UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT

The Trade and Biodiversity product classification

Measuring trade in products with a biological origin

United Nations

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Contents

Acknowledgements iii

Acronyms and abbreviations v

Executive summary vi

1 Introduction 1

2 The Trade and Biodiversity statistical tool 4

3 Methodological considerations 7

4 The Trade and Biodiversity product classification 14

5 Conclusion 19

6 References 21

Boxes

Box 1: UNCTAD BioTrade Initiative and TraBio 3

Box 2: Challenges in the identification and selection of biodiversity-based products for the universe of biodiversity-based goods 10

Box 3: The post-2020 global biodiversity framework and the TraBio and its product classification 11

Figures and tables

Figure 1 – Components of the Trade and Biodiversity (TraBio) statistical tool 5

Table 1 – Groups of the Trade and Biodiversity product classification 15

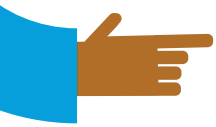
Acronyms and abbreviations

ABS	Access and Benefit-Sharing
CBD	Convention on Biological Diversity
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CPA	classification of product by activity
CPC	central product classification
DSIB	Development Statistics and Information Branch of UNCTAD
ETIM	electro-technical information model
FSC	Forest Stewardship Council
GBF	global biodiversity framework
GDP	gross domestic product
HS	Harmonized Commodity Description and Coding System
IPC	International Patent Classification
IRCC	Internationally Recognized Certificate of Compliance
ITC	International Trade Centre
MEA	multilateral environmental agreement
MSC	Marine Stewardship Council
P&C	Principles and Criteria
SECO	Swiss State Secretariat for Economic Affairs
SDG	Sustainable Development Goal
SITC	Standard International Trade Classification
TEEB	The Economics of Ecosystems and Biodiversity
TraBio	Trade and Biodiversity
UEBT	Union for Ethical BioTrade
UNCTAD	United Nations Conference on Trade and Development
UNODC	United Nations Office on Drugs and Crime
UNSD	United Nations Statistics Division
UNSPSC	United Nations Standard Products and Services Code
VSS	Voluntary Sustainability Standard
WCO	World Customs Organization
WIPO	World Intellectual Property Organization

Executive summary

Today, nearly one million species are threatened with extinction (IPBES, 2019), sea levels are rising, ocean acidification is accelerating, and the past seven years are set to become the warmest on record (United Nations, 2021). The world is facing a biodiversity crisis with deep implications.

In order to mitigate this crisis and achieve the Convention on Biological Diversity's (CBD) goal of *Living in harmony with nature*, stark transformational changes must urgently take place. In fact, projections show how whether the use of biodiversity is sustainable or not will be increasingly subject to external pressures such as climate change, technological advances and increased consumption (IPBES, 2022). Through the collective action of governments, private and public sector associations, civil society, and businesses, society needs to put actions in place that ensure our demands on nature do not exceed its supply (Dasgupta, 2021). For this, information and data are crucial instruments to monitor impacts as well as progress towards these objectives and thus inform decision-making – as was underscored by experts participating to the IV BioTrade Congress in 2016, who noted that *"we cannot value what we cannot measure"* (UNCTAD, 2017a; p.26).



This work is the first step towards the definition of a common methodology related to the collection and presentation of biodiversity-related trade data.

In light of this, the United Nations Conference on Trade and Development (UNCTAD) developed the **Trade and Biodiversity (TraBio) statistical tool** and related **TraBio product classification** with the aim to support UNCTAD member States and other stakeholders by providing public access to consistent, comparable, and comprehensive trade data related to products issued from biodiversity. This effort was undertaken according to the CBD's (1992) definition of biodiversity that includes the entirety of life on earth – from animals, to plants, including fungi, micro-organisms, the genetic variety within species and all different ecosystems. The TraBio statistical tool and product classification will facilitate the gathering, analysis, monitoring and reporting of information related to trade in biodiversity-based goods, and thus enable a better understanding of the economic benefits and contribution of biodiversity and the trade of biodiversity-based products.

This work is the first step towards the definition of a common methodology related to the collection and presentation of biodiversity-related trade data. Its goal is to enhance the comparability of results across different applications, such as research or policy, and thus facilitate collaborative efforts and the identification of potential synergies.

In the long-run, this work aims to establish a **universally recognised standard product classification for the analysis of trade in biodiversity-based goods**.

The TraBio statistical tool and product classification

Trade-related data and statistics on biological resources have historically been scattered and heterogeneous, and no effort had been undertaken to establish a formal definition and classification of biodiversity-based goods. At present, there is no comprehensive repository of information on global trade flows related to goods originating from biological resources nor a comprehensive biodiversity-based products classification, which provide comparable and updated information for public use.

Information on global and country-specific trade statistics specifically related to biodiversity is sparse, *de facto* constraining the recognition of the crucial contribution of biodiversity and its sustainable use to the economy and – more broadly – livelihoods, well-being, global health, and the environment. Therefore, the adoption of policies and strategies related to trade in biodiversity-based goods is made more difficult, thus discouraging the sustainable

development of biodiversity-related sector and constraining comparability across results in research.

The TraBio statistical tool aims to fill this gap through the following objectives:

- to enable a better understanding of the significance of trade in biodiversity-based goods, and thereby (i) inform the design/formulation of policies, strategies as well as multilateral agreements, and (ii) mainstream the sustainable use of biodiversity and its contribution to the economy;
- to provide access to a harmonised, comparable, and centralised source of information on trade in biodiversity-based products grouped under a dedicated product classification; and
- to gather, report, and monitor progress on the achievement of national and international policies, development processes and targets.

The TraBio is built around three separate but interdependent components.

Component 1: the universe of biodiversity-based goods and the TraBio product classification

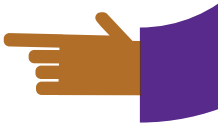
A list of 1,814 subheadings – the six-digit numeric codes used to categorise traded goods in the Harmonized Commodity Description and Coding System (HS) – was selected to describe the entirety of biodiversity-based goods according to the CBD's definition. This selection has been called the universe of biodiversity-based goods.

A specific TraBio product classification was developed to arrange these subheadings into different categories and aggregate levels. Its aim is to facilitate the analysis and visualisation of trade information related to the universe of biodiversity-based goods through a common categorisation of these products into aggregate groupings. The groupings were established to provide readily available information on areas of relevance for research, policy formulation, and decision-making on topics linked to trade and the environment, particularly on biodiversity, among others. This includes, for example, specific aggregates for goods that are relevant to track progress on political processes like the CBD's post-2020 global biodiversity framework (GBF) and the Sustainable Development Goals (SDGs) or monitor compliance to Access and Benefit-Sharing (ABS) regulations under the Nagoya Protocol, such as natural ingredients, cosmetics, or pharmaceuticals.

The TraBio product classification is structured in a tree-like manner, with product groupings branching out over four levels of increasing detail: *Groups, Subgroups, Categories and Subcategories*. Users can select any number of groupings at any level of detail to extract data on – and subsequently use to statistically describe and/or analyse – related trade flows. Overall, it contains:

- 13 Groups with high level of aggregation, e.g., live plants and animals. These are not to be confused with the taxonomic groups used in biological classification;
- 86 Subgroups, e.g., live animals;
- 230 Categories, e.g., fish; and
- 79 Subcategories, e.g., ornamental fish.

At the *Group* level, the TraBio classification is structured as follows:[1]



A. Live animals and plants
B. Food and beverages
C. Agricultural inputs
D. Natural ingredients
E. Perfumery, comestics, 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

The TraBio product classification is the main subject of this report. For a more detailed explanation of the TraBio statistical tool in general and its other components please refer to UNCTAD (2022).

Component 2: the TraBio database, containing information on trade in biodiversity-based goods

The TraBio database is the core of the statistical tool and contains data on annual bilateral trade flows for all biodiversity-based products, extracted automatically from Comtrade, the United Nations' trade database. Additionally, the TraBio database includes eight trade indicators: four describing

1 The full universe of biodiversity-based goods, organized according to the TraBio product classification, is available at UNCTADstat Classifications/Product classifications under the "Biodiversity-based goods" subsection.

the magnitude of trade-flows and four related to their composition and structure of trade flows and markets. The database presents data for all product aggregates of the TraBio classification and for all countries for which data is publicly available, starting from 2010 up to the most recent time period available. Additionally, the database also contains data for 137 subheadings that were identified as priority products by BioTrade partners during the pilot phase of the creation of the TraBio statistical tool.

Component 3: interactive visualisation tools

The TraBio statistical tool also includes interactive visualisation tools to help the user visualise trade flows and indicators in a more user friendly and intuitive way. These include charts and trade flow maps illustrating the magnitude and direction of trade flows and indicators of and between countries selected by the user.

Challenges and recommendations for future analysis

Selection of products with a biological origin from the HS

One of the main challenges encountered was that linked to the selection of biodiversity-based from the HS. By its own structure, the HS oftentimes does not make a distinction on whether products contained in specific subheadings are predominantly goods with a biological origin, such as in the case of subheadings related to certain manufactured goods.

Therefore, a conservative approach was taken in the selection of uncertain subheadings. Extensive desk research was conducted and goods that could not reasonably be expected to be made predominantly of products with a biological origin were discarded. Experts were also consulted to determine the extent to which goods were derived from or contained biological products, and thus whether they should be included in the universe of biodiversity-based products.

Limitations on determining whether goods are produced sustainably

As an additional challenge, it is difficult to differentiate whether any specific product has been sustainably sourced or produced and traded in the HS, and consequently in the TraBio statistical tool and product classification system. This limitation of data on sustainably produced or sourced goods that are traded is due to numerous reasons. For instance, the proliferation of voluntary sustainability standards (VSS) as well as standard-setting organisations across the globe with non-comparable information. Furthermore, actors involved along different biodiversity-related value chains are highly heterogeneous and large in number. This may lead to non-harmonised and uncoordinated means of data collection and the consequent lack of or non-comparable trade data on certified goods in general. Finally, an additional barrier identified relates to the confidentiality and sensitivity of the information that is not easily accessible.

To overcome this issue, options could be explored to map trade data expressed in subheadings of the HS with trade data from sources that favour sustainability considerations such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Trade database or the World Wildlife Seizures (World WISE) database of the United Nations Office on Drugs and Crime (UNODC). Alternatively, bulk data of traded volumes could be sought from certifiers to obtain a clearer picture of sustainable trade of biodiversity-based products. For such an endeavour, platforms such as the International Trade Centre's (ITC) Standards Map could provide a useful basis.

Limitations in selecting trade flows of wild species

An additional difficulty was the inability to identify trade flows for wild species of plants, animals, and fungi due to the inherent structure of the HS, which in most cases describes plants and animals at a more aggregated level (class, order, family, genus, etc.). Being able to extract such data could, for instance, provide clues for border control agents and authorities in charge of prosecuting illegal wildlife trade, thus facilitating implementation and action-oriented decision making at the national level.

Options should be explored to map HS subheadings against data for specific species. Alternatively, the case could be made to create specific subheadings in future HS revisions based on the identification of specific data or knowledge gaps, such as for instance for certain species, or to distinguish between domesticated, farmed wildlife and wild-caught wild species.

Additional information to support the implementation of ABS regulations and the Nagoya Protocol

While the TraBio statistical tool is already compliant with domestic ABS frameworks, there is scope to explore the possibility to cross-reference and map

it against the Internationally Recognized Certificates of Compliance (IRCC) – certificates that provide the legality of access to genetic resources and determining the sharing of benefits – that are issued under the Nagoya Protocol, and with relevant compliance checkpoints in user countries.

Yet another possible cross-referencing effort could be undertaken with respect to patent data extracted from key biodiversity-relevant categories of the International Patent Classification (IPC) of the World Intellectual Property Organization (WIPO), to attempt to identify where biodiversity-based products are not simply traded as commodities but become part of more complex value chains and subject to increased value-addition.

Conclusion

Overall, the TraBio statistical tool and product classification both offer a useful tool for the analysis of biodiversity-related trade information. They showcase complete, updated, and comparable information that aims to enable a better understanding of the significance of trade in biodiversity-based goods, and thus inform the formulation of policies and mainstream the sustainable use of biodiversity and its contribution to society.

Despite some limitations in terms of sustainability considerations and analytical power at the species level, given that it is a comprehensive and freely available dataset, the TraBio statistical tool can support conservation and sustainable use efforts through the comprehensive analysis of trade patterns. The detection of discrepancies in reporting or of changes in trade volumes and trade patterns can help to identify areas of concern for sustainability and conservation. Nevertheless, mainstreaming criteria to identify trade flows of sensitive goods for conservation into future editions of the HS and mapping the data in the TraBio statistical tool against sustainability-oriented data sources could help increasing its contribution towards biodiversity-related sustainability and conservation objectives.

Overall, the TraBio statistical tool and product classification both offer a useful tool for the analysis of biodiversity-related trade information.

In conclusion, the present version of the TraBio statistical tool and product classification are considered as the first step of an adaptive process towards becoming **a well-recognised and accepted standard for trade statistics in biodiversity-based goods** in the longer term.

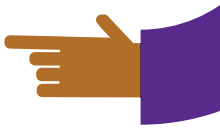
1 Introduction

According to the Convention on Biological Diversity (CBD, 1992), the term *biodiversity* encompasses the variety of life on Earth. This definition includes the wide range of plants, animals, micro-organisms, the genetic variety within species and all different ecosystems.

Biodiversity underpins our life on Earth. It provides us with food, medicine, shelter, and other goods, as well as with services like climate regulation, water filtration, and even recreational, cultural, and spiritual inspiration. Its importance is also reflected in the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs), with two biodiversity-focused SDGs, goal 14, *Life on Water,* and goal 15, *Life on Land,* and contributes to the achievement of all other SDGs. Biodiversity can play a crucial role in both climate adaptation and mitigation (IPBES, 2019), which are essential as the climate crisis looms over our planet and we enter potentially the last decade available to keep global warming below 1.5°C (IPCC, 2018). The integrity of biodiversity and ecosystems also contributes to the prevention of zoonotic diseases (IPBES, 2020) like in the case of the COVID-19 pandemic that has put a strain on the livelihoods of billions of people across the world (ILO et al., 2020). Furthermore, goods and services extracted or derived from biodiversity are also widely traded – close to half of the world's gross domestic product (GDP) is directly dependent on biodiversity, ecosystems, and their services in a moderate or high manner (WEF, 2020) – and support the livelihoods of nearly half of the human population (CBD, 2018a). For instance, small-scale fisheries support over 90 per cent of the 120 million people engaged in capture fisheries globally, and an estimated 70 per cent of the world's poor depend directly on wild species and on businesses fostered by them (IPBES, 2022).

We are currently facing a biodiversity crisis with deep implications for the future. Nearly one million species are now threatened with extinction (IPBES, 2019), sea levels are rising, ocean acidification is accelerating, and the past seven years are set to become the warmest on record (United Nations, 2021). A stark transformational change is required if we aim to achieve the goal of *Living in harmony with nature*, outlined by the CBD, as part of its 2050 strategic vision (CBD, 2018b). This transformation requires changes at all levels and by all stakeholders, from policies to economic sectors, to lifestyles and the way we interact with nature in general. IPBES (2022; p.24) underscores the urgency of such changes with respect to biodiversity, noting how *"scenarios point to a future where the sustainability of the use of wild species would become increasingly vulnerable to pressures associated with climate change, technological advances and increasing consumption"*. Available, comparable, and up to date information accessible to all stakeholders working on biodiversity-based sectors is of crucial importance to support this change.

We are currently facing a biodiversity crisis with deep implications for the future.



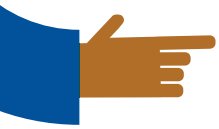
The value of nature and ecosystems goes well beyond the economic realm. They provide us with, for instance, clean water and air, they regulate disease and the climate, they support the pollination of crops and soil formation, as well as providing recreational, cultural, and spiritual benefits. However, nature's contribution to people in economic terms is not yet adequately accounted for. The Economics of Ecosystems and Biodiversity (TEEB), a global initiative focused on "making nature's values visible", attempts to mainstream the values of biodiversity and ecosystem services into decision-making, which they see as a crucial means to reverse their ongoing depletion (UNEP, 2010).

Trade data related to products issued from ecosystems can contribute to this effort by supporting governments, private and public sector associations, civil society, and businesses in putting in place actions that generate the change needed to ensure that our demands on nature do not exceed its supply and that we increase nature's supply relative to its current level (Dasgupta, 2021), as well as assessing and monitoring the impacts of their interventions. This also reinforces experts'

comments on the importance of data at the IV BioTrade Congress, as *"we cannot value what we cannot measure, particularly in trade policy"* (UNCTAD, 2017a; p.26). Therefore, the availability of trade-related information, including trade statistics, can be seen as a supporting pillar for a diverse set of political processes. For example, it can contribute to the formulation of policies supportive of biodiversity conservation and livelihoods and its mainstreaming into the economy (UNCTAD, 2017a), but also support the tracking of progress and reporting under multilateral political processes such as the CBD's post-2020 global biodiversity framework (GBF). Harmonised and comparable biodiversity-related trade data is crucial also for measuring and monitoring the impact of trade on biodiversity itself – an important aspect as trade is considered an indirect driver of biodiversity loss (IPBES, 2019). However, this information is scattered, heterogenous and no effort has yet been undertaken to establish a formal definition and classification of biodiversity-based goods.

In this context, the United Nations Conference on Trade and Development (UNCTAD), through its BioTrade Initiative (see Box 1) jointly with the UNCTAD Development Statistics and Information Branch (DSIB), developed the **Trade and Biodiversity (TraBio) statistical tool**. This tool is developed under the Global BioTrade Programme: *Linking trade, biodiversity and sustainable development* funded by the Swiss State Secretariat for Economic Affairs SECO.

The TraBio statistical tool aims to support UNCTAD member States and other stakeholders by providing public access to consistent, comparable, and comprehensive trade data related to products issued from biodiversity. It differentiates itself from existing trade databases in that it focuses solely on products based on biodiversity and ecosystems while building on the great level of detail and wide range of applications of the Harmonized Commodity Description and Coding System (HS in short).



The TraBio statistical tool will facilitate the gathering, analysis, monitoring and reporting of information related to trade in biodiversity-based goods.

The biodiversity-based products considered under this study are all products with a biological origin, including plant and animal species as well as fungi found on land, water and air (UNCTAD, 2020a), and that meet at least one of the following criteria (UNCTAD, 2020b):

- 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).

The TraBio statistical tool will facilitate the gathering, analysis, monitoring and reporting of information related to trade in biodiversity-based goods. The tool will also enable a better understanding of the economic benefits and contribution of biodiversity and the trade of biodiversity-based products.

Three main components form the statistical tool:

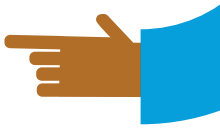
a. a product list and a product classification of biodiversity-based goods;

b. a database containing trade flows in biodiversity-based products and related indicators; and

c. a set of interactive visualisation tools to help the user visualise the information contained in the database.

This report focuses on the first component of the TraBio statistical tool, namely the product classification that was developed by UNCTAD for this purpose. For a more extensive and detailed description of the statistical tool inclusive of all three of its components, as well as the methodology behind it, please refer to UNCTAD (2022).

Through this work, UNCTAD and its BioTrade Initiative will contribute to the development of coherent policy frameworks related to trade and biodiversity, as well as provide inputs to related national, regional, and international processes.



Box 1: UNCTAD BioTrade Initiative and TraBio

UNCTAD's BioTrade Initiative, launched in 1996, promotes the trade and investment in biodiversity-based products and services to further sustainable development. Moreover, the BioTrade Initiative responds to UNCTAD's mandate as defined in the Bridgetown Covenant and contributes to the objectives of several multilateral environmental agreements (MEAs), including the CBD and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), as well as the Agenda 2030 and the SDGs. Through this Initiative, UNCTAD contributes to ensuring synergies and the mutual supportiveness between trade, the conservation and sustainable use of biodiversity, sustainable livelihoods, and sustainable economic development.

BioTrade specifically refers to trade in biodiversity-based products and services that comply with a set of environmental, social, and economic sustainability criteria, known as the BioTrade Principles and Criteria (P&C). These P&C are a set of guidelines that support governments, private sector, civil society, and other stakeholder to develop and trade sustainably produced products and services derived from biodiversity. Since its launch, the Initiative has developed a unique portfolio of global, regional, and national programmes, as well as a network of partners and practitioners working in nearly 100 countries. In these countries, the BioTrade P&C are implemented for the development or strengthening of biodiversity-based sectors, value chains, businesses, and associations.

The TraBio product classification, as well as the TraBio statistical tool more broadly, encompass what is understood here as "biotrade" – trade in products that have a biological origin, without any distinction on whether a product has been sustainably sourced, produced or traded. Nevertheless, options are being explored to include sustainability considerations into the TraBio statistical tool in the future. Similarly, services are not accounted for in the HS nomenclature upon which the statistical tool is based and are therefore also excluded from it.

More information available at www.biotrade.org

As part of the statistical tool, the TraBio product classification aims to facilitate the analysis and visualisation of the information available. Particularly, the tool provides a readily defined selection of the entirety of biodiversity-based goods as defined above, and a common classification of these goods into relevant groups and categories.

This undertaking by UNCTAD is a first step in defining a common trade and biodiversity product classification and methodology, enhancing the comparability of results across different applications, such as research or policy for instance, and thus facilitating collaborative efforts and the identification of potential existing linkages. In the long-run, this work aims to establish a **universally recognised standard product classification for the analysis of trade in biodiversity-based goods**.

As we advance with this long-term aim, the TraBio classification is to be understood as an adaptive process enhanced by user feedback, through periodic revisions and annual updates.[2]

The focus of this document is the product classification of biodiversity-based goods, which is the first component of the statistical tool. It is structured as follows: after this introduction, section 2 illustrates the TraBio statistical tool. Section 3 outlines methodological considerations while the structure of the TraBio product classification is explained and illustrated in section 4. Section 5 contains the document's conclusions.

2 If you wish to provide any kind of comment or feedback on the product classification of biodiversity-based goods, please do so by sending an e-mail to biotrade@unctad.org – Subject: comments to TraBio.

2 The Trade and Biodiversity statistical tool

This section aims to give an overall overview of the TraBio statistical tool and provide the context in which the homonymous product classification has been developed.

For a more extensive reading regarding the TraBio statistical tool and all its aspects, please refer to the forthcoming Methodology to be published by UNCTAD by the end of 2022 (UNCTAD, 2022).

a. Rationale and objectives of the TraBio statistical tool

Trade-related data and statistics on biological resources have historically been scattered and heterogeneous, and no effort has yet been undertaken to establish a formal definition and classification of biodiversity-based goods. There are global databases related to species and/or their derived products, such as the CITES Trade Database. However, these databases possess characteristics that limit their usefulness in terms of the objectives listed below. The CITES Trade Database for instance, lists trade flows in terms of species. Not only does this preclude the analysis of trade in products *derived* from biodiversity but also strongly limits the comparability with other sources of trade data. As of today, there is no comprehensive repository of information on global trade flows related to goods originating from biological resources nor a comprehensive biodiversity-based products classification, which provide comparable and updated information for public use.

The lack of such a broad database has several implications, including:

- the partial and/or sparse information and assessment of global and country specific trade statistics, which constrains the recognition of the crucial contribution of biodiversity, its conservation and sustainable use to economic sectors, and trade, livelihoods, wellbeing, global health, and the environment in general;
- a need for common understanding and definition of what biodiversity-based products are, which may lead to the proliferation of a wide array of competing and/or non-comparable definitions and classifications across sectors, regions, and organisations;
- the formulation, assessment and/or adoption of policies, strategies, and practices to sustainably produce biodiversity-based goods is made more difficult due to the unavailability of ready information, discouraging the sustainable development and strengthening of biodiversity-related sectors; and
- difficulty in conducting research with comparable, up-to-date, and harmonised information.

The TraBio statistical tool has been developed to contribute to addressing these gaps. It targets policymakers, businesses, researchers, and other stakeholders working on trade and the environment, and particularly on biodiversity issues.

The objectives of the tool are:

- to enable a better understanding of the significance of trade in goods with a biological origin, and thereby (i) inform the design/formulation or review of policies, strategies as well as free trade agreements and multilateral processes and discussions, and (ii) promote and mainstream the conservation and sustainable use of biodiversity and its contribution to the economy;
- to provide access to a harmonised, comparable, and centralised source of information on trade in biodiversity-based products grouped under a dedicated product classification; and
- to gather, report, and monitor progress on the achievement of national and international policies, development processes and targets.

For instance, a potential practical application of the tool would be its support to compliance with the applicable domestic Access and Benefit-Sharing (ABS) regulatory frameworks and requirements under the CBD and the Nagoya Protocol. The information that can be extracted from some of

the product groupings – such as those in Groups D – *Natural ingredients*, E – *Perfumery, cosmetics, personal care, and room care preparations,* and F – *Pharmaceutical products*, just to mention a few – can be of utmost importance for the competent ABS authorities that are in charge with monitoring compliance with national ABS permits and agreements.

The work undertaken is in line with UNCTAD's mandate, outlined in the Bridgetown Covenant, the outcome document of the Fifteenth Session of UNCTAD's Ministerial Conference (UNCTAD15) in October 2021. In particular the document refers to "continue to provide statistics, analytical work and technical assistance to developing countries, to promote structural transformation" (UNCTAD, 2021; paragraph 127.q) as well as "to support developing countries in identifying relevant trade and investment policies to contribute to the attainment of the climate and environmental goals of the 2030 Agenda, with due cooperation with relevant international organisations" (UNCTAD, 2021; paragraph 127.ll). Overall, this work contributes to UNCTAD's aim to foster international cooperation and the development of instruments to promote and mainstream biodiversity in policies, strategies, and practices of global value chains, and thus ensure the necessary conservation and sustainable use of biodiversity and ecosystems (UNCTAD, 2021; paragraph 73).

b. Components of the TraBio statistical tool

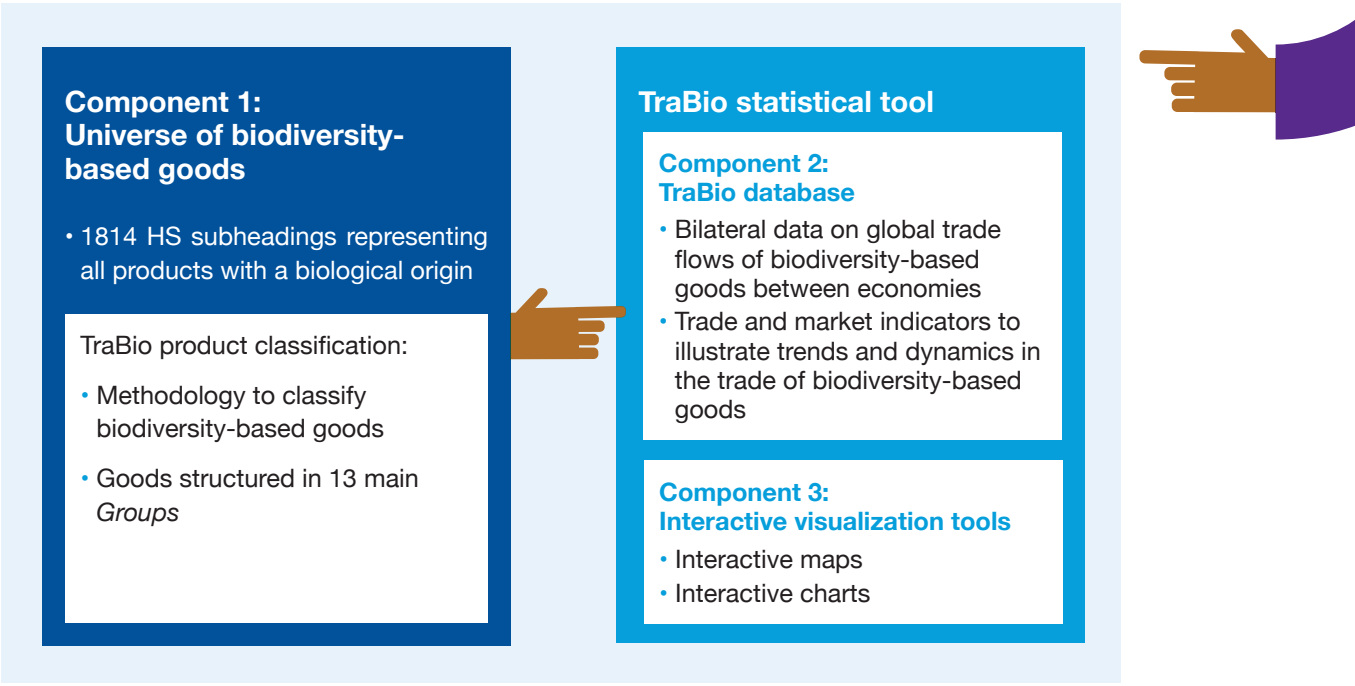
The TraBio statistical tool is comprised of three components (see Figure 1):

1. A **product list and a product classification of biodiversity-based goods** taken from the HS nomenclature;
2. A **database** containing trade flows in biodiversity-based products as well as several trade and market indexes and indicators; and
3. **Interactive visualisation tools** such as maps and charts to help the user's interpretation of the information contained in the database.

Component 1: the universe of biodiversity-based goods and the TraBio product classification

The list of all biodiversity-based goods and the TraBio product classification are the foundation upon which the statistical tool and all its elements are built. The former includes a list of 1,814 goods – HS subheadings – selected from the HS nomenclature and constitutes the **universe of biodiversity-based goods** that are included in the latter, the TraBio product classification grouping these goods into different categories and aggregated levels. It is worth noting that some of these 1814 goods refer to groups of goods, such as for certain garments

Figure 1 – Components of the Trade and Biodiversity (TraBio) statistical tool



or pharmaceutical products for example. In certain cases, this can lead to difficulties in distinguishing whether all products aggregated under a subheading can be considered *biodiversity-based* according to the definition above. For more details, see box 2: Challenges in the identification and selection of biodiversity-based products for the universe of biodiversity-based goods.

Biodiversity-based goods are grouped into four different levels of aggregation, which are listed here from the most aggregated to the most disaggregated: the

- 13 Groups with high level of aggregation, e.g., live plants and animals. These are not to be confused with the taxonomic groups used in biological classification;
- 86 Subgroups, e.g., live animals;
- 230 Categories, e.g., fish; and
- 79 Subcategories, e.g., ornamental fish.

Through the TraBio product classification, UNCTAD aims to provide a logical structure that will enable the analysis of biodiversity-related product groups and trade flows.

Section 4 provides further details on the TraBio product classification, which is the focus of this report.

Component 2: the TraBio database, containing information on trade in biodiversity-based goods

The TraBio database is the core of the statistical tool and contains data on annual bilateral trade flows for all biodiversity-based products, extracted automatically from Comtrade, the United Nations' trade database. In addition, the TraBio database includes eight trade indicators: four describing the magnitude of trade-flows and four related to their composition and structure of trade flows and markets[3]. The database covers the universe of biodiversity-based goods and all countries for which data is publicly available, starting from 2010 up to the most recent time period available. Database users can select relevant groupings from the TraBio product classification, country aggregates based on geographical, economic, or political criteria, as well as data specific to a country, group of commodities, year, etc. The database is updated annually, and its data is freely available online for users to access, use, and visualise directly online or download from UNCTAD's statistics portal UNCTADstat[4].

Additionally, the database also contains detailed information on 137 goods in the form of subheadings – the 6-digit code providing the greatest level of detail in the HS. These subheadings were identified as priority products by BioTrade partners in Africa, Asia, and Latin America during the first phase of the creation of the TraBio statistical tool. These include, for instance, species that have been promoted by partners, such as the Baobab fruit (*Adansonia digitata*), as well as products prioritised as part of national development strategies.

Component 3: interactive visualisation tools

The TraBio statistical tool also includes interactive visualisation tools to help the user visualise trade flows and indicators in a more user friendly and intuitive way. The visualization tools[5] include:

- WORLD MAP – TRADE FLOWS OF BIODIVERSITY-BASED: It presents the bilateral import and export flows of biodiversity-based product aggregates at the Group level of the TraBio product classification hierarchy for the selected economies.
- WORLD MAP – TRENDS IN BIODIVERSITY-BASED TRADE: It gives a visual representation (world map and bar charts) of the main products traded by geographical location, as well as their value between 2010 and the latest year for which data is available. It offers the possibility of selecting aggregates as defined in the TraBio product classification hierarchy.
- WORLD MAP – TRENDS IN BIODIVERSITY-BASED INDICATORS: It allows to visualize several trade indicators per country from 2010 to the latest year for which data is available (e.g., trade balance, exports and imports' growth, share of total trade, and share of GDP).
- WORLD MAP – BioTrade or biotrade?: It will provide information on countries in which BioTrade partners are implementing the BioTrade P&C as of 2021.

3 The indicators included in the database are: (1) trade balance of biodiversity-based imports and exports; (2) size of biodiversity-based trade with respect to total trade; (3) size of biodiversity-based trade with respect to GDP; (4) the annual growth rates of imports and exports; (5) market concentration index of imports and exports; (6) product concentration index of imports and exports; (7) market structural change index of imports and exports; and (8) Revealed Comparative Advantage (RCA) index. For a more extensive discussion about these indicators, please refer to UNCTAD (2022).

4 https://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx?IF_ActivePath=P%2C227923

5 https://unctadstat.unctad.org/EN/biotrade.html

3 Methodological considerations

This section provides the methodological considerations considered mainly for developing the product classification, though some are also applicable to the database and the statistical tool more in general. It includes information related to the definitions and assumptions considered, the analysis and selection of the international statistical classification systems, as well as the challenges and limitations of the classification.

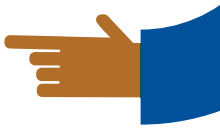
a. Definitions and assumptions

The CBD (1992) defines biodiversity as the variety of life on earth, including the wide range of plants, animals, micro-organisms, the genetic variety within species and the different ecosystems. This definition also encompasses some traded human parts, such as hair and/or blood (traded only with the full consent of title holders). While the concept of biodiversity in some studies could be easily used interchangeably with the concept of *nature* or *natural*, they are considered explicitly separate in this methodology.

In many cases, biodiversity-based products can be understood in a narrow sense, including only for instance wild-collected plants or products from wild animals. Nevertheless, for the scope of this study, the wider definition of the CBD is used. For this reason, all products with a biological origin, including plant and animal species as well as fungi found on land, water and air (UNCTAD, 2020a) are considered biodiversity-based products. The terms 'biodiversity-based' and 'with a biological origin' are therefore used interchangeably throughout this report.

Biodiversity-based products must also meet at least one of the following criteria (UNCTAD, 2020b):

- 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).



BioTrade products and activities are characterised by respect for environmental, economic, and social criteria

In this understanding, goods produced or derived from the extraction of minerals, ores or metals, such as sands, oil and gas, are not considered biodiversity-based products (UNCTAD, 2020b). Furthermore, biodiversity-based products as such are not necessarily products that are produced, sourced, collected, or traded in a sustainable, biodiversity-friendly way. While biodiversity-based products may – and indeed often do – include sustainable products, their definition relates to their biological origin only.

Within the scope of this report and of the TraBio statistical tool more broadly, the distinction is made between the concepts of 'biotrade' and 'BioTrade' (with a capitalized B and T). The former is often used in reference to the production and trade of biological resources without any specific consideration of the impact of these activities on the conservation and sustainable use of biodiversity. The capitalisation in BioTrade, however, reflects a fundamental difference. In fact, BioTrade products and activities are characterised by respect for environmental, economic, and social criteria. For instance, BioTrade activities must maintain and restore the ecosystems and habitats of the species being collected or cultivated, and incomes should be distributed to all actors along their value chains. More specifically, BioTrade products and activities are understood to be those respecting the BioTrade P&C in their implementation.

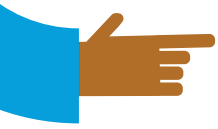
The data in the TraBio statistical tool, being based on the HS, does not allow us to distinguish between trade in 'biotrade' and in 'BioTrade' products. Hence, all data – as well as the terms 'biodiversity-based goods' and 'goods with a biological origin' – refers to 'biotrade' products, although it also contains goods produced as 'BioTrade' to a certain, unknown extent.

b Selection of the statistical classification for the trade and biodiversity product classification

The United Nations Statistics Division (UNSD) defines an international statistical classification as a "set of discrete, exhaustive and mutually exclusive observations that can be assigned to one or more variables to be measured in the collation and/or presentation of data" (Hancock, 2013: 5). International statistics classification systems do not only provide a common framework of standardised definitions, descriptions, and categories for the grouping, organising and disseminating of information, but they also allow the comparability of data across countries and sectors over time. In addition to their main statistical purpose, they can also help support decision-making at both the private and public sector levels, as well as provide information for assessment and evaluation studies.

There are many classification systems in international trade that serve different purposes, whether it is the use for customs procedures or analytical purposes that are the objective. These are:

- The Harmonized System (HS): created to track international transportable goods, has a very high level of detail;
- The Standard International Trade Classification (SITC): designed for comparative analyses but with a lower level of detail;
- The Central Product Classification (CPC) and the Classification of Product by Activity (CPA): provide further detail in terms of scope and classify products by the production, trade and consumption of products and services (Bühring, 2019); and
- The Electro-Technical Information Model (ETIM) and the United Nations Standard Products and Services Code (UNSPSC): created to facilitate trade and make finding of different products easier (Bühring, 2019).



An analysis of the different classification systems reveals that the HS provides the greatest detail in terms of product specification, including for biodiversity-based products, and is also a universally accepted economic language and code for goods.

An analysis of the different classification systems reveals that the HS provides the greatest detail in terms of product specification, including for biodiversity-based products, and is also a universally accepted economic language and code for goods. Thus, the HS nomenclature was selected as the goods classification method for the TraBio statistical tool. The HS nomenclature is widely used across a wide range of applications, from customs procedures to academic research and reporting. As such, it allows for an "easy" classification of products in customs, which is often achieved by dividing products, inter alia, by their main material. It is therefore a convenient classification for the purposes of the TraBio classification. For a more detailed discussion on the different classification systems, please refer to UNCTAD (2022).

The HS is a multipurpose international product nomenclature developed by the World Customs Organization (WCO). The universe of classified goods is divided in 21 very generic sections, which in turn are divided into 97 chapters identified by the first two digits of the code describing each product group. Each chapter is further divided into headings, defined at the four-digit level, which in turn are divided into so-called subheadings, or the six-digit codes classifying the about 5,000 commodity groups that make up the entirety of traded goods. Each subheading is arranged in a legal and logical structure and supported by well-defined rules to achieve uniform classification (WCO, 2016).

WCO updates the list of commodity groups every five years to accommodate for changes in trade volumes, trade dynamics, technology, or environmental concerns. The most recent revision is from 2017 while another will be implemented for trade flows taking place in 2022. As such, the TraBio product classification will also be revised every five years to accommodate for changes in the HS. Additional updates can take place in between to take into consideration user and expert feedback as well as changes in biodiversity-related political processes, if needed. The HS is used by more than

200 countries as a basis for their customs tariffs and for the collection of international trade statistics. Over 98 per cent of the merchandise in international trade is classified in terms of the HS (WCO, 2022).

The HS nomenclature contributes to the harmonisation of customs and trade procedures and the non-documentary trade data interchange in connection with such procedures. It is also extensively used by governments, international organisations and the private sector for other purposes such as internal taxes, trade policies, monitoring of controlled goods, rules of origin, freight tariffs, transport statistics, price monitoring, quota controls, compilation of national accounts, and economic research and analysis (WCO, 2022).

Besides the clear advantages that lead to the choice of the HS as the nomenclature to be used for the TraBio statistical tool and product classification, it has one important shortcoming. In fact, in the case of living organisms and their products, the HS differentiates its subheadings according to the class, order, family, genus, or sometimes species they describe. This does not make a distinction between allowing products according to their mode of production or extraction in most cases, and, crucially, the impact these have on biodiversity and ecosystems.

For instance, in the HS there are three subheadings related to swine. While HS 0103.10 – *Swine, live, pure-bred breeding animals* explicitly relates to bred animals, the other two, HS 0103.91 and HS 0103.92, does not make a distinction between, for instance, domesticated pigs and wild boar. Similar examples also abound for other plant species that can be either cultivated or sourced in the wild.

c. Product selection

This identification and selection of the HS codes was made at a more detailed level, namely at the 4- or 6-digit level. This was done since many sections (e.g., section XI: Textiles and textile articles) or chapters (e.g., chapter 96: Miscellaneous manufactured articles) of the HS would allow for both biodiversity-based and non-biodiversity-based products in their definition. Additionally, given the varied nature and composition of the products linked to the different HS codes, several challenges were faced in the identification and selection of products with a biological origin as shown in the Box 2.

Therefore, a conservative approach was taken in the selection of uncertain subheadings. Extensive desk research was conducted and goods that could not reasonably be expected to be made predominantly of products with a biological origin were discarded. Experts were also consulted to determine the extent to which goods were derived from or contained biological products, and thus whether they should be included in the universe of biodiversity-based products. For example, HS 2905.11 – *Methanol*, despite the possibility for it to be synthetised from biomass, was excluded based on experts' inputs as most of the traded methanol is produced synthetically.

Finally, analysing some of the products complying with the definition stated above may generate some controversies. Examples of these are human glands and organs (HS 30.01) and blood (HS 30.02) used for therapeutic and pharmaceutical ends, human hair (HS 67.03) for wigs or the like, or plant-based derivative substances associated with narcotic drugs such as the coca leaf (HS 1211.30) and opium extracts (HS 1302.11). The inclusion of these products is by no means a statement or judgement behind their use or origin, nor does it want to open the door to a debate about the ethics behind them, but rather a matter of methodological coherence. Potentially controversial products are listed in the Methodological note (page 48) available at UNCTADstat Classifications/Product classifications under the "Biodiversity-based goods" subsection[6].

6 https://unctadstat.unctad.org/wds/TableViewer/document.aspx?ReportId=253340

Box 2: Challenges in the identification and selection of biodiversity-based products for the universe of biodiversity-based goods

1. Identification of products of biological origin

For certain products the identification and selection of the HS subheadings were straightforward and entire sections or chapters of the HS could be included or excluded based on their definitions. For instance, sections I (Live animals and animal products) and II (Vegetable products), as well as chapters 18 (Cocoa and cocoa preparations) and 52 (Cotton) could be included. Similarly, sections such as section V (Mineral products) and chapters such as chapter 54 (Man-made filaments) were excluded by their own definition. Also, some have separate subheadings for natural and man-made products (e.g., clothing and apparel made of natural or man-made fibres).

For other cases, the choice was not so straightforward. A limited number of the manufactured products in the HS classification are made exclusively of biodiversity-based products, but rather contain one or more biodiversity-based ingredients or products to a varying extent. Therefore, some HS subheadings may include parts or materials with a biological origin or not, such as:

- HS 9403.50 – *Wooden furniture of a kind used in the bedroom*; it is implicit that not each part of each piece of furniture classified under this subheading is made of wood. There may be, for instance, metal nails and screws, plastic parts, or coverings in synthetic fibres. While this subheading has been included in the classification, since it explicitly states that wood is the main component of the goods under its umbrella, the classification itself does not give any insight on the proportion of biodiversity-based materials in the composition of any specific good category.
- HS 9602.00 – *Worked vegetable or mineral carving material and articles* of these materials may potentially include products with a mineral origin only. Nevertheless, the subheading description itself goes on to specify articles can be made of wax, stearin, natural gums, natural resin and paste, as well as gelatin – all products with a biological origin – leading to the subheading being included despite the possibility of its inclusion of mineral-only products.
- Predominantly non-biodiversity-based products such as cars (under personal vehicles, HS 87.03), can also expect to contain certain biodiversity-based products such as grease with animal origins in the engine or leather seats.

To overcome this challenge a conservative approach was taken, and goods that could not reasonably be expected to be made predominantly of products with a biological origin were discarded.

2. Identification of the products from animal, plant, or fungal origin

For certain subheadings – or even subheading aggregates in the HS – the origin is unclear, such as for organic chemicals known as fatty acids: stearic acid (HS 3823.11) and oleic acid (HS 3823.12) that can be derived from animal and vegetable fat. While the present classification tries to differentiate between plant, animal, and fungal products wherever possible, the inherent structure of the HS makes this challenging in certain cases as it does not always allow to explicit distinction for products based on their composition. Users wishing to focus their analysis exclusively on products of either animal or plant origins may encounter difficulties in selecting only the relevant subheadings.

3. Identification and selection based on its expected usage

Some of the groups and categories of the classification allocate subheadings based on their expected usage, such as group C – *Agricultural inputs* or subgroup E2 – *Cosmetic preparations*. While for the most part, the expected usage of a subheading is stated explicitly (e.g., HS 2308.00 – *Vegetable materials and vegetable waste […] of a kind used in animal feeding)*, for others that may not be the case. For instance, subheading *Cereal straw and husks, unprepared, whether or not chopped, ground, pressed or in the form of pellets* (HS 1213.00) has been included in group C – *Agricultural inputs.* The reasoning behind this choice is that the application of most products under this subheading is as agricultural inputs; however, it is not possible to exclude that a minor part of them could have other applications. For example, straw pellets can be used as heating fuel.

d. Aggregates and groupings selection

Certain sectors or product groups are relevant for stakeholders and for political and institutional processes related to trade and biodiversity, including UNCTAD's BioTrade Initiative and the wider biodiversity community. Groupings relative to such sectors or product have been established to provide a tool to explicitly and/or separately analyse their trade dynamics. It is also an attempt to provide readily available information on those groups, while simultaneously presenting a coherent and well-organised overview of trade in biodiversity-based products more generically.

The product classification is built on the availability and detail of the subheadings that describe each product or group of products in the HS. Under the TraBio product classification, goods are sorted according to:

- their sectors and use, such as in the case of agricultural inputs;
- composition, such as wood and derived products;
- considerations of the importance of industries, sectors, or groups for trade, as well as for the trade and biodiversity communities, including the BioTrade one; and
- their support and contribution to international processes and policy frameworks, such as the SDGs and the post-2020 GBF (see Box 3 for TraBio's support to the GBF).

Moreover, the aggregates and grouping selection were also defined based on extensive desk research building on existing work[7] inputs from experts and UNCTAD.

e. Recommendations for further analysis

As a result of the work in building the TraBio statistical tool and its different components, further analysis is needed for identifying goods that are sustainably produced and sourced.

In the HS, and consequently in the TraBio statistical tool and product classification system, it is difficult to differentiate whether any specific product has been sustainably sourced or produced and traded. Niche segments based around sustainability considerations do exist for certain products, for example specialty cocoa with voluntary sustainability standards (VSS). However, the HS subheadings related to cocoa are defined according to their level of processing and no separate 6-digit subheading is available to capture differences, for instance, in quality or sustainability. This could, however, change in upcoming versions of the HS.

This limitation of data on sustainably produced or sourced goods that are traded is due to numerous reasons. For instance, the proliferation of VSS as well as standard-setting organisations across the globe with non-comparable information. Often, there is significant variation in the number of active VSS across different country-product-markets and the possibility for goods to be certified more than once. Furthermore, actors involved along different biodiversity-related value chains are highly heterogeneous and large in number. This may lead to non-harmonised and uncoordinated means of data collection and the consequent lack of or non-comparable trade data on certified goods in general. Finally, an additional barrier identified relates to the confidentiality and sensitivity of the information that is not easily accessible.

Box 3: The post-2020 global biodiversity framework and the TraBio and its product classification

Through the information available in TraBio, and particularly its database, UNCTAD and BioTrade partners are proposing that some indicators be considered monitoring elements in the ongoing negotiations related to the post-2020 GBF (See UNCTAD, ITC, et al., 2020a; UNCTAD, CITES, et al., 2020).

For example, the case of the medicinal plants subgroup (see below Group D of the product classification) will provide information on *Trends in the legal trade of medicinal plants* for the GBF complementary indicator b22 under GBF's Goal B: *Nature's contributions to people have been valued, maintained or enhanced through conservation and sustainable use supporting the global development agenda for the benefit of all* (UNEP-WCMC, 2022).

7 The documentation consulted includes Naeem et al., 2021; UNCTAD, 2021a; Bühring, 2019; CBI, 2019; FAO, 2015; UNEP, 2015; Balasubramanian, 2014; PromPerú, 2014; Haines-Young and Potschin-Young, 2010; Gantioler et al., 2008; Zevallos Pérez, 2005; Eurostat, 1996.

UNCTAD could currently provide comparable data related to BioTrade products available from BioTrade partners that support and monitor stakeholders implementing the BioTrade P&C. Nevertheless, BioTrade data includes turnover of BioTrade practitioners complying with the P&C, the number of companies implementing the P&C, and so forth, rather than being linked to trade flows specifically. This type of information would be useful for users interested in BioTrade as well as on the sustainable trade of biodiversity-based goods and may be considered as a proxy to track progress on sustainability considerations linked to trade in biodiversity-based products in the future. It could additionally be expanded beyond BioTrade partners to include information from other relevant stakeholders implementing the BioTrade P&C, or from other standards with strong synergies with BioTrade, such as the Union for Ethical BioTrade (UEBT) Standard or the FairWild Standard but also with other standards that have strong biodiversity components.

As a first step in this direction, a BioTrade study (UNCTAD, forthcoming) analysing the BioTrade P&C in comparison with a select VSS schemes – including widely known VSS such as Marine Stewardship Council (MSC), FairTrade, and Forest Stewardship Council (FSC) – shows that most of them have compatibility with the BioTrade P&C already, with all of them having a high focus on biodiversity conservation. In fact, all the selected VSS had at least 11 or more linkages with the 25 BioTrade Criteria. It also emerged clearly that almost all the VSS schemes have a focus on sustainable use of biodiversity and promote traceability as well as transparency in business practices. With many companies and governments increasingly adopting and complying with VSS schemes, the differentiation of certified and non-certified products in the HS should be strived for in future versions.

Options could also be explored to map trade expressed in subheadings of the HS with trade data from sources that favour sustainability considerations such as the CITES Trade database or the World Wildlife Seizures (World WISE) database of the United Nations Office on Drugs and Crime (UNODC). A first step in this direction was already undertaken in Drinkwater et al. (2020), where the usefulness of the HS as an early warning to detect conservation concerns through changes in trade patterns or discrepancies is underscored, and a set of HS codes that could improve trade monitoring for conservation are identified. Alternatively, bulk data of traded volumes could be sought from certifiers to obtain a clearer picture of sustainable trade of biodiversity-based products. For such an endeavour, platforms such as the International Trade Centre's (ITC) Standards Map could provide a useful basis.

The TraBio product classification and the statistical tool in general still provide information that is relevant for the sustainable use and conservation of biodiversity and the livelihood of sourcing/producing communities, even without explicit sustainability considerations. For instance, trade in wildlife is relevant for and contributes to monitoring trends in biodiversity conservation efforts. In fact, both illegal (UNODC, 2021) as well as unmonitored and unsustainable legal (Andersson et al., 2021) wildlife trade carry important consequences in terms of biodiversity loss. Obtaining specific data on illicit wildlife trade is difficult and laborious (UNODC, 2021).

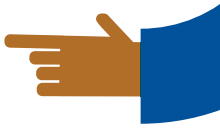
Through UNCTAD's product classification, particularly Group A - *Live animals and plants*, users will have information to understand the underpinning dynamics of trade recorded under the HS codes for flora and fauna. This will also enable users to further analysis and benchmark for potential comparisons between licit and illicit wildlife trade. Nevertheless, the TraBio product classification also shows the need for further work and research to provide better data on the trade in wild species of plants, animals, and fungi. Being able to extract such data could, for instance, provide clues for border control agents and authorities in charge of prosecuting illegal wildlife trade, thus facilitating implementation and action-oriented decision making at the national level.

In this manner, the TraBio statistical tool would directly contribute to targets 5 and 9 of the post-2020 GBF, which have a strong focus on wild species. Similarly, to better contribute to discussions around biodiversity conservation, complete data at the species level should be included in the TraBio statistical tool.

Options should be explored to try to map HS subheadings against data for specific species. Alternatively, the case could be made to create specific subheadings in future HS revisions based on the identification of specific data or knowledge gaps, such as for instance for certain species, or to distinguish between domesticated, farmed wildlife and wild-caught wild species.

While the TraBio statistical tool already supports compliance with domestic ABS frameworks through

the information it contains, there is scope to explore the possibility to cross-reference and map it against the Internationally Recognized Certificates of Compliance (IRCC) –certificates which grant legal access to genetic resources and determining the sharing of benefits – that are issued under the Nagoya Protocol, and with relevant compliance checkpoints in user countries. Yet another possible cross-referencing effort could be undertaken with respect to patent data extracted from key biodiversity-relevant categories of the International Patent Classification (IPC) of the World Intellectual Property Organization (WIPO), to attempt to identify where biodiversity-based products are not simply traded as commodities but become part of more complex value chains and subject to increased value-addition.



Through UNCTAD's product classification, particularly Group A - Live animals and plants, users will have information to understand the underpinning dynamics of trade recorded under the HS codes for flora and fauna.

4 The Trade and Biodiversity product classification

This section details the structure of the classification according to which the biodiversity-based products present in the TraBio statistical tool have been categorised. For reasons of scope and space, this section will limit itself to the two most aggregated levels of the classification (Groups and Subgroups). Additional details on the more disaggregated levels (Categories and Subcategories), as well as the subheadings they contain, can be found in UNCTADstat Classifications/Product classifications under the "Biodiversity-based goods" subsection[8].

a. Background

After selecting the HS as the most pertinent nomenclature upon which to develop the TraBio statistical tool and product classification, a pilot project was jointly developed by the BioTrade Initiative and DSIB to validate the methodology, concept, criteria, and contents of the TraBio statistical tool with a limited number of products and countries.[9] Workshops were also held in June 2020 where experts and partners provided essential inputs for building the tool and its components.[10]

Following this pilot phase, the effort was enhanced to include all countries as well as the 1,814 subheadings that constitute what has been named the universe of biodiversity-based goods – the entirety of all subheadings with a biological origin contained in the HS. These were subsequently grouped into different categories and aggregated levels, giving birth to the TraBio product classification.

b. Aim of the TraBio product classification

The aim of the TraBio product classification is to facilitate the analysis and visualisation of trade information related to the universe of biodiversity-based goods through a common categorisation of these products into aggregate groupings. The groupings were established to provide readily available information on areas of relevance for research, policy formulation, and decision-making on topics linked to trade and the environment, particularly on biodiversity, among others.

Through this work, UNCTAD aims to contribute to the longer-term goal of defining a common product classification and methodology related to trade and biodiversity for decision-makers, researchers, and users more broadly to base their work upon. This will improve the comparability of results obtained across a vast array of uses and applications. The common understanding of, firstly, what constitutes a biodiversity-based product, and, secondly, of how to categorise them, will facilitate collaborative efforts across different institutions and sectors, as well as the identification of potential linkages and synergies. Moreover, the classification of biodiversity-based goods into well-defined aggregates also aims to facilitate decision making at the national level, through the development of policies and strategies linked to trade and biodiversity, as well as at the multilateral level, within the scope of agreements and conventions such as the post-2020 GBF and the SDGs.

8 https://unctadstat.unctad.org/EN/Classifications.html

9 Information on the pilot phase, and particularly on data for selected countries in the Mekong region can be seen at UNCTAD's publication SDG Pulse 2020, subsection *Providing the latest data on trade in biodiversity-related products* (page 51), available at: https://sdgpulse.unctad.org/wp-content/uploads/Unctad_SdgPulse_2020.pdf

10 Information on the webinars, in which the initial concept, definition of biodiversity-based products, methodology and tentative contents of the TraBio statistical tool were presented, is available at: https://unctad.org/meeting/webinar-biodiversity-and-trade-statistics-mekong-region-india-and-europe (in English) and https://unctad.org/meeting/seminario-web-sobre-estadisticas-de-comercio-y-biodiversidad (in Spanish)

c. Overview of the product classification

The product classification is built on work done by other organizations and UNCTAD, and is structured in a tree-like manner, branching out over four levels of aggregation. Users can select any number of Groups, Subgroups, Categories and Subcategories to extract data on – and subsequently use to statistically describe and/or analyse – related trade flows.

d. Groups and Subgroups

The *Groups* level of the classification is set out in Table 1. Further information on the Subgroups is detailed below. The full universe of biodiversity-based goods, organized according to the TraBio product classification, can be found in UNCTADstat Classifications/Product classifications under the "Biodiversity-based goods" subsection[11].

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

Group A. Live animals and plants

Group A contains all those subheadings related to live animals and plants. It includes all the subheadings from HS chapters 1 – *Live animals* and 6 – *Live trees and other plants* of the HS classification, as well as some subheadings from chapter 3 – *Fish and crustaceans, molluscs and other aquatic invertebrates.*

While group A contains predominantly data on trade in domesticated species of live animals and plants, it also includes information on trade in wildlife species.

Group A is further divided into the two following subgroups:

AA.	Live animals
AB.	Live plants

Group B. Food and beverages

The food and beverages that humans consume, consist for the most part of biodiversity-based products. This group contains all subheadings related to food and beverages, either ready for cooking or consumption. For example, heading HS 02.01 – *Fresh bovine meat*, or to be used as ingredients in the preparation of other food (e.g., HS 11.01 – *Wheat or meslin flour*).

The level of processing varies greatly between products in this category. It includes non-processed foods such as subheadings HS 0702.00 – *Tomatoes, fresh or chilled* and HS 0409.00 – *Natural honey*, but also processed foods such as HS 1108.11 – *Wheat starch* and HS 2208.30 – *Whiskies*. Nevertheless, only products that are derived predominantly from biological origin have been considered for this group.

Group B is further divided into the following subgroups:

BA.	Meat and edible offal
BB.	Fish and aquatic invertebrates
BC.	Dairy produce
BD.	Other edible products of animal origin
BE.	Vegetables and derived products
BF.	Nuts and derived products
BG.	Fruit and derived products
BH.	Stimulant crops and derived products
BI.	Spices
BJ.	Cereals and derived products
BK.	Flours, meals, and preparations derived from oil-bearing crops
BL.	Sugar crops, sugar and sweeteners
BM.	Beverages
BN.	Miscellaneous food products

The structure of the HS does not allow a differentiation between meat from domesticated sources and wild meat because it distinguishes meat by type (animal).

11 https://unctadstat.unctad.org/EN/Classifications.html

In the cases where the species is predominantly domesticated, e.g., sheep meat, an assumption can be made in this sense. In other cases, e.g., swine meat, this could relate to both domesticated pigs as well as wild boar. Similarly, the HS also does not allow for differentiation between cultivated and wild plants unless it is possible to infer this from the species itself. This is also valid for all other groups of the TraBio classification.

Bird's eggs are products that posed some challenges to categorise. They contain live animals but are not live animals themselves, and can be produced and traded for consumption as well as for incubation. Nevertheless, most of the HS subheadings containing bird's eggs related to eggs made for consumption. As such, they have been included in Subgroup BD – *Other edible product of animal origin.*

For a more detailed analysis on trade in marine species as well as processed foods and services, the TraBio statistical tool can be complemented by the UNCTAD Oceans Trade database, a database presenting annual statistics on trade of ocean goods by ocean economy sector and by country (UNCTAD, 2021b).

Group C. Agricultural inputs

Agricultural inputs used in the primary sector are largely comprised of products with a biological origin. While it is true that not all agricultural inputs are derived from such origin (e.g., the case of chemical fertilisers), biodiversity-based products are nevertheless used for a variety of applications.

Group C contains all HS subheadings that are used directly as inputs for agricultural production that have a biological origin. Most subheadings in group C relate to direct inputs used for sowing, such as seeds or spores, and as animal feed, for example foraging cereals and flours. Nevertheless, certain subheadings are of a different nature also, such as HS 1213.00 – *Cereal straw and husks* and HS 3101.00 – *Animal and vegetable fertilisers*.

Group C is further divided into the following subgroups:

CA.	Bovine semen
CB.	Seeds, fruits and spores of a kind used for sowing
CC.	Straw and husks
CD.	Animal feed
CE.	Natural fertilisers

Group D. Natural ingredients

Group D is the group with the most subgroups of the whole classification, containing 19 subgroups. The products in this group are ingredients with a biological origin that can be used for a variety of different applications. The natural ingredients are classified into subgroups according to their use, such as for Subgroup DA – *Medicinal plants*, or according to their origin, such as DD – *Essential oils, resinoids and extracted oleoresins*. Group D also contains chemical derivatives of organic products such as HS 2905.16 – *Octanol (octyl alcohol)* or HS 2906.11 – *Menthol*, both classified under Subgroup DL – *Organic chemicals*, as well as natural enzymes. This grouping contains processed products derived from plants, animals and microorganisms collected or cultivated in the wild or domesticated.

Group D is further divided into the following subgroups:

DA.	Medicinal plants
DB.	Vegetable saps and extracts
DC.	Tanning extracts and colouring matter
DD.	Essential oils, resinoids and extracted oleoresins
DE.	Odoriferous substances
DF.	Seaweeds and other algae
DG.	Locust beans
DH.	Fruit stones and kernels
DI.	Inulin
DJ.	Glycerol
DK.	Wine lees and argol
DL.	Organic chemicals
DM.	Casein, albumins, other protein substances and derivatives
DN.	Gelatin, gelatin derivatives, isinglass, and other glues of animal origin
DO.	Modified starches
DP.	Enzymes
DQ.	Alginic acid
DR.	Oil-bearing crops and vegetable fats, oils, and waxes
DS.	Animal fats, oils, waxes, and cleavage products

Subgroup DA – *Medicinal plants* does not include live, whole plants, as these are classified under subgroup AA – *Live plants*. Subgroup DA includes primarily parts of plants with medicinal properties, such as HS 1211.20 – *Ginseng roots* or HS 1211.40 – *Poppy straw*.

Group E. Perfumery, cosmetics, personal care, and room care preparations

The perfumery, cosmetics, personal care, and room care industries often rely to a varying extent on ingredients extracted from products with a biological origin. Consequently, several subheadings of the HS classification relate to products of this kind.

Group E contains all subheadings related to the care of hygiene and aesthetics, be it for personal use or to enhance the appeal of living spaces.

Group E is further divided in the following subgroups:

EA.	Perfumes and toilet waters
EB.	Cosmetic preparations
EC.	Personal care preparations
ED.	Room care preparations

Subgroups EB – *Cosmetic preparations* and EC – *Personal care* preparations may appear similar if not interchangeable. However, the distinction is made on the basis that the objective of cosmetics is to alter the aesthetical appearance of a person, such as in the case of HS 3304.20 – *Eye make-up preparations*, while personal care refers to products of a hygienic nature (e.g., HS 3305.10 – *Shampoos* or HS 3306.20 – *Dental floss*).

Group F. Pharmaceuticals

Pharmaceutical products may also contain ingredients or other products with a biological origin.

Group F is further divided into the following two subgroups:

FA.	Animal products used in the preparation of pharmaceutical products
FB.	Pharmaceutical products

Subgroup FB – *Pharmaceutical products* contains all finished pharmaceutical products that include ingredients with a biological origin, for instance natural medicaments and phytopharmaceuticals. Plant products used in the preparation of pharmaceutical products are included in Subgroup D. Medicinal plants.

Group G. Hides, skins, leather, furskins, and products thereof

Hides, skins, leather and furskins are used extensively for handicrafts and in manufacturing of different kinds of products.

Group G is further divided into the following subgroups:

GA.	Hides and skins
GB.	Leather and articles thereof
GC.	Furskins and articles thereof

Group H. Natural fibres and articles thereof

Natural fibres are also frequently used in handicrafts and manufacturing. Group H contains subheadings originating from or made of natural fibres of either animal or plant origins, such as silk, wool, cotton, and others.

Group H is further divided into the following subgroups:

HA.	Silk and articles thereof
HB.	Wool, animal hair, and articles thereof
HC.	Cotton and articles thereof
HD.	Flax and articles thereof
HE.	Jute, other textile bast fibres and articles thereof
HF.	Sisal, other fibres of the Agave genus and articles thereof
HG.	Other vegetable textile fibres, not elsewhere specified or included, and articles thereof
HH.	Articles of unspecified natural fibres

Group I. Wood and derived products

Group I contains all subheadings related to trade in wood itself, or of its derivatives and products thereof. That includes items such as wooden furniture and musical instruments made predominantly of wood, but also articles made from wooden derivates such as paper, pulp, and charcoal.

Group I is further divided into the following subgroups:

IA.	Wood
IB.	Charcoal
IC.	Articles of wood
ID.	Pulp
IE.	Paper, paperboard, and articles thereof
IF.	Furniture
IG.	Prefabricated buildings
IH.	Musical instruments
II.	Other products made of wood

Group J. Vegetable plaiting materials and articles thereof

Vegetable plaiting materials (mainly bamboo and rattan) are also products with direct biological origins.

Group J contains subheadings related to plaiting articles such as mats, screens and basketwork and is further divided into the following subgroups:

JA.	Bamboo and articles thereof
JB.	Rattan and articles thereof
JC.	Vegetable plaiting materials other than bamboo and rattan, and articles thereof

Group K. Other products of animal origin

Group K contains all those subheadings that are related to products with a specifically animal origin. These do not fit in any of the previous group and simultaneously are too heterogeneous and not large enough in number to warrant their own specific group. Examples are feathers and down for stuffing (HS 0505.10), pearls (HS 7101.10) or buttons made from bone, horn, tortoise shell, etc. (HS 9606.29).

Group K is further divided into the following subgroups:

KA.	Hair and bristles
KB.	Guts, bladders, and stomachs of animals, other than fish
KC.	Feathers, down and articles thereof
KD.	Bones horns, tortoise-shell, whalebone and whalebone hair, antlers, hoovers, nails, claws, beaks, coral, shells, cuttle-bone, and articles thereof
KE.	Ivory and articles thereof
KF.	Pearls and articles thereof
KG.	Other animal products or dead animals, unfit for human consumption

Group L. Other products of plant origin

Group L contains products that did not fit specifically in one of the previous groups, but that have a plant origin. Examples are headings such as tobacco (HS 24.02 and 24.03), rubber (HS 40.01) and cork (HS 45.01 and 45.02).

Group L is further divided into the following subgroups:

LA.	Tobacco and tobacco substitutes
LB.	Natural rubber
LC.	Cork and articles of cork
LD.	Brooms and brushes of vegetable materials
LE.	Other vegetable products, not elsewhere specified or included

Group M. Miscellaneous

Group M includes subheadings that did not fit into any of the previous groups. These are simultaneously not made specifically of animal or plant products but could rather contain a mix of both. Examples include biofuels (HS 2207.10) and pet food (HS 2309.10).

Group M is further divided into the following subgroups:

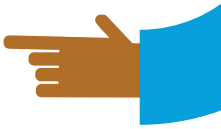
MA.	Biofuels
MB.	Pet food
MC.	Glues and adhesives
MD.	Other pulp, not elsewhere specified or included
ME.	Products made of unspecified material or potentially from non-biological material

Subgroup M5 – *Products made of unspecified material or potentially from non-biological material* includes products such as leather footwear where it is not specified whether the leather is real or synthetic (HS 6405.10) or plaited headgear (HS 6505.00). These may be M5. Products made of unspecified material or potentially from non-biological material made in part, from biodiversity-based products, such as leather or fibres, but for which it cannot be excluded that some do not include components or parts with a biological origin.

5 Conclusion

For over 25 years, UNCTAD has been working at the intersection of trade and biodiversity through its BioTrade Initiative, with the objective of showing that trade can also be part of the solution to address biodiversity loss and promote benefit-sharing schemes, and not just be an indirect driver of it. Trade can support economic growth and development and is recognised as such within the Addis Ababa Action Agenda, the 2030 Agenda and the SDGs. Trade policies can support and promote biodiversity conservation and sustainable use and benefit sharing, contribute to address over-exploitation and unsustainable consumption and production patterns, as well as reform subsidies harmful to biodiversity (UNCTAD, 2017a).

We are currently standing at a crossroads. On the one hand, we can either carry on with the unsustainable consumption and production patterns that contributed and continue to contribute to the global biodiversity crisis and threaten the resources upon which our economies and human life depend, or we can embark on a transformational process, changing how we interact with and respect nature. For this purpose, policy frameworks, such as trade or environmental policies based on comprehensive, harmonised, and comparable information, can play a pivotal role.



Policy frameworks, such as trade or environmental policies based on comprehensive, harmonised, and comparable information, can play a pivotal role

Through the product list and the product classification of biodiversity-based goods, UNCTAD seeks to provide harmonised and comparable trade statistics that support member States and other stakeholders in their decision-making processes related to biodiversity and trade at the national, regional, and international levels. For instance, the TraBio product classification developed as part of the homonymous statistical tool, will support policy making, facilitate research and results comparisons, and as well as facilitate the tracking of progress on policy and development objectives, sustainability targets, and so forth. Future work should be aimed at including information on the sustainability of production and trading activities of products into the statistical tool. This could possibly be achieved by arguing for changes to futures revisions of the HS, by mapping that data in the TraBio statistical tool against data from sources that explicitly highlight sustainable trade, or by collecting data on certified trade volumes from certifiers or related data sources.

Additionally, options should be explored on how to differentiate domesticated from wild and wild-farmed species, as well as providing trade information at the species level for specific endangered or illegally traded species, thus better contributing to conservation efforts. Finally, mapping efforts could also be attempted with ABS and intellectual property policy instruments, such as the IRCC under the Nagoya Protocol or the WIPO's IPC, to further support compliance with ABS regulatory frameworks and requirements under the CBD and the Nagoya Protocol.

These objectives contribute to UNCTAD's aim to foster international cooperation and instruments to promote and mainstream biodiversity in policies, strategies, and practices of global value chains, and thus ensure the necessary conservation and sustainable use of biodiversity and ecosystems (UNCTAD, 2021; paragraph 73). More specifically, it responds to UNCTAD's mandate to "continue to provide statistics, analytical work and technical assistance to developing countries, to promote structural transformation" (UNCTAD, 2021; paragraph 127.q) as well "to support developing countries in identifying relevant trade and investment

policies to contribute to the attainment of the climate and environmental goals of the 2030 Agenda, with due cooperation with relevant international organisations" (UNCTAD, 2021; paragraph 127.ll). Per se, both the TraBio statistical tool as well as the product classification support member States and other stakeholders in creating and strengthening an enabling policy environment for biodiversity conservation while generating livelihoods as well as inclusive economic development.

UNCTAD's pioneering work aims to set a course towards the establishment of a complete and well-functioning automated tool containing harmonised and easily comparable data to feed into research and inform decision-makers. It hopes to contribute to the documentation and tracking of progress on trends in the trade of biodiversity-based goods, as well as on goals and targets established under national and multilateral sustainable development processes.

Finally, the TraBio statistical tool and product classification aim to become a well-recognised and accepted standard for trade statistics in biodiversity-based goods, thus enabling further collaboration and work with other organisations and stakeholders working on trade-related information and reporting on trade and biodiversity.

With this goal in mind, the maintenance and further development of the statistical tool – including the product classification – is to be understood as an adaptive process based on expert and user feedback. If you wish to provide any comment or feedback on the TraBio statistical tool, please do so by sending an e-mail to biotrade@unctad.org – Subject: Comments to TraBio.

Both the TraBio statistical tool as well as the product classification support member States and other stakeholders in creating and strengthening an enabling policy environment for biodiversity conservation while generating livelihoods as well as inclusive economic development

6 References

Andersson AA et al. (2021). CITES and beyond: Illuminating 20 years of global, legal wildlife trade. *Global Ecology and Conservation*. 26e01455.

Balasubramanian A (2014). *Classification of Agricultural Crops.*

Bühring J (2019). Classifications: How to Distinguish Between Products. Available at https://intrepidsourcing.com/trade-wiki/classifications-how-to-distinguish-between-products/ (accessed 24 June 2021).

CBD (1992). Text of the Convention on Biological Diversity – Article 2: Use of terms.

CBD (2018a). Biodiversity and the Sustainable Development Goals. CBD Press Brief. Convention on Biological Diversity.

CBD (2018b). Long-term strategic directions to the 2050 Vision for Biodiversity, approaches to living in harmony with nature and preparation for the post-2020 global biodiversity framework - Note by the Executive Secretary November. Available at https://www.cbd.int/doc/c/0b54/1750/607267ea9109b52b750314a0/cop-14-09-en.pdf.

CBI (2019). CBI product tree, definition of sectors based on HS codes.

Dasgupta P (2021). *The Economics of Biodiversity: The Dasgupta Review: Full Report*. HM Treasury. London.

Drinkwater E, Outhwaite W, Oldfield T, Floros C, and TRAFFIC (2020). Cracking the Code: an analysis of Customs HS codes used in the trade in wild animals and plants from Africa to Asia.

Eurostat (1996). CPA 1996 - Statistical classification of products by activity in the European Economic Community. (accessed 26 July 2022).

FAO (2015). World Programme for the Census of Agriculture 2020. FAO Statistical Development Series. Food and Agriculture Organization of the United Nations. Rome.

Gantioler S, Tucker G and Kettunen M (2008). Identification and classification of the main agricultural biodiversity values. Institute for European Environmental Policy.

Haines-Young R and Potschin-Young M (2010). Proposal for a Common International Classification of Ecosystem Goods and Services (CICES) for Integrated Environmental and Economic Accounting. *Report to the European Environment Agency*.

Hancock A (2013). Best Practice Guidelines for Developing International Statistical Classifications. 19.

ILO, FAO, IFAD, and WHO (2020). Joint statement: Impact of COVID-19 on people's livelihoods, their health and our food systems.

IPBES (2019). Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. S. Díaz, J. Settele, E. S. Brondízio E.S., H. T. Ngo, M. Guèze, J. Agard, A. Arneth, P. Balvanera, K. A. Brauman, S. H. M. Butchart, K. M. A. Chan, L. A. Garibaldi, K. Ichii, J. Liu, S. M. Subramanian, G. F. Midgley, P. Miloslavich, Z. Molnár, D. Obura, A. Pfaff, S. Polasky, A. Purvis, J. Razzaque, B. Reyers, R. Roy Chowdhury, Y. J. Shin, I. J. Visseren-Hamakers, K. J. Willis, and C. N. Zayas (eds.). IPBES secretariat. Bonn, Germany, 60.

IPBES (2020). Workshop Report on Biodiversity and Pandemics of the Intergovernmental Platform on Biodiversity and Ecosystem Services. Daszak, P., das Neves, C., Amuasi, J., Hayman, D., Kuiken, T., Roche, B., Zambrana-Torrelio, C., Buss, P., Dundarova, H., Feferholtz, Y., Foldvari, G., Igbinosa, E., Junglen, S., Liu, Q., Suzan, G., Uhart, M., Wannous, C., Woolaston, K., Mosig Reidl, P., O'Brien, K., Pascual, U., Stoett, P., Li, H., Ngo, H. T. IPBES secretariat. Bonn, Germany, 96.

IPBES (2022). Summary for policymakers of the thematic assessment of the sustainable use of wild species of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services - Advance undedited version. Zenodo. (accessed 20 July 2022).

IPCC (2018). Summary for Policymakers of IPCC Special Report on Global Warming of 1.5°C approved by governments. (accessed 7 July 2021).

Naeem S et al. (2021). The Classification of Medicinal Plant Leaves Based onMultispectral and Texture Feature Using MachineLearning Approach. *Agronomy*. (11):263.

PromPerú (2014). Sistematización del Proyecto Biocomercio Andino Perú. Comisión de Promoción del Perú para la Exportación y el Turismo–PromPerú. Lima.

UNCTAD (2017a). 4th BioTrade Congress report: Trade and Biodiversity conservation. United Nations Conference on Trade and Development. Geneva.

UNCTAD (2017b). 20 years of BioTrade: Connecting people, the planet and markets. 96.

UNCTAD (2020a). SDG Pulse 2020 - UNCTAD takes the pulse of the SDGs. UNCTAD. Geneva.

UNCTAD (2020b). *BioTrade Principles and Criteria for Terrestrial, Marine and Other Aquatic Biodiversity-Based Products and Services.* UN. Geneva.

UNCTAD, ITC, et al. (2020). Review comments on the draft monitoring framework for the post-2020 global biodiversity framework. Available at https://www.cbd.int/api/v2013/documents/79AC9349-F0B5-151B-F786-93A9E55E61D6/attachments/UNCTAD(1).pdf.

UNCTAD, CITES, et al. (2020). Contribution of BioTrade Partners to the post-2020 global biodiversity framework.

UNCTAD (2021a). Towards a harmonized international trade classification for the development of sustainable ocean-based economies. United Nations Conference on Trade and Development. Geneva.

UNCTAD (2021b). Oceans Trade database. Available at https://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx?IF_ActivePath=P%2C207996.

UNCTAD (2021c). Bridgetown Covenant October. Available at https://unctad.org/system/files/official-document/td-l-435_en.pdf (accessed 29 December 2021).

UNCTAD (2022). Trade and Biodiversity Statistics - Methodological Approach. Geneva.

UNCTAD (Forthcoming). Trade and Biodiversity Statistics: Methodological Approach (tentative title). United Nations Conference on Trade and Development. Geneva.

UNCTAD (forthcoming). Working title: Voluntary Sustainability Stnadards and BioTrade: Is there a Connection? United Nations Conference on Trade and Development. Geneva.

UNEP, ed. (2010). *Mainstreaming the Economics of Nature: A Synthesis of the Approach, Conclusions and Recommendations of Teeb*. The economics of ecosystems & biodiversity. UNEP. Geneva.

UNEP (2015). Aportes para la Implementación de la Estrategia Nacional de Biocomercio en el Perú: Comercio Exterior y Producción Agrícola.

UNEP-WCMC (2022). Complementary indicators to the post-2020 global biodiversity framework. Available at https://www.post-2020indicators.org/complementary-indicators (accessed 27 May 2022).

United Nations (2021). Past 7 years set to be warmest on record, sea level at new high.

UNODC (2021). *World Wildlife Crime Report 2020: Trafficking in Protected Species*. UNITED NATIONS. S.l.

WCO (2016). HS Nomenclature 2017 edition. Available at http://www.wcoomd.org/en/topics/nomenclature/instrument-and-tools/hs-nomenclature-2017-edition/hs-nomenclature-2017-edition.aspx (accessed 25 June 2021).

WCO (2022). What is the Harmonized System (HS)? Available at http://www.wcoomd.org/en/topics/nomenclature/overview/what-is-the-harmonized-system.aspx (accessed 28 June 2022).

WEF (2020). Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy. New Nature Economy series. World Economic Forum. Geneva.

Zevallos Pérez A (2005). Identificación de Barreras al Comercio Internacional de la Biodiversidad (Exportación).

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