leverage emerging technologies: Implement geospatial tools (GIS, satellite data), exploit the potential of big data and AI for tracking biodiversity loss, and enhance real-time trade monitoring.
- Expand statistical frameworks: Harmonize trade and biodiversity data standards across international agencies, promote the inclusion of biodiversity aspects in trade reporting (e.g. in HS), in statistics on economic activities, and other statistics that involve the supply of biodiversity-based products.
- Institutionalize trade and biodiversity statistics: promote the use of biodiversity-related metrics in global trade agreements and policies and ensure sustainability criteria are mainstreamed into global trade regulations.

Long-Term (systemic change more than 5 years):

- Institutionalize trade and biodiversity statistics: promote enhanced capacity and use of biodiversity-related metrics



in global trade agreements and policies, particularly for developing countries and ensure sustainability criteria and metrics are mainstreamed into global trade frameworks.

- Develop a global monitoring system: establish a unified, open-source biodiversity-trade database, and improve transparency in global supply chains to track the impact of trade on ecosystems.

Enhancing trade and biodiversity statistics through innovative statistical methods and emerging technologies is not only timely but essential. The establishment of an informal Working group of experts marks a pivotal step toward harmonizing efforts in this area. By leveraging global expertise, the informal Working Group can build a more coherent and actionable data landscape – for example through indicator development, classification standards, and the integration of tools like AI and satellite imagery – that reconciles existing data and addresses data gaps (cf. Box 2 for examples of new data series).

The preliminary selection of indicators reflects both progress and the need for further development, while also providing a foundation for supporting multilateral environmental agreements and advancing the 2030 Agenda for Sustainable Development.

With targeted support, these efforts can significantly enhance data-driven decision-making in support of the SDGs and multilateral environmental agreements. As interest in the bioeconomy grows, demand for reliable, comprehensive indicators on sustainable trade and biodiversity will increase, making continued collaboration, methodological refinement, and investment in data infrastructure all the more crucial in ensuring these areas are effectively monitored, managed, and safeguarded for future generations.

Box 2

Examples of possible new data series on trade in biodiversity-based products (TraBio)

- International imports and exports of biodiversity-based products, by volume
- International prices of biodiversity-based products (monthly and annual prices).
- International imports and exports of biodiversity-based products, by mode of transport
- CO2 emissions of trade in biodiversity-based products
- Selected series on ISIC sectors relevant to the production and transformation and commercialisation of biodiversity-based products, including sales of companies and organizations that implement BioTrade.
- Information from companies on the use and/or trade of biodiversity-based products considering information from SDG 12.6.1 on number of companies publishing sustainability reports.



Annexes

Annex 1

Members of the informal Working Group and other experts that contributed

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(in alphabetical order, by last name)

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Annex 2

Shortlisted indicators relevant to biodiversity and trade

ID	Area of sustainability	Subcategory	Indicator Name	KMGBF Target -- Indicator level	SDG Indicator - Series Code(s)	iWG database	Weighted score
154	Environmental	Species	Trends in the legal trade of medicinal plants	Goal B - Complementary	-	-	9.3
191	Policy	Policy/strategies	TINA -- (no indicators, tool to help negotiators)	-	-	Trade Intelligence and Negotiation Advisor	9
212	Economic	Production	Crops and livestock production: Import/Export -- Quantity and Value	-	-	FAO - Crops and livestock products	9
224	Economic	Trade	Oceans goods and services trade	-	-	UNCTAD Ocean trade	9
233	Economic	Trade	Export/Import/share of GDP trade in biodiversity-based products	-	-	TraBio	9
84	Policy	Tariffs	Weighted average tariffs faced by developing countries, least developed countries and small island developing States	-	17.12.1 - TM_TAX_DMFN	-	8.6
219	Environmental	Species	Legal international trade in wildlife (CITES list of species)	Target 5 - Complementary	-	CITES Trade Database	8.6
82	Policy	Tariffs	Worldwide weighted tariff-average	-	17.10.1 - TM_TAX_WMFN	-	8.3
83	Economic	Trade	Developing countries' and least developed countries' share of global exports	-	17.11.1 - TM_IMP_GBMRC; TM_EXP_GBMRC; TX_EXP_GBSVR; TX_IMP_GBSVR	-	8.3
200	Environmental	Ecosystems	Deforestation exposure (cattle, cocoa, other)	-	-	Trase.earth	8.3
210	Environmental	Species	Predicted species loss (species)	Target 16 - Component	-	Global Environmental Impacts of Consumption (GEIC)	8.3
216	Economic	Production	Production and trade of primary wood products: production quantity; imports/export -- quantity/value/unit value	-	-	ITTO statistics database	8.3

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ID	Area of sustainability	Subcategory	Indicator Name	KMGBF Target -- Indicator level	SDG Indicator - Series Code(s)	iWG database	Weighted score
217	Economic	Production	Forestry production and trade: production quantity; import/export -- quantity/value	-	-	Forestry Production and Trade	8.3
237	Policy	Policy/strategies	Proportion of environment-related notifications	-	-	WTO Environmental Database	8.3
8	Environmental	Species	Proportion of fish stocks within biologically sustainable levels	Target 5 - Headline	14.4.1 - ER_H2O_FWTL	-	8
41	Policy	Subsidies / incentives	Positive incentives in place to promote biodiversity conservation and sustainable use	Target 18 - Headline	-	-	8
67	Policy	Tariffs	Proportion of tariff lines applied to imports from least developed countries and developing countries with zero-tariff	-	10.a.1 - TM_TRF_ZERO	-	8
132	Policy	Tax	Number of countries with biodiversity-relevant charges and fees	Target 18 - Complementary	-	-	8
133	Policy	Permits	Number of countries with biodiversity-relevant tradable permit schemes	Target 18 - Complementary	-	-	8
204	Environmental	Ecosystems	Harvested area (ha)	-	-	Global Environmental Impacts of Consumption (GEIC)	8
205	Environmental	Ecosystems	Deforestation (ha)	Target 16 - Component	-	Global Environmental Impacts of Consumption (GEIC)	8
209	Environmental	Water	Scarcity-weighted blue water (m3)	Target 16 - Component	-	Global Environmental Impacts of Consumption (GEIC)	8
211	Environmental	Species	Species-richness weighted area (species-ha)	-	-	Global Environmental Impacts of Consumption (GEIC)	8



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ID	Area of sustainability	Subcategory	Indicator Name	KMGBF Target -- Indicator level	SDG Indicator - Series Code(s)	iWG database	Weighted score
221	Economic	Production	Global aquaculture production (quantity and value)	-	-	FAO Fisheries and Aquaculture	8
222	Economic	Production	Global capture production (quantity)	-	-	FAO Fisheries and Aquaculture	8
223	Economic	Production	Global aquatic processed production statistics (quantity)	-	-	FAO Fisheries and Aquaculture	8
70	Economic	Consumption	Material footprint, material footprint per capita, and material footprint per GDP	Target 16 - Component	12.2.1 - EN_MAT_FTPRPG	-	7.9
62	Economic	Jobs	Proportion of informal employment in total employment, by sector and sex	-	8.3.1 - SL_ISV_IFEM_19ICLS	-	7.7
201	Environmental	Emissions	Gross emissions (cattle or other) from deforestation exposure	-	-	Trase.earth	7.7
202	Environmental	Emissions	Net emissions from deforestation exposure	-	-	Trase.earth	7.7
208	Environmental	Water	Blue water use (m3)	-	-	Global Environmental Impacts of Consumption (GEIC)	7.7
24	Policy	Subsidies / incentives	Agricultural export subsidies	-	2.b.1 - AG_PRD_XSUBDY	-	7.6
45	Policy	Funding	Private funding (domestic and international) on conservation and sustainable use of biodiversity and ecosystems	Target 19 - Headline	-	-	7.6
57	Environmental	Ecosystems	Change in water-use efficiency over time	-	6.4.1 - ER_H2O_WUEYST	-	7.4
203	Economic	Production	Mass (tonnes) (commodity production embedded within consumption)	-	-	Global Environmental Impacts of Consumption (GEIC)	7.4
206	Environmental	Emissions	Deforestation emissions (tCO2)	-	-	Global Environmental Impacts of Consumption (GEIC)	7.4

Towards a framework for enhanced trade and biodiversity statistics

ID	Area of sustainability	Subcategory	Indicator Name	KMGBF Target -- Indicator level	SDG Indicator - Series Code(s)	iWG database	Weighted score
207	Environmental	Water	Green water use (m3)	-	-	Global Environmental Impacts of Consumption (GEIC)	7.4
3	Environmental	Ecosystems	Coverage of protected areas in relation to marine areas	Target 3 - Headline	14.5.1 - ER_MRN_MPA	-	7.3
4	Environmental	Ecosystems	Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type	Target 3 - Headline	15.1.2 - ER_PTD_FHRWTR and ER_PTD_TERR	-	7.3
6	Environmental	Ecosystems	Coverage by protected areas of important sites for mountain biodiversity	Target 3 - Headline	15.4.1 - ER_PTD_MTN	-	7.3
7	Environmental	Species	Red List Index	Target 4 - Headline	15.5.1: - ER_RKS_LST	-	7.3
18	Economic	Enterprises	Number of companies disclosing their biodiversity-related risks, dependencies and impacts	Target 15 - Headline	12.6.1 - EN_SCP_FRMN	-	7.3
43	Policy	Funding	International public funding, including official development assistance (ODA) for conservation and sustainable use of biodiversity and ecosystems	Target 19 - Headline	-	-	7.3
51	Economic	Production	Volume of production per labour unit by classes of farming/pastoral/forestry enterprise size	-	2.3.1 - PD_AGR_SSFP	-	7.3
52	Social	Livelihood	Average income of small-scale food producers, by sex and indigenous status	-	2.3.2 - SI_AGR_SSFP	-	7.3
65	Economic	Production	Proportion of small-scale industries in total industry value added	-	9.3.1 - NV_IND_SIS	-	7.3
71	Economic	Consumption	Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP	-	12.2.2 - EN_MAT_DOMCMPG	-	7.3
124	Economic	Enterprises	Number of companies publishing sustainability reports	Target 15 - Complementary	12.6.1 - EN_SCP_FRMN	-	7.3
42	Policy	Subsidies / incentives	Value of subsidies and other incentives harmful to biodiversity	Target 18 - Headline	-	-	7.2



Annex 3

Statistical information received from iWG members

ID	Data platform	Institution (host)	Relevant dataset
1	Eurostat forestry database	European Union (EU)	Timber removals, wood products and trade
2	Global Forest Resource Assessment	Food and Agriculture Organization (FAO)	Global Forest Resources Assessment (FRA)
3	Joint Pan European Data Collection	FAO, United Nations Economic Commission for Europe (ECE), FOREST EUROPE	Joint Pan European Data Collection
4	Forestry indicators	Organization for Economic Cooperation and Development (OECD)	Forest resources
5	Land use change	OECD	Square kms, percentage change
6	Red list index	International Union for the Conservation of Nature (IUCN)	Red list index, upper bound, lower bound
7	Threatened species	OECD	Total nb of known/indigenous/threatened species, Shares
8	Environmental Statistics	Statistics Canada	Environmental Economic Accounts, Land, Oceans, Ecosystems and Biodiversity
9	Protected areas	OECD	Marine Protected Areas, also data on coastal protected areas
10	Fisheries indicators	OECD	Fisheries support
11	Agricultural support	OECD	Agricultural support, Producer protection
12	Protected areas	OECD	Terrestrial Protected Areas
13	Policy Instruments for the Environment	OECD	Biodiversity, Ocean, Land degradation, Fisheries, Forests, Pollution, taxes
14	IUCN Green List	IUCN	Protected areas
15	Environmental provisions in regional trade agreements	OECD	Biodiversity, Land, Ocean provisions
16	Trade Intelligence and Negotiation Advisor	United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)	So far trade data but could be linked to TraBio, as they have already linked with UNCTAD plastics database to help policy analysis
17	Overseas Impact Tool	JNCC (UK) – links to GEIC	Trade and environment initiatives
18	Trade Hub	UNEP World Conservation Monitoring Centre (UNEP-WCMC)	Trade tools
19	Fisheries indicators	OECD	Fish landings, aquaculture production

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ID	Data platform	Institution (host)	Relevant dataset
20	Trase.earth	Stockholm Environment Institute (SEI), Global Canopy et al.	Trase supply chains data explorer
21	Global Environmental Impacts of Consumption (GEIC) indicator	SEI, JNCC	GEIC
22	Crops and livestock products	FAO	Crops and livestock products, also see statistical bulletins on food commodities
23	Crop production	OECD	Crop production, Agricultural land
24	INForest	ECE	INForest - Trade
25	ITTO statistics database	International Tropical Timber Organization (ITTO)	Biennial review statistics
26	Forestry Production and Trade	FAO	Forestry Production and Trade
27	Global Material Flows Database	UNEP International Resource Panel (UNEP IRP)	Global Material Flows Database - Biomass
28	CITES Trade Database	Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), UNEP World Conservation Monitoring Centre (UNEP-WCMC)	CITES Trade Database
29	CITES Illegal Trade Database	CITES, United Nations Office on Drugs and Crime (UNODC)	CITES Illegal Trade Database
30	Fisheries and Aquaculture	FAO	Global Aquatic Trade Statistics
31	Other databases (not trade related): production, volume, etc.	FAO	Global aquaculture production/Global catch
32	Ocean trade	UNCTAD	Oceans goods trade
33	Sustainable Ocean Economy database	OECD	Fish exports/imports, landings
34	TraBio	UNCTAD	TraBio
35	Trade statistics	Statistics Canada	Merchandise trade data, trade in goods and services by importer and exporter characteristics
36	Joint Wood Energy Enquiry	ECE and FAO	Joint Wood Energy Enquiry
37	Meat consumption	OECD	Meat consumption
38	WTO Environmental Database	World Trade Organization (WTO)	Environment-related notifications sent by WTO members under the WTO Agreements; Environmental measures and policies mentioned in the Trade Policy Reviews (TPRs) of WTO members.
39	Wildmeat ecological indicators	University of Stirling, Wildlife Conservation Society (WCS)	Trends in extraction rate, trends in wildlife composition
40	Non-detriment Finding (NDF Support Tool)	UNEP-WCMC	NDF Support Tool



Annex 4

Key academic initiatives conducting research, maintaining databases, and collaborating with policymakers to integrate biodiversity considerations into trade policies

University	Research topics and groups
University of Adelaide (Australia)	- <u>Wildlife Crime Research Hub</u>: This hub focuses on using data analytics to combat illegal wildlife trade and safeguard biodiversity, and analyze trade data to identify patterns, track endangered species, and inform conservation efforts. - <u>Invasion Science & Wildlife Ecology Group</u> - <u>Wildlife Crime & Illegal Trade</u>: Researchers have conducted studies on the trade in various endangered species, such as sharks, reptiles, and birds. They analyze trade routes, volumes, and impacts on wild populations.
University of Cambridge (United Kingdom)	- <u>Cambridge Conservation Initiative (CCI)</u>: A partnership between the university and biodiversity-focused NGOs (e.g., IUCN, UNEP-WCMC). - <u>Conservation Research Institute (CRI)</u>: is an interdisciplinary community studying the relationship between biodiversity conservation and society. - <u>Centre for Environment, Energy and Natural Resource Governance (CEENRG)</u>: Studies governance of environmental transitions.
Yale University (United States)	- <u>Yale School of the Environment</u>: Research on biodiversity trade, sustainable markets, and conservation finance. - <u>Yale Environmental Performance Index (EPI)</u>: Tracks biodiversity conservation efforts globally, influencing trade and policy decisions.
University of Oxford (United Kingdom)	- <u>Oxford Martin School</u>: Studies the impact of global trade on biodiversity and ecosystems, stemming biodiversity loss, and developing opportunities for biodiversity recovery. - <u>Wildlife Trade Research Group</u>: Investigates the impact of trade on biodiversity, particularly in illegal wildlife markets. - <u>Oxford Biodiversity Network</u>: develops solutions for the interconnected challenges of energy, water, food security, climate change, and biodiversity loss.
Stanford University (United States)	- <u>Stanford Center for Conservation Biology</u>: Researches biodiversity loss linked to trade and global supply chains. - <u>Natural Capital Project</u>: is a partnership among 250 groups worldwide. Develops tools to assess the economic value of biodiversity in trade policies (InVEST).
University of British Columbia (Canada)	- <u>Sea Around Us Project</u>: Tracks global fisheries trade, illegal fishing, and biodiversity impacts. - <u>Institute for Resources, Environment and Sustainability (IRES)</u>: Studies the role of trade in biodiversity conservation.
ETH Zurich (Switzerland)	- <u>Institute for Environmental Decisions (IED)</u>: supports private and political decision-makers to achieve sustainability in the face of today's risks and uncertainties. - <u>Sustainable Agroecosystems Group</u>: Examines socioeconomic aspects to assess the sustainability of agriculture.

Towards a framework for enhanced trade and biodiversity statistics

University	Research topics and groups
Wageningen University & Research (Netherlands)	- Biodiversity and Policy: Focus on sustainable food systems, deforestation-free supply chains, and the impact of global trade on biodiversity. - Social & Economic Research: identifies which incentives, tools, and interventions are most effective in promoting equity and sustainability - Environmental Policy Group: works on energy, food, circularity, biodiversity, and climate, to advance in the socio-political understanding of environmental transformations.
University of Queensland (Australia)	- Centre for Biodiversity and Conservation Science: One of its lines of research examines the effects of global trade on species loss and ecosystem services.
University of São Paulo (Brazil)	- Sustainable Development Studies: A line on commodity trade (e.g., soy, beef) and its impact on deforestation and biodiversity.
London School of Economics (LSE) (United Kingdom)	- Grantham Research Institute on Climate Change and the Environment: Analyses between environmental policies and international trade, strategies for conservation finances, etc. - Environmental Policies and International Trade Research: Tackles biodiversity-friendly economic policies.
Other networks and collaborations	- The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES): one of the topics of its work program is "Measuring business impact and dependence on biodiversity and nature's contributions to people". - The Trade Hub Project (led by UNEP-WCMC and multiple universities) is a project that investigates the trends and impacts of trade in wildlife, wild meat and agricultural goods, in eight countries. - The Biodiversity Indicators Partnership (BIP): "is a global initiative to promote the development, delivery, and use of biodiversity indicators." - Uearthdox: Brings together scientists, policymakers and conservation practitioners, offering fresh perspectives that challenge the status quo. Replaced its predecessor, the Luc Hoffmann Institute.



Annex 5

Comparison of some sustainability standards and frameworks on their ability to facilitate or limit the harmonization of data and definitions on sustainability

Framework/ Standard	Advantages	Limitations
The United Nations Sustainable Development Goals (SDG)	✓ Provide a globally recognized framework with 17 goals and 169 targets. This offers a common language and a set of shared objectives for sustainability. ✓ They encourage countries and organizations to track progress using specific indicators, which can contribute to data harmonization. ✓ They encompass a wide range of sustainability dimensions, including environmental, social, and economic aspects.	✗ The broad nature of the SDG can lead to interpretation differences. ✗ Implementation and data collection still vary significantly between countries.
Global Reporting Initiative (GRI) Standards	✓ Provide a comprehensive framework for sustainability reporting, focusing on transparency and accountability. ✓ Offer detailed guidance on reporting various sustainability topics, helping organizations standardize their data collection and disclosure. ✓ Help to define materiality, which is essential to determine what data is most important to gather.	✗ While widely used, GRI reporting is voluntary for many organizations. ✗ Interpretation of the standards can still vary.
Sustainability Accounting Standards Board (SASB)	✓ Focus on financially material sustainability information, designed for use by investors. ✓ Provide industry-specific standards, which can help harmonize data within specific sectors. ✓ Allow for comparable data between companies in the same sector.	✗ SASB's focus on financial materiality may not capture all aspects of sustainability relevant to other stakeholders. ✗ The focus is primarily on publicly traded companies.

Towards a framework for enhanced trade and biodiversity statistics

Framework/ Standard	Advantages	Limitations
International Organization for Standardization (ISO) Standards	✓ ISO 14001 (environmental management) and ISO 26000 (social responsibility), provide standardized frameworks for organizations to manage their sustainability impacts. ✓ Promote consistency and comparability in data collection and reporting. ✓ Are internationally recognized.	✗ Implementation and certification can vary. ✗ Some ISO standards focus on management systems rather than specific performance indicators.
Science Based Targets initiative (SBTi)	✓ Provides a clearly defined pathway for companies to reduce greenhouse gas emissions in line with climate science. ✓ Promotes consistent methodology for setting emissions reduction targets. ✓ Brings standardization to a very important element of environmental sustainability	✗ It focuses primarily on climate change, and does not cover all areas of sustainability.
Nature-related Financial Disclosures (TNFD)	✓ Provides a structured framework to assess and disclose nature-related risks and opportunities, emphasizing location-specific data and integrating with financial reporting. ✓ Its LEAP approach standardizes risk assessments, driving data availability and mainstreaming biodiversity considerations into financial markets. ✓ Creates comparable data and promotes understanding of how trade impacts diverse ecosystems.	✗ Data availability and quality, particularly location-specific data, remain challenges, and the complexity of nature-related risks poses difficulties in translating them into standardized financial metrics. ✗ As a relatively new framework, its implementation is still evolving, and ensuring seamless integration with existing standards and avoiding duplication of efforts is ongoing. ✗ Its focus on financial materiality may overlook ecologically important but financially immaterial information, hindering a fully comprehensive assessment of biodiversity impacts.
IFRS Sustainability Disclosure Standards (ISSB standards)	✓ Particularly those focusing on climate and emerging biodiversity-related disclosures, drive companies to report sustainability information in a consistent, comparable format. ✓ Push for greater transparency in supply chains.	✗ Their coverage of biodiversity-specific metrics is still evolving. ✗ Prioritize financially material information.
EU taxonomy for sustainable activities	✓ Provides a definitive classification of environmentally sustainable economic activities.	✗ While detailed, primarily focuses on EU-based activities and may not fully capture the complexities of global supply chains and diverse ecosystems.



Towards a framework for enhanced trade and biodiversity statistics

Framework/ Standard	Advantages	Limitations
Fairtrade Standards, and Sustainable Agriculture Standards	✓ Both groups of standards integrate social and environmental considerations, recognizing the interconnectedness of these aspects of sustainability. This holistic approach helps addressing complex issues like biodiversity loss and poverty. ✓ They emphasize traceability and certification, which helps to track products from their source to the consumer.	✗ While they are widely recognized, their coverage is limited to specific sectors and products. They do not provide a comprehensive framework for all aspects of trade and biodiversity. ✗ The data collected may not always be directly comparable to data from other sources or frameworks. ✗ They not fully capture the nuances of ecosystem health or species diversity. ✗ They do not have the global regulatory power that the ISSB, or the EU taxonomy has.
FSC Standards and MSC Fisheries Standards	✓ They enhance transparency and accountability throughout supply chains. ✓ Incorporate specific requirements for biodiversity protection, including habitat preservation, species management, and ecosystem health.	✗ Their scope is limited to forestry and fisheries, respectively. They don't provide a comprehensive framework for all aspects of trade and biodiversity. This limits their ability to address broader sustainability issues across diverse sectors. ✗ Geographical variations implementation can lead to inconsistencies in data. ✗ Data collected may not always be easily comparable with other sustainability datasets.



Annex 6

Resources for promoting socially responsible corporate and supply chains reports

Category	Framework/Standard/Tool	Description
International sustainability and human rights standards	UN Guiding Principles on Business and Human Rights (UNGPs)	Defines corporate responsibility for human rights in global supply chains
	OECD Due Diligence Guidance for Responsible Business Conduct	Provides criteria for social and environmental due diligence in trade
	ILO Conventions and Decent Work Agenda	Covers child labor, forced labor, fair wages, and social protections
	UN Sustainable Development Goals (SDG)	Specifically, SDG 8 (Decent Work), SDG 5 (Gender Equality), and SDG 10 (Reduced Inequalities).
Certification and sustainability standards	Fairtrade International	Ensures fair wages, no child labor, gender equity, and worker protections in agricultural supply chains
	Rainforest Alliance	Combines biodiversity conservation with social criteria like decent employment and indigenous rights
	Forest Stewardship Council (FSC) and Marine Stewardship Council (MSC)	Include labor rights, community engagement, and indigenous inclusion in resource-based sectors
	SA8000 (Social Accountability International)	A global standard for decent work conditions and human rights compliance
ESG and corporate reporting frameworks	Global Reporting Initiative (GRI) Standards	GRI 401, 402, 403, 404, 405, 406, 407, 408, 409, 411, 412, 413, 414, focus on employment, labor rights, diversity, and inclusion
	Sustainability Accounting Standards Board (SASB)	Sector-specific ESG criteria, including human rights in supply chains
	Taskforce on Inequality and Social-related Financial Disclosures (TISFD)	Emerging framework for social sustainability disclosures
Supply chain and risk assessment tools	Human Rights Watch Supply Chain Reports	Investigates labor rights violations in various industries
	CDP's Supply Chain program	Enables companies to engage suppliers and identify risks through primary environmental data.
	Verité and Sedex (Supplier Ethical Data Exchange)	Provide risk assessment tools for forced labor, child labor, and ethical sourcing
	KnowTheChain	Benchmarks corporate efforts to eliminate forced labor in global supply chains

Towards a framework for enhanced trade and biodiversity statistics

Category	Framework/Standard/Tool	Description
Geospatial datasets to monitoring trade-related impacts on biodiversity	AIS Data	Provides real-time and historical location data of vessels, enabling the tracking of maritime traffic, fishing activities (as used by GFW), and potentially illicit activities
	Global Fishing Watch (GFW)	Fights against IUU fishing and helps reduce supply chain risks, by enhancing transparency through vessel tracking and data analysis, ultimately aiming to improve ocean governance and sustainable fisheries management
	C4ADS	Investigates and exposes the activities of Dark Vessels which are ships that engage in illicit activities by manipulating or disabling their Automatic Identification System (AIS) to avoid detection and scrutiny.
	Esri's ArcGIS for Biodiversity Protection	provides tools and capabilities for biodiversity protection by providing data, map species distributions, monitor habitats, assess threats, and plan conservation strategies, ultimately supporting data-driven, effective conservation efforts
	Global Forest Watch Pro (GFW Pro)	an online management application to support reducing deforestation in commodity supply chains.



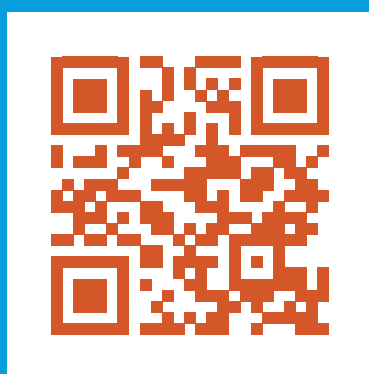
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