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PURSUING SUSTAINABLE DEVELOPMENT GOALS

THE PERFORMANCE OF TÜRKİYE IN THE CENTENNIAL OF THE REPUBLIC

Editors

Billur ENGİN BALIN
H. Dilara MUMCU AKAN
Ferda KARAGÖZ ÖZENÇ
Özcan GARAN

İSTANBUL UNIVERSITY PRESS

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PREFACE

As the centennial commemoration of the establishment of the Republic of Türkiye draws near, it is opportune to reflect upon the advancements achieved thus far and the challenges that persist in our endeavour to construct a sustainable and prosperous nation. This editorial book represents a collective effort to examine, assess, and comprehend Türkiye's advancements in relation to the Sustainable Development Goals (SDGs) during a significant juncture coinciding with the nation's centennial commemoration. It encompasses a wide range of disciplines, such as economics, sociology, history, education, international relations, political science, tourism, environment, and the natural sciences, among various others. In doing so, it adopts an interdisciplinary approach to address the complex societal aspects of sustainable development.

The 2030 Agenda for Sustainable Development, endorsed by all United Nations (UN) member states in 2015, has 17 Sustainable Development Goals (SDGs) at its core. This agenda serves as a compelling appeal for both developed and developing nations to collaborate in a global partnership. The underlying concept posits that sustainable development necessitates the harmonious integration of economic, social, and environmental dimensions.

Türkiye, a nation characterised by a rich historical background and diverse cultural heritage, has diligently strived to achieve these worldwide objectives since the 1990s. Türkiye has demonstrated significant advancements in its efforts to achieve the Sustainable Development Goals (SDGs), combat poverty, inequality, and environmental degradation, as well as foster economic growth and social inclusion. Considerable effort has been dedicated to formulating and implementing the 2030 Agenda for Sustainable Development, with a primary objective of achieving the Sustainable Development Goals (SDGs). Substantially, most of these goals have been included in legislative and policy frameworks.

However, the 2023 Sustainable Development Report highlights that there is still room for improvement in implementation and projects. According to the report, Türkiye is positioned at 72nd place among 166 nations in the Sustainable Development Goals Index, with a corresponding score of 70.8. The report highlights that Türkiye faces significant challenges in 10 out of the 17 goals while encountering substantial barriers in 5. In this respect, this book is dedicated to exploring the various dimensions of Türkiye's achievements within the framework of the Sustainable Development Goals. It offers critical insights, data-driven analyses, and a nuanced understanding of Türkiye's performance, successes, and areas for improvement.

We hope this book will serve as a valuable resource for policymakers, scholars, practitioners, and the global community by providing thorough research, critical analysis, and intellectual contributions. The contributors of this book anticipate that the perspectives presented within its pages will stimulate well-informed discussions, encourage the formulation of policies grounded in empirical evidence, and foster collaborative efforts to achieve a more sustainable future for Türkiye and the international community.

We would like to extend our sincere appreciation to the authors and referees who have generously shared their expertise and dedicated efforts toward developing this essential scholarly work. Their collective efforts have enriched the discourse on sustainable develop-

ment and positioned Türkiye on the global stage as a nation committed to realising a better, more equitable, and sustainable world for all. Furthermore, we would like to express our special gratitude to Prof. Anil Markandya for authoring our introductory chapter. Finally, we would like to thank Istanbul University Press for their contribution in releasing this book.

Editors

Billur Engin Balın
H. Dilara Mumcu Akan
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INTRODUCTION

The Sustainable Development Goals or SDGs are key drivers of an international effort to achieve sustainable development across several dimensions. The 17 goals and associated indicators allow countries to track progress, evaluate actions taken, and propose policies to improve performance.

This volume is a welcome discussion of trends of all SDGs in Türkiye over recent years. As a country that has made great progress in some areas of development but less so in others, a serious evaluation of its performance is a great contribution to the debate on directions of policy for sustainable development in the country.

Doubtless, a key goal in Türkiye as it is elsewhere is to eliminate poverty. The volume rightly gives central consideration to success this goal. While much progress has been made in eliminating extreme poverty in the country, recent events have resulted in some setbacks. As the book notes, poverty reduction also has strong spillover effects on other SDGs.

The next goal is to reduce hunger and increase food security. A chapter is devoted to policies to address these issues, especially in light of the recent COVID-19 epidemic, which is affecting supply chains and causing a food crisis.

The third goal is to ensure healthy lives and promote well-being for all at all ages. While Türkiye has a relatively good record on life expectancy, there is room to increase the use of preventive health services. A chapter looks at ways of doing so through 'nudge' policies and their possible effectiveness.

The fourth goal is related to inclusive and equitable education. Two chapters are devoted to this, including one focussing on the effects of compulsory schooling reform on women's empowerment (which has had relatively little benefit with regard to empowerment-related outcomes. Clearly, more needs to be done in this regard with regard to reducing the large disparities in performance between schools in different regions and across different kinds of schools.

The related goal of gender equality (goal 5) has three chapters devoted to it. The first notes that while schooling rates of girls have improved, forced marriages have decreased, and the number of women in leadership positions has increased, gender equality has not been achieved in Türkiye. In this, the country is not alone: the same applies across the whole world. A second chapter identifies successful strategies, policies, and initiatives to promote gender equality and enhance women's representation. Finally, a third focuses on the role of working standards in improving the lives of disabled women in the workplace.

Progress toward the goal of clean water and sanitation (goal 6) is investigated over the period 2000-2020 for Türkiye relative to other OECD countries, and an analysis was carried out looking at links between this goal and the goals of poverty reduction, health, education and gender equality.

Goal 7 relates to access to affordable, reliable, sustainable, and modern energy for all. The volume examines the development of affordable and clean energy with a specific focus on proposals for increasing energy efficiency. Another chapter looks at the potential for geothermal and hydro power in contributing to this goal in Türkiye.

Inclusive growth is a key goal (SDG8). It has been evaluated for Türkiye for two periods (2002-2011 and 2011-2019). The authors find that while the growth structure of the country had more inclusive features in 2002-2011, and it dramatically declined after 2011. This is an important finding that should spark debate on actions needed to reverse that decline.

Growth is also affected by efficient investment in the right kind of infrastructure. One chapter looks at the ways in which such projects are selected and evaluated in Türkiye. It concludes that present methods of appraisal do not give enough importance to sustainability concerns, and others are high-cost and involve conflicts with other SDGs.

Goal 9 relates to building resilient infrastructure, promoting inclusive and sustainable industrialisation, and fostering innovation. A chapter in the book finds that despite a substantial increase from 2000 to 2021, Türkiye still lags behind the majority of selected countries in terms of the proportion of gross domestic R&D expenditure in GDP and the number of researchers per one million inhabitants, both of which are crucial indicators for monitoring progress towards this goal. This should start an active debate on how the gap can be closed.

Goal 10 seeks to reduce inequality within and between countries. A chapter devoted to this goal focuses on the role of government policies, especially fiscal, wage and social protection policies, in the pursuit of achieving greater equality. As the development goals cannot be met unless the required improvements in certain indicators, such as education, health, and material standard of living, are achieved, the analysis of functional public expenditures provides insights into evaluating current problems and developing relevant policy proposals. Another chapter on this goal asks what can be done to reduce inequality in Türkiye. A key factor behind the increase in inequality is the rise in capital income relative to wage income. On this basis, the chapter identifies the potential for reversing income inequalities in Türkiye. It formulates several policy reforms and institutional arrangements to reduce inequalities and flags policy areas that might conflict with tackling widening economic inequality targets.

Goal 11 aims to make cities and human settlements inclusive, safe, resilient, and sustainable. The volume contains a case study that evaluates the university-industry-government-civil society cooperation for the realisation of this development goal in the context of the Marmara Urban Forum (MARUF19) organised by the Marmara Municipalities Union in 2019.

Goal 12 aims to ensure sustainable production and consumption patterns. Tourism and hotels have an important role in this regard, so one of the chapters looks at green practices by hotels and their responsible consumption. As a result, four main components of hotels' green practices and their responsible consumption are revealed: recycling, energy-saving, training, and encouragement and preferring sustainable products.

Goal 13 is to combat climate change and its impacts. This chapter emphasises integrating climate change measures into national policies and strategies. It notes that despite some efforts in regulations and action plans, the country's greenhouse gas emissions have more than doubled since 1990, driven by rapid industrialisation, urbanisation, and population growth. Implementing market-based instruments in Türkiye is evaluated as a means of addressing the increase in emissions. These instruments can provide the right incentives in a cost-effi-

cient way. The key priority areas for the country's environmental policy and market-based instruments are the electricity, industry, and transport sectors. Mitigating emissions requires increasing renewable energy in the electricity sector, improving industrial efficiency, and promoting sustainable transportation practices. Finance for such investments, however, is a challenge, and innovative ways of raising it will be paramount. Here there is a role for both global support as well as green bonds, which, as one chapter shows, when issued under the right terms, can make an important contribution.

Goal 14 is to conserve and sustainably use the oceans, seas, and marine resources for sustainable development. As a chapter devoted to this topic notes, marine tourism, fisheries and aquaculture, and maritime transport sectors are the leading areas of the Blue Economy in Türkiye. While significant economic benefits are realized by these sectors, the country's blue economy strategy also faces challenges in protecting the marine environment and ensuring sustainability. These include marine pollution, overfishing, technological gaps, and diplomatic and legal barriers. Given the targets and indicators of SDG 14, Türkiye needs to strengthen its policies and efforts, particularly in protecting marine and ocean resources, promoting sustainable fisheries, conserving marine biodiversity, and investing in marine technologies.

Goal 15 seeks to protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss. A chapter in the book looks at this problem from the perspective of the political Economy of the Conservation of Biodiversity and Biodiversity-based Trade. It notes that international trade is one of the main drivers of biodiversity loss since colonialism. By using the UNCTAD and CITES databases on bio-trade, the study shows that biodiversity-based production and trade contribute significantly to the Turkish economy. Although some progress has been made in the sustainable utilization of biodiversity, however, Türkiye lags far behind in comparison to its peers. The efforts to mitigate biodiversity loss are relatively limited and the environmental performance indicators of the country are below the world average.

Another chapter addressing this goal focuses on sustainable land and forest management. Due to the increasing population, urbanization, and industrialization, forest areas are under pressure. In spite of this, the total forest area of Türkiye has increased from 20.7 million hectares to 23.1 million hectares in the last two decades, mainly thanks to the reforestation of abandoned arable lands and afforestation activities. Moreover, erosion control and pasture improvement activities have enabled the country to achieve success in combating desertification and land degradation. Notwithstanding this considerable progress, there are still significant challenges in achieving some of the targets and indicators outlined in SDG-15. These challenges require management of land and forest resources with a holistic approach, enhancement of collaboration among relevant institutions, provision of financial support, and establishment of a monitoring and evaluation system.

Goal 16 aims to promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels. A chapter looks at the role of Türkiye as an actor in sustaining international peace,

with reference to the Ukraine war. This study sheds light on the current debate on the international conflict from a different perspective and evaluates and analyses Türkiye's Sustainable Development performance in terms of contributions to international peace.

Overall, there is a great deal of material here that should provide a strong basis for a policy dialogue on how actions by governments, the private sector and civil society can promote the SDGs in Türkiye, recognizing the strong links that exist between the different goals and how policies designed to impact on goal can have both synergistic and negative impacts on others.

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Distinguished Ikerbasque Professor
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Leioa, Spain

SUSTAINABLE

DEVELOPMENT

GOAL

CHAPTER 23

THE POLITICAL ECONOMY OF THE CONSERVATION OF BIODIVERSITY AND BIODIVERSITY-BASED TRADE: THE CASE OF TÜRKİYE

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Abstract

This study examines the situation of Türkiye regarding the conservation of biodiversity from a historical standpoint. It critically assesses the progress made by the public authority in terms of biodiversity awareness and the regulations implemented in this regard by reviewing the official reports such as development plans and by evaluating the components of the Environmental Performance Index, developed by Wolf et al. (2022). Given that the decline of biodiversity within a single country has repercussions not only for that country but also for the global ecosystem, international organizations have been addressing this issue since the 1970s. The Sustainable Development Goals (SDGs), which serve as the primary framework for this book, emphasize the need to minimize biodiversity loss and promote the sustainable utilization of biodiversity. These objectives are particularly relevant for SDG 15 and, to a lesser extent, for SDG 14 and SDG 12. To provide insights into Türkiye's progress over time, the study provides a historical depiction of the biodiversity-based global production and trade networks associated with the sustainable use of biodiversity. It figures out that international trade is one of the main drivers of biodiversity loss since colonialism. Additionally, the study conducts a critical analysis of international regulations aimed at promoting its sustainable use, while the regulations of Türkiye align mainly with these international developments. Lastly, by using the UNCTAD and CITES databases on biotrade, the study analyzes the biotrade flows of Türkiye, its sectoral linkages, and the significance of biotrade flows of Türkiye in comparison to the other regions as well as evaluating the national trade regulations. Overall, the study shows that biodiversity-based production and trade contribute significantly to the Turkish economy. Although some progress has been made in the sustainable utilization of biodiversity, Türkiye lags far behind in comparison to its peers. In that sense, Türkiye exhibits a realist/economic nationalist approach to the conservation of biodiversity. It tries to ensure not to undermine its economic development in not just agriculture as the most biodiversity-sensitive sector, but also in others such as tourism, energy, and industry while taking measures to safeguard biodiversity. Besides, there have been relatively few endeavors aimed at reducing the decline in biodiversity, even though the country's environmental performance indicators fall below the global average.

Keywords: The Conservation of Biodiversity, Biodiversity-based trade, Türkiye, International trade regulations

1. Introduction

Biological diversity refers to the variety of species, ecosystems, and genes on earth that sustain life for both their selves and human beings. In economic terms, biodiversity is the source of many products and services utilized by society, and it supports the livelihoods of more than half of the world's population, especially those who are most vulnerable and directly dependent on it to satisfy their livelihood (UNCTAD). In comparison to temperate zone regions, tropical regions are prosperously endowed with biodiversity (Hermann, 2014: 9), and most of their export revenues are generated from biodiversity (See Appendix Figure A1 and Figure A2). However, the loss of animal and plant species undermines a basic means of production for the poor in those regions where economic prosperity is well below the world average.

The loss of biodiversity is a direct side effect of global capitalism. An increased number of species are subject to commodification and commercialization to satisfy new demands of global production and trade. International trade is a significant driver of biodiversity loss, as it exacerbates not just import demand, particularly for biodiversity-based products but also maritime transport[1], road building, and aviation facilities[2] for the continuous flow of all tradable products. In 2011, consumption in other world regions was responsible for 33% of biodiversity impact in Central and Southern America and 26% in Africa (Marques, 2019: 628).

Not only do the overconsumption and production patterns embedded into global capitalism threaten biodiversity, but they also undermine the resilience of ecosystems to climate change, pollution, land use change, and invasive alien species which are also unfortunate outcomes of globalization and the expansion of extractive activities. In turn, this vicious circle of environmental degradation increases the vulnerability of crop varieties, livestock breeds, wild species, forests, and habitats at unprecedented levels.

Even a cursory look well depicts the current estate of devastating extinction of species across different biodiversity groups[3]. Figure 1 shows the 48-year trend for the Living Planet

1 It is estimated that Merchant shipping, which uses the most polluting type of oil, emits 1,2 billion tons of CO_2 per year (Dicken, 2015: 288).

2 Aviation facilities puts pressure into biodiversity in a number of ways. They primarily cause land degradation by expansion and operation of airports, increase air, noise, and light pollution during the flight which in turn affect terrestrial and aerial ecosystems and aggravate climate change by increasing carbon emissions.

3 The biodiversity can be grouped into four components: i) genetic diversity, ii) species diversity, iii) ecosystems (including forests, wetlands, and mountains) and habitats (including fallow land, hedges, shrubs, and trees) diversity, iv) conditions of natural resources (water, oil ext.) (UEBT, 2021: 5). The biodiversity loss is mainly associated with species diversity and especially diversity of vertebrate species (birds, mammals, reptiles, and amphibians). But it actually includes a wide concept of nature with all its generic forms.

Index (LPI) which is a weighted measure of the state of the world's biological diversity based on population trends of vertebrate species from terrestrial, freshwater, and marine habitats around the world. The index represents 31821 populations of 5230 species as of 2018. As can be seen in Figure 1, the world has lost around 70% of its global vertebrate population between 1970 and 2018. The decrease in the index value reaches up to 83% when LPI is measured only for freshwater habitats for the same period (WWF, 2022: 36). Even the projections of better climate models reveal long-term declines in global marine animal biomass. In light of ocean warming, marine fishery harvests in southeast Asia are expected to decrease by between 20–30 percent, accompanied by a loss of 20 percent of marine biodiversity by 2050 (UNCTAD, 2021: 25).

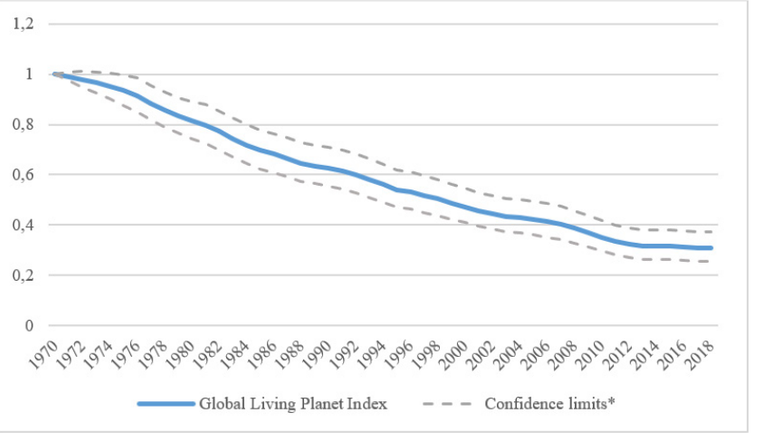

Figure 1. Living Planet Index, 1970-2018
Source: https://www.livingplanetindex.org/latest_results, Accessed 13.04.2023.
*Confidence limits illustrate the statistical certainty at 95%.

Other than the vertebrate diversity, ecosystems, and habitats have also been degraded and destructed by time. Some 420 million hectares of forest have been lost due to large-scale commercial production of agricultural commodities such as palm oil, soy, and other related land-use conversion for over 30 years (UNEP, 2021: 4). Global forest area is now approximately 68% of the estimated pre-industrial level (IPBES, 2019: XXVIII). Besides, the degradation of forests is quite uneven. Although forest cover stabilized in high-income countries, it has rather fallen 30% in low-income countries since 1990, as agricultural area fell in the former but rose in the latter (IPBES, 2019: 54). In terms of plant species, most of the conifers and cycads, several monocots, dicots and ferns are counted among those taxa which are threatened

by extinction (IUCN). It is estimated that approximately 15,000 (out of the 50,000–70,000) plant species utilized for medicinal purposes globally are considered at risk due to excessive utilization and the decline of their natural habitats (Hermann, 2014: 38).

Ongoing destruction in biodiversity and ecosystems is expected to undermine progress toward 80% (35 out of 44) of the assessed targets of the Sustainable Development Goals, related to poverty, hunger, health, cities, climate, oceans, and land (SDG 1, 2, 3, 6, 11, 13, 14 and 15) (UNEP, 2021: 2). Hence biodiversity loss has been a multidimensional and multilayered phenomenon with its mutually reinforcing drivers and complex impacts. The market cannot be relied on to control the environmental and other costs of globalization (Ehrenfeld, 2003). However, governments, which are expected to regulate markets in a way to support biodiversity preservation, have still been following policies that are harmful to biodiversity (UNEP, 2021: 3). Among these policies, the most prominent ones are (i) agricultural supports for inefficient and/or geographically inadaptable crops, which causes salinization and/or water-logging, (ii) pesticide, fertilizer and water subsidies, which result in groundwater aquifers, impaired air quality, depletion of water bodies, respectively, by incentivizing the overuse of these inputs, (iii) fisheries support, causing depletion in marine ecosystems through the promotion of overfishing, (iv) conversion of biodiversity-rich areas to biofuel crops or enhanced forest activity for timber, (v) construction of transport infrastructure or energy and mining facilities, which cause habitat fragmentation, ecosystem degradation and climate change (Matthews & Karousakis, 2022: 15).

On the other hand, multinational institutions began to include environmental degradation in their agenda at the beginning of the 1970s. Several international treaties have been developed to address the need for not just protecting particular species, but also the broader ecosystems in which they live. In line with this goal, the first global convention was the 1971 Ramsar Convention on the Protection of Wetlands[4]. Later on, the World Heritage Convention was adopted in 1972 for the protection of cultural and natural sites of universal value, including habitats (Bodansky, 1995: 629). In the same year, the UN Conference on the Human Environment (UNCHE) convened in Stockholm in 1972. UNCHE recognized the environmental consequences of modern economic growth, and the UN Environment Programme (UNEP) was established as a permanent bureaucratic tool in the UN system (O'Brien & Williams, 2010: 356).

4 Wetlands include "areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters" (Convention on Wetlands of International Importance especially as Waterfowl Habitat, 1971: Article 1.1).

Nevertheless, it took two decades before governments reached a consensus on mandatory conventions. Convention on Biological Diversity (CBD) was signed in 1992 at the Sustainable Development Conference held in Rio de Janeiro. CBD has 175 Contracting Parties, 174 states, and the European Community as a regional economic integration organization (Henne & Fakir, 1999: 316). Signatory countries were obliged to prepare and update the National Biodiversity Strategy and Action Plan (NBSAP) by Article 6 of UN CBD. They were further obliged to define their objectives to achieve the global targets considering their national priorities. Realizing the inverse effects of global production and trade on biodiversity, Agenda 21[5] also underlined the urgent need for a change in current consumption and production patterns (UN).

However, neither governments nor multinational institutions tackle the problem of biodiversity loss from an ecological framework. Instead, with a technocentric environmentalist perspective[6], they believe in a reform of the existing international economic order without a satisfactory questioning of the relationship between natural systems, modern industrial growth, and human wants and their historical foundations.

In light of this information, this study takes into consideration first the relationship between biodiversity loss and biodiversity-based trade (hereafter biotrade). In the second part, it tries to shed light on the drivers of this pattern of trade, and the magnitude of biotrade flows in terms of countries and products. Besides, the study aims to review the international regulations on biodiversity conservation, utilization, and trade from a political economy framework. In doing so, it also becomes possible to evaluate regulations in Türkiye, while the country's legislation on biodiversity has evolved to a large extent in response to these developments. Lastly, the third section of the study is devoted to a detailed analysis of the recent developments in biodiversity conservation in Türkiye as well as a historical review of the environmental policies concerning biodiversity. Finally, this section ends with an assessment of the biodiversity-based trade in Türkiye and an overview of the regulations of trade policy in the conservation and utilization of biodiversity.

5 Agenda 21, which emerged from the Rio Summit, was a flexible action plan that did not impose legal obligations. It aimed to guide countries and regions in implementing strategies tailored to their unique circumstances, capabilities, and priorities.

6 The technocentric approach to environmental degradation is based on an anthropocentric view, which puts humans at the center of the analysis. Nature, in this view, is accepted as an instrument in sustaining human life. Modern economic growth is necessary for progress. In contrast, the ecocentric approach recognizes the environment as central to the survival of all species as well as humans. It heavily criticizes the economistic view of the technocentric approach and argues that the short-term marginal analysis of neoclassical economics cannot produce permanent solutions against environmental degradation. Because the ecosystem contains the economy, rather than vice versa, the ecosystem should be the unit of analysis (O'Brien & Williams, 2010: 352-355).

2. The Political Economy of Global Production and Trade of Biodiversity-Based Products

For a long time, neither environmental problems nor their causes have been included in the mainstream economics literature. In the rise of development economics, they were all viewed as a by-product of industrialization, as in the case of poverty, which could be alleviated once the economy reached its take-off stage (Uzunyayla, 2017: 4). By the 1990s, the modernist growth rhetoric was replaced with the notion of "green development". According to this liberal perspective, environmental degradation results from market failure, defined as the lack of proper valuation mechanisms for natural resources. Hence it becomes possible to value the environment by determining the "real costs" of resource use. In this view, valuation is a crucial tool in environmental protection. With the implementation of market principles, economic growth would bring about the protection of the environment rather than its retardation. Although the inclusion of the environment in pricing policies is widely recognized, what should be the efficient policy has been a disputed issue among environmental economists. Proponents of market-based solutions argue that tradable pollution permits or green energy certificates can be a useful policy tool. On the contrary, supporters of interventionist policies propose environmental taxes, subsidies for environmentally-friendly technologies, or other legal regulations, such as clean air acts, clean production requirements, and conservation measures for natural resources (O'brien & Williams, 2010: 350-352).

Ongoing policy debate regarding the market versus interventionist solutions was extended towards the protection of biodiversity, biodiversity-based trade, and BioTrade. However, designing adequate instruments for protecting biodiversity has been a challenge, while biodiversity is a complex concept that includes not just species, but also the functional relations within the ecosystem (Bellora et al., 2020: 7). Besides any attempt toward reorganization of international trade in favor of biodiversity conservation requires an assessment of the political economy of the historical relationship between biodiversity and trade, including the demands of different interest groups (such as firms, countries, local communities, etc.) and the conflicts and negotiations that arise in response to these demands.

2.1. An Overview of the Historical Relationship between International Trade and Biodiversity

International trade significantly contributes to the loss of biodiversity by intensifying the demand for biodiversity-based products and catalyzing trade-related infrastructure, including

maritime transport[7], road construction, and aviation facilities, all of which facilitate the continuous flow of tradable goods. As for the former, international trade is, in a sense, controversial for biological diversity, as it is based on specialization patterns and comparative advantages of countries (Bellora et al., 2020, 9). From the viewpoint of traditional trade theories, a country can specialize and export a biodiversity-based product, if it has a comparative advantage on it. Specialization comes with higher levels of production in contrast to autarky, as a country produces not just for itself, but for other countries and in return imports other products out of its specialization cone. If the country's specialization cone consists of a limited range of products, biodiversity-based products turn out to be its sole means for acquiring imported products to satisfy domestic demand. When coupled with rising global demand for agricultural goods like palm oil, soy, cattle products (beef and leather), and timber, this can exacerbate the unsustainable exploitation of natural resources in a country due to insufficient environmental oversight (UNEP, 2021: 13-14). In turn, export specialization without any regulation will most probably bring overexploitation. The biodiversity-based trade (biotrade) had begun long before the conceptualization of classical trade theories. In the mercantilist era, which lasted for about 500 years, European colonialist activities led to the continuous extraction and transfer of plant and animal species. The growing international market for rubber, timber, tea, coffee, sugar, cotton, and wool paved the way for the destruction of forest ecosystems in the colonized world (Merson, 2000: 286). Plantation-style cultivation of export crops through the exploitation of local labor led to a massive transfer of economic value from indigenous territories, which were put into service of colonial powers under the private land ownership regime (as opposed to communal rights of indigenous people) (Domínguez & Luoma, 2020: 3-5).

On the other hand, European colonialism irreversibly transformed global biodiversity by introducing livestock (such as horses, rabbits, bees, cattle ext.) into the Americas (O'brien and Williams, 2010: 72) and by spreading alien plant species around colonial territories via triangular trade since the post-Columbian era (Crosby, 2004: 148-151). In a recent study, Lenzner et al. (2022) traced back the legacy of four European empires (British, Spanish, Portuguese, and Dutch) in today's naturalized plant distributions. They measured the impact of colonization by quantifying the similarity of non-native species in 1183 regions. In sum, they found that occupied regions are still more like each other in terms of their alien floras

7 With the entrance of container ships for the logistics of international trade, maritime transport has developed tremendously. However, maritime shipping has various direct effects on biodiversity such as noise pollution, collision, accidental oil spills and carbon emissions. It also indirectly affects biodiversity by carrying alien species. For example, alien species, which come from the Atlantic Ocean coast of North America with ship ballast water, feed on the eggs and lava of native fish species and are about to become dominant among the native fish in the Black Sea (TÜBA Çevre Çalışma Grubu et. al., 2006: 54, 56).

than expected by chance and the similarity increases, as the occupation time gets longer (Lenzner et al., 2022: 1729). The main contribution of this study to the political economy of biodiversity was the acceptance of colonialism, as one of the socio-economic causes of conversion in biodiversity. In a recent report of the Intergovernmental Panel on Climate Change (IPCC), "colonialism" has finally been included as one of the drivers of climate change and also accepted as being responsible for the uneven distribution of outcomes (IPCC, 2022: 12).

Despite being well into the twenty-first century, the most basic features of the historical relationship between trade and biodiversity are still valid. Biotrade is defined by CBD as the "production of value-added goods and services derived from biodiversity, both for domestic and for international markets". However, much biotrade is international, which is a good example of classical North-South trade. Compared to triangular trade, based on the acquisition of land, natural resources, and raw materials by colonial expropriation, present-day vertical trade flows are based on unequal exchange relations between "equivalent" states. Biodiversity-based exports flow from the biodiversity-rich "South" to the biodiversity-poor "North", where the consumers with the greatest purchasing power reside. (Hermann, 2014: 17). In a recent research focusing on the consumption-based biodiversity loss, it is found that 40% and 63% of the consumption-based plant and vertebrate losses of the Global North are embodied in the imported commodities from the Global South (Sun et al., 2022: 5). For those wealthy consumers, healthy, ethnic, diversified and less artificial food began to form a significant part of their consumption basket. On the supply side, fierce competition in the food market forces companies to differentiate and add value to their products through novel ingredients and flavors, many of which are derived from biodiversity native to tropical countries (Jaramillo Castro, 2012: 1; Hermann, 2014: 31). For these agro-food companies, the motivation of product differentiation gives rise to biodiversity-based value chains, covering a range of products (natural foods, handicrafts, medicinal plants) (Foppes, 2019: 9). These value chains include various stages of production and services such as harvesting, collecting, and storing raw materials, processing, and transportation, research, and product development, manufacturing, or commercialization of the final product. For developing countries and their low-income producers, export-oriented growth strategy and integration into global value chains were suggested as a vital tool to get out of poverty, as the subsistence economy was recognized to be an archaic form of production without accumulating wealth (Uzunyayla, 2017: 12). This kind of global production sharing has further accelerated the biotrade flows between developed and developing countries, especially after the end of the Uruguay round meetings in 1993. One significant factor that led developed countries, previously reluctant to decrease agricultural

trade quotas, to change their stance was the recognition that trade liberalization in agricultural products was crucial for many leading companies within these developed nations. This was essential for them to expand their global trade connections and ensure a diverse supply of products from around the world (Balaam, 2005: 58).

In 2021, the value of total biotrade exports[8] in the world equaled US$ 3.69 trillion, which accounted for 17.2 % of total world trade. Figure 2 shows the product composition of biotrade exports. Although the data in the figure does not provide information on the amount of utilization of species, as it is expressed in value rather than quantity, it provides insight into understanding the magnitude of the economic value of biotrade. As can be seen, "Food and beverage" has the highest product share in all years with an average (and almost stable) share of 36.6 %, followed by "Pharmaceuticals", "Wood and derived products" and "Natural fibres and articles thereof". In these twelve years, pharmaceuticals increased their share in biotrade from 12.5 % to 15.2 %, while the shares of "Wood and derived products" and "Natural fibres and articles thereof" decreased from 14.1 % and 14.3 % to 13.1 % and 10.6 %, respectively. The increased share of "Pharmaceuticals" demonstrates the growing importance of medicinal & aromatic plants as an input for this industry. Besides, the fact that food and beverage products account for the largest share of biotrade is an indication of the significance of the global food chains in the production and trade of biodiversity-based products.

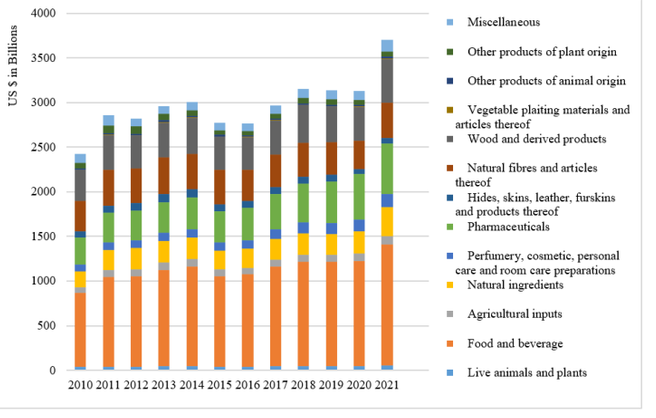

Figure 2. World biotrade export flows
Source: UNCTADSTAT, retrieved from https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=227725, accessed 30/05/2023.

8 Starting from 2010, UNCTAD contains data and indicators on biodiversity-based trade flows. In doing so, UNCTAD TraBio database takes into consideration not just species, but also products derived from biodiversity. In this conceptualization, the bilateral trade flows of products, based on biodiversity itself at a non- or low-processed stage or derived mainly from biodiversity-based products are also included in TraBio product list (Benda, 2022: 2,7).

Nevertheless, as an example of a buyer-driven supply chain, benefit sharing in these chains is mostly uneven and dependent on the power relations within the chain hierarchy. In this kind of supply chain structure, the demands, and preferences of a Western head-quartered international company (the buyer) shape the entire supply chain (Gereffi, 1999: 43). The buyer plays an active role in dictating the terms of the supply chain relationship to maintain low prices in final product markets. In a competitive world in which firms are seeking to cut costs, biodiversity-based chains raised anxiety for "race to the bottom", as producers from developing countries compete with each other by lowering labor standards or environmental regulations (O'brien & Williams, 2010: 368). However, deregulation in environmental standards is not always the case. Despite this, an increasing number of firms differentiate their brand for a particular product by making claims concerning environmental impact. The "bird-friendly" coffee, served in UK markets under the brand name Percol, is claimed to be a shade-grown coffee that does not destroy the forest canopy. By differentiating its product in terms of its environmental impact with a certification from the Smithsonian Migratory Bird Centre, the company adds increased value to its product in response to declining prices for agricultural commodities and increasing competition from new entrants to global food markets. In this way, production processes that promote a safe environment become a part of the product branding strategy in favor of credence goods (Humphrey, 2005: 5-6). In recent years, leader companies have redirected their focus away from highlighting their corporate social responsibility and public image in an endeavor to support sustainable development (Andrew, 2017: 14). However small producers tend to remain raw material suppliers in these kinds of high-value agri-food chains, as they cannot overcome their constraints related with scale, knowledge and expertise, and financing, all of which serve as a basis for eco-friendly product branding.

2.2. A Critical Review of the International Regulations on the Global Biodiversity-based Production and Trade

In the global biodiversity markets, as described so far, various regulations were enacted for the global governance of international trade to protect biodiversity, make biodiversity-based trade sustainable, and distribute the gains from trade in a fair manner. However, in terms of their perception of environmental protection, these regulations may differ from one another and sometimes have contradictory policy obligations. This is mainly due to the diverse interests of international firms, developed and developing countries, and non-governmental organizations (NGOs), which have been reflected in their strategies to shape international attempts to set up rules (Görg & Brand, 2000: 376-377). The main issues of conflict usually

revolved around access and benefit sharing in genetic resources, conservation and sustainable use of biodiversity, transfer of environment-friendly technologies, and financing access to these technologies, all of which are directly related to global production and trade of biodiversity-based products (McGraw, 2002: 26). For instance, developed countries and their companies placed great importance on obtaining access to genetic resources while developing countries and their local producers emphasized the equitable distribution of benefits as a key priority. In a similar vein, developed countries were worried about their intellectual property rights, while developing ones tried to ensure technology transfer (McNeely et al., 1995: 37). Besides each regulation was more or less a reflection of the political and economic conditions specific to its period.

The first international regulatory framework related to biotrade is the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) which has been in force since 1975 with 175 member countries[9]. CITES aims to safeguard the survival of wild animals and plants by ensuring that international trade in their specimens does not pose a threat. CITES does not replace national laws but provides a binding framework to its member countries, which must enact their domestic legislation to enforce CITES at the national level. It enforces import, export, and re-export controls on CITES-listed species[10] through country-specific export quotas, which are set annually. To issue export permits, a country's scientific authority must certify that the proposed export will not be harmful to the species' survival. Therefore, each member country bears the responsibility for setting quotas, except when quotas are established by a CITES Conference of the Parties (Hermann, 2014: 56). As can be seen, CITES regulations on biodiversity are examples of interventionist and protectionist policy tools, which can also be considered as extensions of the Keynesian policies that marked this period.

However, since the 1980s, with the rise of neoliberal consensus, the agenda of the world trading system began to change to reverse the growth of protectionism and negotiate over and harmonize policies that shape the conditions of competition (instead of bargaining over

9 The number of countries and regional economic integrations, which have joined the CITES, is 184 as of 2022. (CITES Secretariat and UNEP-WCMC, 2022).

10 CITES regulates international trade in over 40,900 species – including roughly 6,610 species of animals and 34,310 species of plants (CITES). Species are categorized into three groups due to their level of vulnerability in terms of extinction. Appendix I includes at around 3% of all CITES listed species. Trade is subject to strict regulations (Article III of convention), which require the presentation of an export permit or re-export permit and import permit. Appendix II includes for about 97% of all CITES listed species. Trade is regulated under Article IV, which requires an export permit, whereas import permit does not necessary unless regulated by party(ies). Lastly, species listed in the Appendix III permitted but regulated, although it is not as restrictive as for Appendix II species. (Prihadi, 2013).

products). The establishment of WTO, at the end of the Uruguay Round negotiations, has accelerated this process as an international organization with a legal personality akin to other intergovernmental organizations such as the IMF and World Bank (O'brien & Williams, 2010: 167-168). Since then, private access to nature as a resource and its valorization as an element of capitalist production and re-production have been on the agenda of WTO. One of the most conflicting issues related to benefit sharing in biotrade and bio-diversity-based chains is the usage of plant genetic resources as raw materials for pharmaceutical and agricultural biotechnology industries. The establishment of global intellectual property rights (IPRs) gave international firms exclusive rights to prevent other parties from reproduction or multiplication of the plant varieties with commercial ends, while these firms were not obliged to pay any fee for the use of genetic resources[11]. However, the protection of IPRs on behalf of international firms neither prevented the loss of genetic resources nor created any protective incentive for it. The free access regime intensified the unlimited usage of genetic resources, as there was no price formation (Ülker, 2002: 58-62). Besides, the fact that many of the indigenous people were prevented from the usage of plants with commercial ends, raised questions about the exclusionary effects of IPRs.

In contrast to the conservative position of WTO, the fair and equitable sharing of the benefits arising out of the utilization of genetic resources was one of three objectives, stated in Article 1 of CBD (CBD, 1992: 3). Although CBD accepts the adequate and effective protection of IPRs in the field of biotechnology, in Article 16.5, it requires Parties to cooperate to ensure that patents and other IPRs "are supportive of and do not run counter to" the CBD's objectives (IISD, 2003: 2). This clause could be viewed as a reform in the usage of genetic resources. However, the convention repudiated the notion of genetic resources being a common heritage. Instead, it agreed on two relevant principles. First, in Article 3, CBD recognized each nation's sovereign right to exploit them as national resources (Guruswamy, 1999: 81). This was viewed as an achievement of developing countries, who were concerned about the increasing extraction of these resources by commercial and public sector institutions in the developed world and struggled against it (Henne & Fakir, 1999: 324; McGraw, 2002: 17). However, it, in the meantime, raised questions and concerns about under which circumstances developing countries would choose to protect biodiversity or whether their powers and privileges on biodiversity would lead them to sustain economic and social development at the expense of, for instance, tropical forests (Guruswamy, 1999: 80). Secondly, CBD recognized that biological diversity itself was a common concern of humankind. Within this context, the common concern was referring to a common but differentiated responsibility among developing and industrialized countries. Article 20.4 of the CBD gave the responsibility related to financial resources and transfer of technology to developed countries and stipulated it as a condition for developing countries' commitments to nature-based solutions[12]. On the other hand, the CBD is not just a conservation agreement, but also in a sense a trade agreement, as it established the basic terms of trade in genetic resources (Downes, 1994: 164-165). Although the CBD does not specifically obligate Parties to establish trade-related environmental measures (TREMs), its provisions on genetic resources such as those of Article 11 which call on incentives for conservation and sustainable use, clearly empower Parties to control exports of those resources. However, as the terms of the CBD are not mandatory, it is up to the Parties to strengthen their capacity to develop and implement measures that mitigate trade-related threats to biodiversity (Downes, 1999: 19). All in all, it can be said that the CBD offers a room for constructing provisions with regards to ecologically respectful trade and a fair-trading system between countries.

With an attempt to compare the TRIPs Agreement of WTO and TREMs provisions of the CBD, it can be seen that they have radically different goals and perspectives. While the TRIPs Agreement emphasizes patents and intellectual property rights of inventors and corporations involved in the formal research sector in developed countries and ignores any equivalent legal protection for indigenous traditional knowledge, The CBD calls on Parties to ensure that a share of the benefits from either genetic resources or biodiversity-related traditional knowledge returns to the providers, most of who are indigenous and local communities (Article 8 & 15) (Downes, 1999: xiv). In doing so, CBD opens the door for nations to establish protective measures for their biodiversity (as against bio-piracy) concerning patent applications, such as demanding proof of "prior informed consent" (PIC) and disclosing the "country of origin". However, the TRIPs agreement does not recognize these sovereign rights, leading to the current neglect of disclosing PIC and "country of origin" in patent applications (IISD, 2003: 4; Tabari, 2005: 1).

11 Article 27.3(b) of the Trade-Related Intellectual Property Rights (TRIPS) Agreement allows governments to exclude some kinds of inventions from patenting, i.e. plants, animals and "essentially" biological processes. But micro-organisms, and non-biological and microbiological processes for plant and animal production have to be eligible for patents (Tabari, 2005: 1). Members shall provide for the protection of plant varieties either by patents or by an effective *sui generis* system, or a combination of the two (WTO, 2008). In law, sui generis refers to a legal classification that exists independently of other categorizations.

12 The principle of "common but differentiated responsibilities" is based on the recognition that certain countries bear greater responsibility for environmental protection due to their historical contributions. It was a veiled acceptance of the inverse effects of historical phases starting with colonialism and particularly following the industrial revolution on the environment. In essence, the burden of responsibility for each party varies based on their level of development and historical accountability for environmental degradation. It can also be viewed as a historically extended version of the polluter pays principle.

Although the CBD and CITES give developing countries some room to protect their biodiversity against biotrade-driven extraction, it is a conflicting issue for those countries to support their small producers in the face of international biotrade firms and their contractual relationship with these producers. Besides developing countries are constrained by WTO rules to guarantee that restrictive measures to preserve the environment do not discriminate or are not overly trade-restrictive (Bellora et al., 2020: 6). Moreover, as far as indigenous people are concerned, international agreements are far from offering a convincing solution. Some critics argue that the CBD's 10 percent target of protected areas as a share of the total surface of a country is likely to displace local people without their free, prior, and informed consent to appropriate ever more land in the name of conservation (Domínguez & Luoma, 2020: 5-7). CBD's approval of the state (instead of indigenous governed lands) as the responsible authority of protected areas does not necessarily prevent destructive settlements, extractive industries, or expansion of lucrative agribusiness. But it certainly drives indigenous people and local communities into poverty, while they lack legal, political, and monetary instruments to claim their right for their predominant source of subsistence.

On the other hand, UNCTAD also took part in the policy debate by launching The BioTrade Initiative in 1996. BioTrade with a capital "B" and "T" reflects a fundamental difference from "biotrade", as it refers to those activities involving the collection, production, transformation, and commercialization of goods and services derived from native biodiversity under the criteria of environmental, social, and economic sustainability. Hence with this capitalization in BioTrade, UNCTAD tries to enable nations to (i) support the conservation of biodiversity, (ii) sustainable use of its components and (iii) fair and equitable sharing of benefits for poverty alleviation in line with the CBD's principles (Jaramillo & Onguglo, 2016: 1). The BioTrade initiative has been recognized by multilateral environmental agreements (MEAs), Conference of Parties (under CBD) and CITES (Jaramillo Castro, 2012: 25). Nevertheless, the main motivation of CITES on biodiversity is somewhat different from the BioTrade Initiative. While CITES primarily focuses on limiting the import and export of endangered species of wild flora and fauna rather than emphasizing their sustainable use and trade, The BioTrade Initiative certainly aims at promoting and facilitating international trade in nature-based biodiversity products including wildlife (Andrew, 2017: 9-10). In practice, while CITES requirements have been incorporated in UNCTAD BioTrade procedures, they jointly try to ensure that international trade in listed species is sustainable, legal, and traceable (Stahl et al. 2016: 60). However, UNCTAD has a broader product coverage than CITES, while it involves not only trade flows in plant and animal species but also biodiversity-based products[13].

13 UNCTAD accepts a product as a biodiversity-based good, if that good meets at least one of the following criteria: (i) intrinsically and integrally based on biodiversity itself at a non- or low-processed stage (e.g., whole pineapples or ground coffee), (ii) if it's processed, solely or principally use biodiversity-based ingredients or products as inputs in their production processes (e.g., cotton shirts, wooden furniture, or chocolate bars), (iii) if it is a derivative, then derived mainly from biodiversity-based products (e.g., glycerol from natural oils and fats) (Benda, 2022: 7).

In terms of trade-related measures and their effect on the protection of biodiversity, Andrew (2017: 4) distinguishes between two policy choices, driven by long-lasting discussions among environmental economists. The first approach involves regulatory interventions, which rely on the use of laws and institutions to implement and enforce measures, as seen in the case of CITES regulations. The second approach, on the other hand, revolves around market-based solutions that include the adoption of non-mandatory standards by private entities. Major examples of these kinds of standards are Codex Alimentarius of FAO/WHO, aiming at ensuring safe, fair, good quality international food trade, and Codex Planetarius of WWF as a complement of the former in terms of planetary health, not just human health (Clay, 2016: 4). In this categorization, the positive incentives[14] of BioTrade Initiative also typify the second policy tool. The main goal is to mainstream BioTrade in relevant multilateral, regional, and national processes and strengthen the policy and regulatory environment for BioTrade sectors (Andrew, 2017: 11). One crucial tool for this goal is the biodiversity branding schemes such as voluntary sustainability standards (VSS) combined with certification procedures. Nevertheless, these branding schemes tend to restrict sourcing to a relatively limited group of financially stable and well-managed producers who have access to superior infrastructure. This situation occurs particularly when voluntary sustainability standards (VSS) become increasingly stringent and intricate. Besides, in cases of saturated markets and excess supply for VSS-compliant commodities, prices go down, leaving the distribution of supply (and benefits) to those who can provide compliant goods at the lowest cost (Andrew, 2017: 13, 17). Hence the reliance of such initiatives on market forces creates a more consolidated market structure, which crowds out those suppliers that cannot stand on lower prices and higher compliance.

On the other hand, bilateral and regional trade agreements have also begun to include provisions related to biodiversity. The EU includes the most extensive array of biodiversity-related provisions in its trade agreements, surpassing all other entities in this regard. Since 1972, it has signed 55 agreements with a total number of 162 provisions as of 2018. Besides, the USA, Peru, Switzerland, and Canada are among the top five countries with the highest

14 In terms of positive incentives, BioTrade Initiative develops and suggests (i) market incentives like biodiversity branding schemes, (ii) social incentives such as promoting increased interaction among all participants in the value chain and providing social recognition, (iii) financial incentives such as grants and microcredit for private entities that adopt sustainable and conservation practices, (iv) physical incentives such as improving access to equipment, transportation, and internet-based information systems, (v) adoption of property rights in a way to sustain the rights of communities to access natural resources, (vi) fiscal incentives such as tax breaks on imported equipment and training, preferential tariff schemes for sustainable products, and special tax regulations for community-based initiatives (Klein et. al, 2014: 6-8).

number of provisions, following the EU. These provisions include both environmental protection specific to various forms of biodiversity and MEAs with references to CBD and CITES (TREND Database).

Unfortunately, since the turn of the millennium, these international efforts to slow the loss of biodiversity have shown limited progress. Although various conservation measures have been implemented worldwide, resulting in significant positive impacts on specific species and ecosystems, the primary factors driving biodiversity loss continue to intensify (Secretariat of the Convention on Biological Diversity, 2020: 24). For this reason, the global community, through the consensus of governments worldwide, reached an important milestone by endorsing the groundbreaking Strategic Plan for Biodiversity 2011-2020 in the 10th Conference of parties of UN CBD in 2010. Besides, 2011-2020 Ten years of Biodiversity was declared by the General Board of UN and the 20 Aichi Biodiversity targets were accepted with the main aim to halt biodiversity loss in the world until 2020. The Strategic Plan acknowledged that efforts solely focused on conservation would be insufficient to counteract the ongoing decline in biodiversity unless substantial progress is made in addressing the leading causes of biodiversity loss. In this respect, the strategy was aimed at bringing biodiversity to the focus of decision-making on economic development, alleviation of poverty, financial subsidies, and incentives, and how goods and services are produced, consumed, and traded (Secretariat of the Convention on Biological Diversity, 2020: 25).

In this framework, BioTrade fits into the principle of "sustainable use". Although not explicitly stated, both the Aichi Biodiversity Target's Strategic Goal B and SDGs 12, 14, and 15 give attention to BioTrade, as they focus directly on promoting the sustainable use of biodiversity, reducing direct pressures on it and halting biodiversity loss (Foppes, 2019: 9-10; Benda, 2022: 69-70). Besides, BioTrade is expected to create positive externalities for SDG1 (ending poverty), SDG2 (Zero Hunger), SDG8 (inclusive and sustainable growth), SDG13 (climate action) as well as contributing to the post-2020 global biodiversity framework (GBF), which is to be adopted during the 15th Conference of the Parties to the Convention on Biological Diversity (CBD) (Benda, 2022: 2).

As can be seen, it is a multidimensional and conflicting issue for a country to regulate its trade policy in line with the BioTrade principles and thereby mitigate the inverse effects of international trade on biodiversity. Within the framework of WTO rules, CBD, CITES, BioTrade, and the conflicting nature of bilateral trade negotiations, it can be said that both tariffs and other trade policy instruments, such as non-tariff trade measures/barriers, tariff rate quotas, and private standards embedded in conditional trade agreements, have their limitations. Nevertheless, non-tariff measures (NTMs) and reciprocal preferential trade agreements provide more flexibility when it comes to incorporating provisions related to biodiversity. Implementing sanitary and phytosanitary inspections, imposing trade bans on invasive species and the most endangered species listed in the CITES, and including commitments from international environmental agreements in preferential agreements can be considered the most effective trade policy tools for conserving biodiversity (Bellora, 2020: 16-17).

3. The Case of Türkiye in the Conservation and Sustainable Utilization of Biodiversity

In this brief framework of the relationship between biodiversity, international trade, and its global governance, Türkiye occupies a critical position, while it hosts a significant part of the global biodiversity. This section first aims at illustrating components of the country's biodiversity, namely genetic diversity, species diversity, and ecosystems and habitats diversity together with mentioning the main problems in the protection of biodiversity. Thereafter, a historical review of environmental policies linked to biodiversity is conducted from the aspects of a critical political economy framework. Finally, the section ends up with an evaluation of the ongoing trade regulations and an analysis of the biotrade flows of Türkiye in comparison with its regional counterparts.

3.1. Some Stylized Facts about the Biological Diversity of Türkiye

Türkiye involves particular elements of three biogeographical regions (out of a total of seven) in the world. These regions are called Euro-Siberia, Mediterranean, and Iran-Turan. As a result of being at the intersection of continents, Türkiye resembles a small continent with its various climatic and geographical features at close distances (FAO, 2018: 16). It hosts a wide variety of terrestrial, aquatic, and aerial ecosystems as well as being a homeland for flora and fauna species. Besides, Türkiye is at the intersection of Mediterranean and Near East gene centers, which play a significant role in the emergence of cereals & horticultural crops (Demirayak, 2002: 5; Kunt, et al. 2020: 199). This feature serves as a basis for the country's agricultural product specialization and trade as well.

Starting with the species diversity, Türkiye is well endowed with flora diversity of 9996 plant species, 3035 (31.12%) of which are determined as endemic. When considered together with the number of taxa, the species diversity reaches 11707, and 3649 of them (31.82%) are endemic to Türkiye (Güner et al. 2012). Asteraceae, with a total of 572 endemic taxa, is the most diverse plant family in terms of endemism in Türkiye. It is followed by Fabaceae with 385 taxa and Lamiaceae with 326 taxa. Among the 3,649 endemic plant taxa in Türkiye,

several of them are closely related to important crop species that provide food worldwide, including wheat, barley, rye, oat, linseed, lentil, chickpea, and pea. Additionally, there are endemic plant taxa related to pasture plants such as alfalfa, clover, sainfoin, vetch, and various grasses. Furthermore, Türkiye is home to endemic horticultural plants like cherry, apricot, plum, almond, fig, and grape (T.R. Ministry of Agriculture & Forestry, 2019a: 58-59). Among seven regions of the country, the Mediterranean region is identified as the foremost area with 862 taxa when classifying endemic plants based on the specific region where they exclusively grow. It is followed by Eastern and Central Anatolia regions, which are dominated by the Irano-Turanian climatic and geographical features (Ekim, 2006: 47). In terms of Fauna diversity, Türkiye hosts an estimated 60000 to 80000 invertebrate species, the majority of which are insects. The total number of vertebrate species identified to date is nearly 1,500. There are 694 freshwater and marine fish species, 460 bird species, 30 amphibian species, 161 mammal species, and 120 reptile species (T.R. Ministry of Agriculture & Forestry, 2019a: 58). According to the International Union for Conservation of Nature (IUCN, 2023), the number of threatened animal and plant species in Türkiye are identified as 307 and 136, respectively. Among animal species, fishes are the most vulnerable group with 148 species, followed by mollusks and other invertebrates. Besides, 18 mammals, 21 birds, and 20 reptiles are counted as threatened in the list.

As for genetic diversity, Türkiye has five micro-gene centers thanks to its diverse geography and climate conditions. The major common species in these gene centers are wheat, barley, chickpea, and lentil for which Anatolia is the first-degree gene center. Besides species such as apple, pear, black cherry, melon, and watermelon are diversified and enriched in Anatolia as a secondary gene center (Kunt, et al. 2020: 200).

Lastly, Türkiye is characterized by different ecosystems, all of which have their distinct physical and biological features, such as climate, topography, soil types, and the composition of plant and animal species. As different ecosystems support different species and have unique ecological functions, they are an inseparable part of the conservation of biodiversity. In terms of terrestrial ecosystems, 29.4% (22.9 million ha) of Türkiye's total area was surfaced by forest ecosystems in 2020 (T.C. Tarım ve Orman Bakanlığı, 2021: 11), whereas steppe grasslands cover 28% (21.7 million ha) and mountain ecosystems account for at around 50% of the total land (Tekeli, et al., 2006: 51, 58). However, half of the forest ecosystems have degraded due to overexploitation, although degraded forest area has decreased by 8.9% since 1973. In 2011, a highly disputed legislation, the 2/B Lands Amendment (of the Forest Law), which allows the government to convert degraded forest areas to other uses and/or sell them

to private owners, was approved by the Constitutional Court of Türkiye. When considered together with the increased number of forest fires in recent years, this legislation is argued to be the major threat to the natural regeneration of forests (Şekercioğlu, et al., 2011: 2756). As for the steppe ecosystems, it is argued that the Anatolian steppes have suffered significant degradation, particularly within the second half of the 20th century. The destruction of steppe areas can be attributed to several primary factors. The main reasons may be listed as overpopulation and excessive consumption, afforestation, unregulated overgrazing without proper pasture management, the conversion of pastures into agricultural lands, improper practices within agricultural areas, uncontrolled hunting, stubble burning, pollution, erosion, the construction of roads and dams, unsustainable methods of collecting medicinal plants, and inappropriate mining activities (Tekeli, et al., 2006: 52; Ambarlı et al., 2016: 2505-2509).

With regards to aquatic ecosystems, Türkiye is also rich in coastal and marine areas, inland water ecosystems, and wetlands. With a cursory look, it can be seen that the total measure of the protected coastline accounts for 24% (2083 km) of the whole length of the coast (8592 km). Total marine protected areas are at around 1,5 million ha. Inland water ecosystems cover 1.6% of the total surface area of Türkiye (Kunt, et al. 2020: 216-217). Among them, Wetlands cover 1.1 million ha (around half of all inland water ecosystems) and 14 of a total of 105 wetlands are included in the Ramsar list (T.C. Tarım ve Orman Bakanlığı, 2023). Wetlands are natural habitats for numerous species of water birds, endemic aquatic species, and migratory birds. Nonetheless, starting from the 1960s, a notable portion of wetlands has suffered destruction primarily caused by the desiccation and reclamation of these areas to obtain agricultural and settlement land. Additional factors include debris filling, altering the course of streams for irrigation purposes, constructing dams that disrupt the water sources, unregulated cutting of reeds, excessive and illicit fishing, hunting, and the unlawful collection of species' eggs. Furthermore, pollution resulting from agricultural, industrial, and domestic waste, as well as other similar projects that disrupt the natural water balance, have further contributed to the degradation of wetlands (Tekeli, et al., 2006: 53). In recent years, numerous lakes and rivers in Türkiye have experienced significant shrinkage primarily as a result of escalating drought conditions and increased extraction of groundwater. This trend has had far-reaching consequences for aquatic ecosystems and the species that depend on them. On the other hand, marine diversity is threatened by the introduction of invasive marine species, overfishing, habitat destruction, and marine pollution. (FAO, 2018: 136). The entrance of alien species on the Mediterranean coasts of Türkiye has accelerated in recent years, although many fish species have migrated into the Mediterranean since the opening of the Suez Canal. In 2005,

there were 263 invasive alien species in Türkiye's seas, but that number has reached to near 450 in the Eastern Mediterranean waters of Türkiye (Kunt, 2016: 229). The main reason behind this upsurge is argued to be climate change, which has caused the water temperature of the Mediterranean Sea to increase and to become tropical thereby generating a suitable environment for alien species, whose dispersion was once limited until the mid-20th century as a result of temperature and salinity barriers (T.R. Ministry of Environment and Urbanization, 2018: 151-152). Besides ship ballast waters are another reason for the passage of alien species into the country's seas, especially the Black Sea. While 66% of the invasive alien species in the Mediterranean Sea have entered through the Suez Canal, 80% of those in the Black Sea have been introduced via ballast water from ships (Kunt et al., 2020: 245).

In a recent study, Eken et al. (2016) tried to conduct a nationwide threat assessment of key biodiversity areas (KBAs) in Türkiye. Taking into consideration 10214 species of eight taxonomic groups (plants, dragonflies, butterflies, freshwater fish, amphibians, reptiles, birds, and mammals), they determined 313 KBAs, 303 of which trigger the KBA criteria for one or more taxonomic groups at the global scale. These 303 KBAs cover 20.4 million ha (26%) of the country's total area. The comprehensive evaluation of KBAs has revealed that dams, irrigation, and drainage projects, which are part of water policies, pose the most significant threat to the country's biodiversity. Irrigation and drainage projects were estimated to have a direct impact on 225 KBAs, while hydroelectric power plants and dams affect a minimum of 185 sites. Furthermore, apart from water policies, the expansion of tourism and urbanization along the Aegean and Mediterranean coasts has led to the ongoing loss of biodiversity in numerous KBAs. Road construction and mining were determined to be among other major threats affecting the sites. In comparison to irrigation and drainage projects, the study argued that power plants and dams have an irreversible and higher impact on KBAs. Considering the projected implementation of 1738 dams and hydroelectric power plants by 2023, it was anticipated that rivers and freshwater ecosystems would face the highest level of threat. Lastly, the study found that KBAs are insufficiently protected, and the legally protected areas do not adequately represent the biodiversity of Türkiye, particularly steppic habitats, river valleys, and Mediterranean scrublands. These findings emphasize the necessity for enhanced conservation measures and the enlargement of protected areas to effectively encompass and safeguard these crucial ecosystems and the species that depend on them.

In Article 8 of CBD, Parties are required to establish a system of protected areas as part of In-situ conservation (CBD, 1992: 6). In a similar vein, conservation of ecosystems has been determined as one of the Aichi Biodiversity Targets in 2010. Hence, it is aimed at conserving

at least 17% of terrestrial and inland water, and 10% of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services by 2020. Although the efforts were not enough to meet this target, the world's ratio of protected land to terrestrial land increased from 2.6% in 1970 to 13.2% in 2020, while it is 25.9% for the EU, and above 30% for Poland, Germany, and Greece. However, Türkiye lags far behind in this target. The total net size of the protected areas of the country is recorded as 67773 km^2 and accounts for 8.7% of the total surface in 2020. In the case of sea-protected areas, around 4% of Türkiye's territorial waters are legally preserved (WWF, 2021: 4-6).

Despite this, compared to the 4.34% portion of land that was protected in 2002 (T.C. Tarım ve Orman Bakanlığı), it can be stated that there has been some advancement over two decades. However, it is argued that this upsurge in the protected areas mainly resulted from the increase in recreational use, whereas the number and size of the nature conservation areas have diminished (Atmış & Artar, 2013). In a recent study, Serter (2020) has shown that from 2002 to 2018, there was a significant decline in the nature conservation areas, which are designated as having the highest conservation priority based on the criteria set by the IUCN. In contrast, there was a considerable rise in areas with lower conservation targets during the same period[15].

On the other hand, Wolf et al. (2022) developed an environmental performance index (EPI) for 180 countries all around the world by using 40 different performance indicators. These 40 indicators measure how close countries are to meeting internationally set sustainability targets. They are grouped into 11 issue categories and then aggregated further into three policy objectives. Countries are ranked by their national efforts to satisfy these policy objectives, which are aimed at (i) protecting environmental health, (ii) enhancing ecosystem vitality, and (iii) mitigating climate change. Hence it will be useful to evaluate the performance of Türkiye in terms of these internationally determined indexes and compare it with its counterparts.

15 In this period, as there was no further expansion of nature conservation areas with the highest conservation priority, five conservation areas were abolished due to pressures from human activities, resulting in a decrease in their number from 35 to 30. While four of these areas were converted into national parks, one of them was converted into a nature park with a much lower protection status. Although the number of national parks increased from 32 to 44 in this process, 4 of the 12 newly declared national parks were converted from nature conservation areas and 6 of them were declared as national parks due to their historical importance rather than their natural qualities. Finally, although the number of nature parks has increased tremendously due to the declaration of 139 recreation areas as nature parks in 2011, they are far from meeting the nature park criteria of neither the Law on National Parks nor the IUCN's nature park criteria (Serter, 2020).

Table 1. Environmental Performance Index for Türkiye, 2022				
Index Name	**Score**	**World Rank**	**Regional Rank**	**10 Year Change**
Environmental Performance Index	26.3	172	19	-0.5
Environmental Health Index	47.8	60	11	7.1
Climate Change Mitigation Index	21.5	166	19	-3.2
Ecocsystem Vitality Index	20.3	176	19	-1.7
Source: Wolf et al. (2022).				

Table 1 shows that Türkiye ranks 172nd out of 180 countries in the world with an EPI score of just 26.3. By looking closer at three policy objectives, the weights[16] of which construct the EPI score, it can be seen that Türkiye underperforms especially in enhancing ecosystem vitality and climate change mitigation, both of which are crucial targets for biodiversity conservation. In its regional group of Eastern European nations, Türkiye emerges as an exception, while its peers attain high scores. The low score on the climate change mitigation index is related to the failure of Türkiye to mitigate rising greenhouse gas emissions. If Türkiye's current trajectory does not improve, the projected emissions in 2050, as indicated by the EPI, indicate that Türkiye will become the 11th largest contributor to greenhouse gas emissions by the middle of the century (Wolf et al., 2022: 22).

Table 2. Ecosystem Vitality Index: a comparison of Türkiye with selected countries					
Country	**Score**	**World Rank**	**Regional Rank/Total**	**10 Year Change**	**Region**
Germany	66.8	6	4/22	-1.5	Global West
Poland	60	26	10/19	-0.1	Eastern Europe
Greece	53.9	47	13/19	0.1	Eastern Europe
Mexico	53.7	48	4/32	13.1	Latin America & Caribbean
USA	51.4	57	20/22	1.1	Global West
South Korea	48.8	70	3/25	0.1	Asia-Pacific
Egypt	43.7	95	4/16	4.2	Greater Middle East
Russia	39	117	11/12	0.4	Former Soviet States
China	24.5	169	19/25	4.5	Asia-Pacific
Türkiye	20.3	176	19/19	-1.7	Eastern Europe
Source: Wolf et al. (2022).					

16 The weights for three policy objectives in constructing EPI is as follows; (i) 20% for protecting environmental health, (ii) 42% for enhancing ecosystem vitality, and (iii) 38% for mitigating climate change. As can be seen, ecosystem vitality has the highest weight in the calculation of EPI score.

In Table 1, the Ecosystem Vitality Index[17] (EVI) deserves special attention, because it is directly related to the conservation of biodiversity. Furthermore, as one of the richest countries in the Mediterranean region in terms of species and habitat diversity and high endemism rate, Türkiye must take steps to improve its EVI score. In Table 2, the EVI performance of Türkiye is demonstrated once again in comparison to a group of selected countries.

In the selection of countries, it is aimed at not just looking at regional peers of Türkiye, but also including both developed countries of the Global West and developing countries from other regions. As can be seen, Poland, Greece, and Mexico performed far better than Türkiye with EVI scores of 60, 53.9, and 53.7, respectively. While Mexico, China, and Egypt developed their EVI scores prominently, Türkiye turned out to become worse with a -1.7 change in the last ten years. The reasons for this decrease in EVI score in the ten years are mainly related to three performance indicators, namely fish stock status (-16.6 change), species habitat index (-10.2 change), and wetland loss (-10.2 change) (see Appendix Table A1).

3.2. An Evaluation of Environmental Policies Concerning Biodiversity from a Political Economy Framework

For an evaluation of the performance of Türkiye's 100 years on the conservation of biodiversity, the planned development period is a good point of departure. In the First (1963-1967) and Second (1968-1972) Five-Year Development Plans of Türkiye, environmental problems were not yet on the agenda[18]. This was mainly because the primary aim of the plans in this period was to modernize the economic and social structure and to ensure the transition from a pre-industrial society to an industrialized one. This agenda also corresponded to the modernist understanding of development as a dominant strategy during this period. Accordingly, industrialization, modernization in agriculture, and urbanization were considered to be the driving forces of development. Urbanization was accepted as a factor directly affecting economic development as it accelerated technological changes by creating external economies (DPT, The 2nd Five-Year Development Plan: 264). The Third Five-Year Development Plan (1973-1977) was the first material which included environmental problems as a sub-heading. However, the plan clearly stated that "*In the studies and legal regulations to be carried out at the international level in relation to environmental problems, any obligation that would divert Türkiye from the goal of development through industrialization shall not be accepted*" (DPT,

17 The ecosystem vitality index comprised of 6 issue categories and 18 performance indicators. For a detailed illustration of the components of this index for Türkiye, please check for the Appendix.

18 Before the planned economy period, a number of articles (such as The Law on Land Hunting, Article 2, dated 1937; The Law on Forests, Article 14, dated 1956) were issued for conservation of biological diversity. But there wasn't any sistematic understanding about the concept of biodiversity.

The 3rd Five-Year Development Plan: 866). Nevertheless, it accepted to seek a solution to environmental problems without alienating it from industrialization and development.

In the Fourth Five-Year Development Plan (1979-1983), environmental problems started to be addressed in more detail by mentioning the situation in Türkiye in terms of water, sea, air, and noise pollution, land erosion and pollution (DPT, The 4th Five-Year Development Plan: 83-85). This was the first plan which tried to link environmental problems with urbanization, industrialization, and agriculture. However, the plan was reluctant to suggest policy advice that would also be favorable for the economic and social structure. Nevertheless, urban, and industrial waste were accepted to be the main determinant of water, land, and air pollution. In terms of sea pollution, the plan underlined Türkiye's geographical position where the Black Sea countries export northern oil to the Mediterranean through Bosphorus and the Dardanelles. Accordingly, this Mediterranean oil traffic was estimated to account for 30% of all marine traffic in the straits. In return, empty tankers were reported to wash their tanks in and dumb bilge water into Turkish territorial waters due to the heavy measures taken by neighboring countries. As a preventive measure, Türkiye signed the Barcelona Convention in 1976 and agreed to take action against pollution of the Mediterranean Sea and to protect the marine ecosystem as a common heritage for the present and future generations (Barcelona Convention, 1976). To the best of our knowledge, this was the first international agreement to which Türkiye became a party about the conservation of biodiversity. In that sense, it can be argued that the international initiative, that emerged from the Barcelona Convention was quite reflected in the Fourth Plan by Turkish authorities.

At the end of the Fourth Development Plan period, Türkiye enacted the Law on Environment, one of the purposes of which is to ban over and misusage of ecological systems, which causes endangerment of animal and plant species and destruction of natural wealth (The Law on Environment, 1983, Article 9). The Law adopted the "polluter pays" principle (T.R. Ministry of Environment and Urbanization, 2018: 76).

Concerns about future generations are also mentioned in the Fifth (1985-1989) and Sixth (1990-1994) Five-Year Development Plans of Türkiye. In the Fifth Plan, it was stated that to ensure the preservation of natural resources for future generations, it was essential to prioritize optimal utilization and advancement of them with due consideration to ecological balance (DPT, The Fifth Five-Year Development Plan: 171). The significance of natural resource management was emphasized in the Sixth Plan, which highlighted the need to safeguard a sustainable natural, physical, and social environment for the well-being of future generations. The Plan further emphasized the necessity of environmental impact analysis in the implementation

of economic policies, in energy production, and all planning stages. Besides, the plan promised to take precautionary measures against the destruction of wild plant genetic resources. The Sixth plan also underlined, for the first time, the importance of harmonization with the environmental policy of the European Community (DPT, The Sixth Five-Year Development Plan: 312-313). In addition, the Fifth and Sixth plans both emphasized the importance of water sanitation and waste management. The Sixth Plan's Industry and Environment Specialized Commission report pointed out the negative effects of industrial harmful gas emissions on land. Specific to the East Black Sea region, acid precipitation was determined to be one of the reasons for the disruption in the biological activity in the soil and plant development, as the naturally acidic soil structure could not absorb much acid through rain (DPT, 1993: 27).

In all these development plans thus far, the emphasis was mainly on the measures against pollution rather than on protection. As a result of the lack of a preventive perspective, regulatory efforts aimed at resolving environmental problems have faced limitations in their implementation and effectiveness. As an example in terms of forest biodiversity, 68000 hectares of forest land were lost due to the forest fires, and 113000 hectares of forest land were excluded from the forest regime using various laws in the sixth plan period, although 260000 hectares of land were afforested, and erosion was controlled in 33000 hectares (The Seventh Five-Year Development Plan: 58). In respect to this, it can be said that 1992 Rio Summit was a turning point for raising environmental awareness in Türkiye. 1992 Earth Summit paved the way for the three conventions on Biodiversity, Climate Change, and Desertification, which Türkiye ratified in 1996, 2004, and 1998, respectively[19]. Thereafter, Türkiye began to take part in several international conventions. Türkiye signed the Ramsar Convention in 1994, 15 years later it came into force (Yeniyurt & Hemmami, 2011: iv), and CITES in 1996, 21 years later it came into force (CITES). Hence, the legal status of biodiversity in Türkiye began to be shaped by laws & related bylaws after taking part in International Conventions[20]. However, each component of biodiversity was regulated with a specific rule which created a fragmented structure in the protection of biodiversity. Türkiye's aim to align its national legislations with the European Union (EU) acquis and thereby improve enforcement was another reason for these excessive numbers of secondary and cross-cutting legislation (T.R. Ministry of Environment and Urbanization, 2018: 76).

19 Türkiye signed the UN Biodiversity Convention in 1992 and ratified it through Law No. 4177 dated 29 August **1996** (T.R. Ministry of Agriculture and Forestry, 2019b: 4, 8). Türkiye ratified the United Nations Framework Convention on Climate Change (UNFCCC) in **2004** (T.R. Ministry of Foreign Affairs). Türkiye became a party to UN Convention to Combat Desertification (UNCCD) through Law no. 4340, which was signed in Paris on 15 October 1994 and was also published in the Official Gazette no. 23258 dated 11 February **1998** (T.R. Ministry of Forestry and Water Affairs).

20 For a detailed list of national and international regulations, Türkiye adopted with regard to biodiversity, also see: T.C. Çevre ve Orman Bakanlığı, 2010: 6-7, 11-13.

The Seventh Five-Year Development Plan (1996-2000) of Türkiye, which was prepared in light of these developments in international awareness, determined a number of factors that contributed to the limitations in effectively solving environmental problems. The Plan pointed out the fragmented structure of legal regulations as a drawback in the effective enforcement of environmental legislation due to the inconsistencies and duplications in legal texts. Other than insufficient legal arrangements, the weak institutional structure of the Ministry of Environment, the lack of harmony among public institutions responsible for environmental management, the lack of data and knowledge capacity, technical incompetence of human resources, the misuse of environmental funds, and the lack of a proper environmental financing system were identified to be among those factors that hindered capacity of previous development plans in making necessary transformations (The Seventh Five-Year Development Plan: 189-194). The Seventh Plan's Environment Specialized Commission report further mentioned the lack of capacity to transfer prepared plans into practice (rather than lack of a plan) as the main reason for the insufficiency of environment management (DPT, 1994: 34). In the report, the protection of biological diversity was clearly defined and together with genetic resources, they were accepted as the most vulnerable segments to the environmental degradation. The report also underlines the need for a legal basis for the regulation of international trade in biodiversity and natural resources (DPT, 1994: 106, 109, 201).

While the seventh plan demonstrated the increased awareness of Turkish authorities on biodiversity in internal affairs, Türkiye adopted a more reluctant stance in terms of foreign policy during this period. In this respect, it can be argued that Turkish authorities followed a more realist/economic stance from the aspects of international political economy. Türkiye, as a participant in the Conference of Parties (COP) meetings since the 4th COP meeting in 1998, has often chosen to make individual declarations rather than aligning with groups such as the regional group of West Europe and Other countries or the European Commission as a candidate country (T.C. Çevre ve Orman Bakanlığı, 2010: 5-6). Nonetheless, in the 2002 World Summit on Sustainable Development, Türkiye acted together with the G-77 countries in the negotiations of renewable energy resources. In the Summit, the EU adopted the ecosystem approach[21] which emphasizes the interconnectedness and interdependence of living organisms, their habitats, and the interactions between them and their surrounding environment. EU aims at prioritizing this emphasis in socio-economic decision-making. In this respect, the

21 Ecosystem approach or ecosystem-based approach was first held in the CBD workshop in Malawi in 1998. It arose from the need to overcome the shortcomings and deficiencies of classical nature conservation approaches. Thereby, it tries to generate solution especially for the failure to integrate or coordinate with other sectoral interests, which are often managed separately by different governmental bodies in a non-integrated fashion (Hoffman & Wagner, 2006).

EU suggested excluding larger dams from renewable energy resources due to their inverse effects[22] on ecosystem services. However, the Turkish delegation argued that the conservation of the ecosystem as a part of nature conservation was quite enough and refused the inclusion of ecosystem approach into the implementation plan as well as the exclusion of dams (Ağca, 2002). Hence, it can be argued that Türkiye took sides with G-77 countries in the trade-off between biodiversity and economic development. From an international political economy framework, the realist stance of Türkiye is related to its national objective to ensure that economic growth is not compromised while taking measures to safeguard biodiversity.

The Eight Five-Year Development Plan (2001-2005) maintained the self-criticism of the former plan with a promissory discourse. Specific to the protection of biodiversity, the plan stated that the National Biological Diversity Strategy and Action Plan (NBSAP) would be brought into force. It was in a sense inevitably necessary to take on the responsibility of developing this plan in alignment with Article 6 of the CBD, after Türkiye became a participant in 1996 (T.R. Ministry of Environment and Urbanization, 2018: 172). Hence the proposed plan was prepared by the former T.R. Ministry of Environment in 2001 to be a guide to be used in the implementation of the CBD in compliance with other obligations and in solving the problems caused by biodiversity loss (T.C. Çevre ve Orman Bakanlığı, 2008: 19).

In the early 2000s, significant progress was made towards harmonization with international conventions that the country had agreed to. During this period, the number of legal regulations, programs, and strategies enacted in the first decade of the 2000s exceeded the number of previous ones up to 2000[23]. After Türkiye's candidacy for EU membership in 1999, it became crucial to consider not only those international regulations Türkiye took a part in, but also the EU acquis while aligning national legislation in favor of the conservation of biodiversity[24]. Efforts to establish a single legal instrument for biodiversity conservation first emerged in 2003 as part of the preparatory work for the "Law on Nature Conservation and Biodiversity" initiated under the Global Environment Facility (GEF), bringing together civil society organizations and various experts. (Özgen & Soldamlı, 2013). This was the first initiative on the way towards a national law for biodiversity. However, the viewpoint of the

22 Dams and other forms of infrastructure pose a threat to rivers that flow freely because they create obstacles that lead to fragmentation and changes in the natural flow patterns. Furthermore, dams have a negative impact on migratory fish that rely on long-distance migrations, as they block their migration routes, making it challenging or even impossible for them to complete their life cycles (WWF, 2016: 36).

23 For the timeline of related regulations, see T.C. Çevre ve Orman Bakanlığı, 2010: 6-7, 11-13.

24 Hence in light of the importance of aligning Türkiye's nature protection activities with European Union standards, the NBSAP of Türkiye has been revised to ensure conformity with EU regulations in this domain (T.R. Ministry of Environment and Urbanization, 2018: 172).

public authority on this matter triggered a two-decade-long dispute that embroiled various stakeholders, including the Ministry of Environment, Ministry of Forestry and Water Affairs, civil society, experts, opposition parties, and local communities.

In this respect, The Ninth Five-Year Development Plan (2007-2013) provided indications regarding the viewpoint that would be reflected in the upcoming draft law. It put forward the idea of economic value, embedded in biodiversity. This mindset of "protection via valuation" was a reflection of the liberal green development perspective, which pervaded international environmental organizations since the 1990s. In this regard, alongside of conservation and investigation of biodiversity and genetic resources, the Ninth Plan emphasized the economic valorization, utilization, and efficient and multi-purpose management of them (The Ninth Plan, 2006: 74,78). The plan also emphasized the need for new financing methods including the participation of the private sector, since high-cost investments are required for harmonization with the EU Environmental Policy. The Ninth Plan's Environment Specialized Commission report paid particular attention to the biodiversity and protected areas. The report highlighted a deficiency in effective collaboration among different institutions that possess authority or responsibility stemming from diverse legal regulations (DPT, 2007: 32). It also discussed the factors that pose a threat specific to biodiversity (not to the environment in general). Industrial and domestic waste, large-scale infrastructure projects such as construction of power plants, motorways, airports, bridges, factories, dams, and housing, agricultural and livestock activities such as overgrazing, usage of pesticides, alteration of the direction of water flow, excessive and illegal fishing, unconscious hunting, maritime accidents and oil spill and tourism activities were identified as the main factors behind the loss of the biodiversity (DPT, 2007: 32). The urgent need to dissolve the problem of complex authorization and duty distribution among responsible parties was emphasized as a main policy advice by the report as well as reviewing legal regulations and holistically reorganizing them (DPT, 2007: 82). Moreover, during the EU negotiation process, chapter 27 on Environment and Climate Change was opened to accession negotiations at the end of 2009. Hence based on both the National Biodiversity Action Plan and Related Directives[25] of the EU, Türkiye guaranteed to prepare a framed law towards protecting biodiversity (T.R. Ministry of Environment and Urbanization, 2018: 172).

25 These are The Birds Directive (Council Directive 79/409/EEC) and The Habitats Directive (Council Directive 92/43/EEC, which serve as the fundamental pillars of the European Union's biodiversity policy. They establish a robust legislative framework that mandates all EU member countries to safeguard the most valuable and endangered biodiversity. In conjunction, these directives have given rise to the Natura 2000 network, which currently stands as the largest integrated network of protected areas globally (Sundseth, 2015).

In light of these developments, the draft law was prepared by the Ministry of Environment and Forestry in 2010. However, it faced significant criticism and due to the election period, it was unable to be enacted and subsequently became obsolete (TBMM, 2012: 15). Since then, three consecutive drafts were introduced in 2012, 2017, and most recently in 2021[26], although not finalized. The primary rationale behind them was more or less the same. They underlined the necessity to address the management gap and eliminate overlapping issues resulting from the intricate nature of both legal and administrative procedures (TBMM, 2012: 4). Nevertheless, upon analyzing the draft law, it has been determined that there are regulations that go beyond the stated justification, and some of these regulations may facilitate practices that jeopardize the preservation of biodiversity. Specific concerns have gained prominence in the criticism directed toward these drafts. These concerns revolve around the inclusion of provisions for (i) trade-offs between biodiversity conservation and sustainable utilization and (ii) supreme public interest[27]. These provisions[28] have drawn opposition and have been subject to scrutiny by experts in the field due to their potential implications for various investments, including mining, tourism, transportation, energy, settlements, and hydroelectric power plants, which may have detrimental effects on natural areas (TBMM, 2012: 22; Kuvan, 2014: 291; TMMOB, 2011; TEMA Vakfı, 2013). For these reasons, the draft law has been evaluated as a document that primarily focuses on regulating the circumstances in which biodiversity shall not be protected and instead emphasizes its utilization, rather than addressing measures for its conservation.

With the approval of the Aichi Biodiversity Targets in 2010, a collective decision was made to require each party to implement an effective, participatory, and updated NBSAP by the year 2015. Concordantly, the first strategic plan of Türkiye (NBSAP) was reviewed, and the National Biodiversity Action Plan (NBAP) has been prepared from 2018 to 2028 (T.R.

26 The structure of the Ministries was reorganized and with the legislative decree no: 645, the Ministry of Forestry and Water Affairs was established in 29.06.2011. Hence The Draft Laws of 2012 and 2017 were prepared by the Ministry of Forestry and Water Affairs. In 2018, the structure was reorganized once again, and The 2021 Draft Law was prepared by the Ministry of Agriculture and Forestry.

27 The preamble of The 2012 Draft Law clearly stated what is intended with "supreme public interest". Accordingly, it is expressed that "*It is a necessity to allow the operation of activities that are of great importance for strategic and national development and that are deemed to be of superior public interest, subject to certain conditions, if they remain within the boundaries of the area requiring absolute protection. The authorizations to be granted to such activities are secured with the permission of the Ministry*" (TBMM, 2012: 6).

28 For example, Article 8/3 of The 2012 Draft Law states that a plan or project of "supreme public interest" can be conducted by the Ministry of Forestry and Water Affairs with compensatory measures, even though its effects on the protected areas are determined to be negative through ecological impact assessments. In a similar vein, according to Article 14 of The 2012 Draft Law, the rights of permits, usufruct and easements can be established, providing that all kinds of measures are taken. Besides with Article 57 of The 2012 Draft Law, The Law on National Parks, which constitutes the main basis for the lawsuits filed against hydroelectric power plants was planned to be repealed (Gökalp Alıca, 2012: 188; TBMM, 2012: 23).

Ministry of Agriculture and Forestry, 2019: 4, 8-9). In the NBAP (2018-2028), seven national objectives were identified. When the objectives are analyzed, it is seen that the utilization of biodiversity is as prominent as its conservation. In terms of conservation, NBAP promises to determine, reduce, and remove pressures and threats on biodiversity (National Objective 1), to construct a national biodiversity inventory via DNA barcoding method and e-DNA monitoring technique (National Objective 2), to rehabilitate and restore degraded ecosystems (National Objective 5). In terms of sustainable use, NBAP aims at sustainable management of biodiversity as a source for industries of agriculture, forest, food, and medicine (National Objective 3), to increase benefits from ecosystem services by utilizing them effectively (National Objective 4), to develop high value-added products based on knowledge and technology in consideration with conservation and sustainable use of biological resources and to promote producers in the process of commercializing of the products developed with modern biotechnological methods from the biological resources (National Objective 6) to access the traditional knowledge associated with genetic resources and to develop products (T.R. Ministry of Agriculture and Forestry, 2019: 50-77). As can be seen, the perspective of "protection via valuation" prevails also in the NBAP of Türkiye.

Nevertheless, some of the Aichi targets which include the implementation of enforcement measures or sanctions in the protection of biodiversity have not been fully accomplished within the national plan[29]. The notion of sustainable management and utilization of biodiversity smooths the path for commercialization of natural resources for countries like Türkiye, which has not fully utilized their natural endowments pervasively and intensively. In this respect, it can be said that the CBD's recognition of Türkiye's sovereign right to its national resources led to not just increased responsibility of the country in taking measures to protect biodiversity, but also the identification of its targets from that day forward. However, it is a disputed issue whether these national targets are satisfactory for the conservation of biodiversity as against to utilization of them.

3.3. Biodiversity-Based Trade and Türkiye

According to the UNCTAD biotrade database, Türkiye's export value of biodiversity-based products was realized at 52.9 billion US dollars in 2021. This accounts for 23.5% of the total merchandise exports of the country and 1.4% of the total world biotrade. It can be said that biotrade exports have a significant share in the country's specialization pattern, although its world market share is low. A comparison of the country's biotrade exports share

29 For instance, Aichi Target 3 aims that incentives, including subsidies, harmful to biodiversity shall be eliminated, phased out or reformed.

with other income groups of countries and geographical regions might give an insight into the biotrade's national relevance. In terms of the economic criterion, the significance of biotrade exports share resembles the group of middle-income developing countries, while Türkiye matches up to Europe and the Americas in recent years with regards to geographical regions (See Appendix Figure A1 and A2).

Nonetheless, with a comparison of the 2021 data with 2010, it can be seen that the situation tends to reverse. In these twelve years, Türkiye's biotrade as a share of world biotrade has risen 17.4%, while the share of biotrade in the country's merchandise exports has fallen 10.3% (UNCTADSTAT). It is understood that Türkiye has increased its world market share of biotrade in this period, while the country's specialization pattern has slightly shifted away from biotrade.

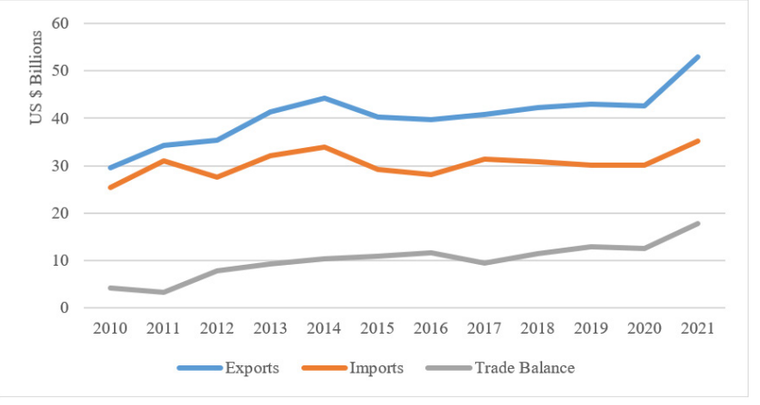

Figure 3. Biotrade flows of Türkiye
Source: UNCTADSTAT, retrieved from https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=227725, accessed 30/05/2023.

Figure 3 shows that biotrade exports are higher than imports for all years and the trade balance has improved during this period. The sharp increase in 2021 hasn't been reflected in the ratio of biotrade in total merchandise, which is the result of the fact that all merchandise exports have increased in the same year.

In terms of product groups, the distribution of biotrade exports of Türkiye can be seen in Figure 4. Two product groups stand out in this composition: (i) food and beverage and (ii) natural fibres and articles thereof. In 2021, these two product groups accounted for 73% of all biotrade exports with 38.2% and 34.8% shares, respectively. However, in the twelve years, it is seen that the share of the "***natural fibres and articles thereof***" product group decreased

from 45.8% in 2010 to 34.8% in 2021. This group is directly related to textile production chains in Türkiye, while articles of apparel and clothing accessories[30] accounts for around 70% of all-natural fibre exports. In this respect, Türkiye has specialized in the upper ladder of the global textile chains, mainly as a first-tier supplier in the global textile industry for global fashion brands and with a limited range of original apparel brands. In 2021, as an example of a labor-intensive industry, textile, and clothing industries accounted for approximately 26% of the manufacturing industry employment and contributed at around 15% of all manufacturing value-added, leaving other significant industries such as heavy metals, automotive, and chemicals behind (TÜİK).

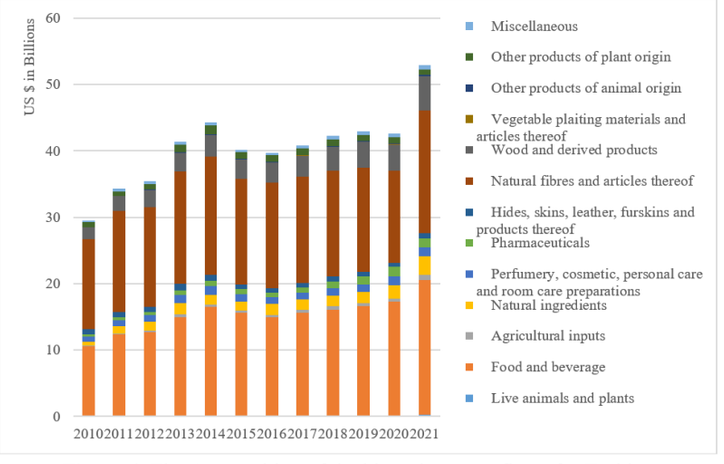

Figure 4. The Composition of the biotrade export flows for Türkiye
Source: UNCTADSTAT, retrieved from https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=227725, accessed 30/05/2023.

However, Figure 4 only measures "biotrade" flows, while it is not possible to understand whether these export products are derived from sustainable utilization of biodiversity[31]. In this respect, it would be helpful to look at the organic farming figures of Türkiye in these product categories. It can be said that good agriculture practices and organic farming are key in terms of the conservation of biodiversity, while they aim at re-establishing the natural balance lost due to improper practices as a result of intensive cultivation. Turkish legislation constructs

30 Articles of apparel and clothing accessories mainly consist of final consumer products such as jackets, trousers, dresses, skirts ext. in the Harmonised System nomenclature in the TraBio statistical tool of UNCTAD (Benda, 2022: 10) in comparison to raw materials and semi-processed products such as yarns, woven or fabrics in the group of "natural fibres and articles there of".

31 TraBio statistical tool of UNCTAD only measures "biotrade" flows, while it is not possible to distinguish and label some part of these activities as "BioTrade" in respect to their sensitivity for biodiversity (Benda, 2022: 8).

the relationship between organic farming and biodiversity. With the By-Law on the Principles and Implementation of Organic Farming (Official Gazette, No: 27676), the protection and development of biodiversity is necessitated for organic farming. The regulation in organic farming is based on market-based certification systems. In terms of organic cotton production, Türkiye holds the position of the second-largest producer worldwide, accounting for 23.6% of the global production after India in 2020-2021 (Textile Exchange, 2022). Türkiye was also the biggest contributor by far to the global growth of organic cotton production in 2020-2021 (Willer, et al., 2023: 124). However, in terms of ecological sustainability, a limited number of studies have shown that the efforts of a couple of Turkish textile firms cannot be generalized to the whole industry. By conducting a content analysis of the sustainability reports of the firms, Saygılı et al. (2019) found that among a selected number of 184 textile and apparel companies in Türkiye, 34 (18%) of them issued sustainability disclosures in the form of international quality certificates and standards. Besides, only 21% of these 34 certificated companies disclose some keywords and phrases in their reports, which resembles the biodiversity standards of the Global Reporting Initiative (GRI). In a similar vein, Ecevit (2023) investigated the sustainability activities of Turkish-origin apparel brands and determined that only 5 of the 25 apparel brands consistently conducted sustainability activities in the form of less water, more recycled material, and more organic cotton usage. Besides, only one firm promises to preserve ecological balance, not to harm biodiversity and animals, and impose restrictions on the use of materials of animal origin. According to Oral (2019), the environmental problems arising in the textile and ready-made garments industry appear to be primarily linked to the weak enforcement of existing laws, rather than deficiencies in the laws themselves. In this respect, the reluctance of textile producers to adopt responsible production technologies is argued to be related mainly to the substantial costs of these technologies in foreign currencies. Overall, it can be said that Turkish textile firms need to make more progress in terms of definition and criteria, developed under the framework of BioTrade.

Turning to the composition of biotrade export flows in Figure 4, in the case of ***food and beverage***; fruits, vegetables, cereals, and their derived products constitute 54.3% of the whole product group. The significance of the food and beverage product group in the biotrade exports of Türkiye can be attributed to the fact that Türkiye was the 8th largest producer of agricultural products in the world in 2020 (WDI, 2022). Despite the constantly rising share in the production and export of the industry and service sectors, agriculture is still a major occupation of some part of the Turkish population (FAO, 2018: 15). In that sense, agriculture, as an artificial ecosystem, is the primary source of subsistence for the rural population (which accounts for 17.3% of the total population) in Türkiye.

In terms of organic production of food and beverage, it can be said that the Turkish organic agriculture sector has started to develop as a response to the increased foreign demand after 1985. In these years, the main export products were dried forms of figs, raisins, apricots, and also hazelnuts (Ak, 2002: 34). In 1994, regulation on "Production, Processing, and Marketing of Vegetable and Animal Products Produced by Organic Farming Methods" has been issued, using the European Union's related regulations as a foundation. Since the beginning of the 1990s, organic farming and good agriculture practices have gradually expanded in the country. While there were only 8 organic products, covering an area of 1037 ha in 1990 (Demirayak, 2002: 9), the number of crops has reached 268 with an area of 310584 ha in 2022 (including wild collection areas) and about 1.6 million tons of production. While the production level peaked at 2.47 million tons in 2016, it began to decrease gradually after that year, although the number of crops and farmers continued to increase during the same period (T.R. Ministry of Agriculture & Forestry, 2023). This diminishing trend in production level is also reflected in the organic farming area, which decreased from 661210 ha in 2016 to 351917 ha in 2021, adding up to a 46.7% decrease. Over five years, 196194 ha out of the total area loss was attributed to a reduction in organic agriculture areas, while the rest was lost due to an 113099 ha decrease in wild collection areas. In 2021, the organic share of total agricultural land in Türkiye is 0.9%, which is a ratio far below 9.63% for the EU and 3.58% for Europe (Willer, 2023: 241). Besides this share has decreased from a ratio of approximately 2% in 2016. Main problems restricting the development of organic farming are identified as follows; the small scale of agricultural enterprises, fragmented and dispersed land, the lack of agricultural cooperatives, and inadequate organization of producers. Under these conditions, organic producers cannot carry the burden of certification costs on their own and cannot commercialize their organic products as "organic" without a certificate either, causing sales below the cost (T.C. Kalkınma Bakanlığı, 2018: 30).

With regards to bilateral trade volumes in organic farming, Türkiye ranked as 6th among countries that the EU imported mostly, and the EU member states are the main destination for Turkish organic products. Besides, in recent years, Türkiye has begun to diversify its export markets towards the USA, Gulf countries, China, Japan, and other European countries (Willer, 2023: 142, 209). The top five export products of Türkiye in 2022 were dried figs, fruits, raisins, dried apricots, and hazelnuts, all of which account for 84% of all organic exports[32]. However, the total value of organic farming exports in 2021 accounts for barely 0,012% of all biotrade in food and beverage[33].

32 The ratio is calculated by the author. Source: T.R. Ministry of Agriculture & Forestry, 2023.

33 The ratio is calculated by the author. For the organic farming exports data, source: T.R. Ministry of Agriculture & Forestry, 2023; for the food and beverage biotrade exports, source: UNCTADSTAT.

Other than this market-based system of organic farming practices and certification, Türkiye has implemented the National Environmental Label System through the "By-Law on Environmental Labeling," which was published in 2018 (Official Gazette, No: 30570). This implementation aligns with the EU Directive 66/2010/EC on Eco-Label. The primary objective of the system is to assess the environmental impact of products or services that are produced, distributed, exported, or imported, based on international standards (T.R. Ministry of Environment & Urbanization, 2020: 311). In Article 1.2 of the By-Law, it is clearly stated that "*the regulation aims to prevent the deterioration of ecosystems, to reduce the negative impacts on the environment, human, health, climate and natural life in the consumption of natural resources during the whole process of the life cycle of products and services starting from the use of natural resources and raw material stage to the final disposal stage, including stages such as production, use, consumption, recycling ext*". Unlike the EU Directive, although the term "biodiversity" is not explicitly stated in the By-Law, its emphasis on the mitigation of ecosystem degradation and negative impacts on natural life from a life cycle perspective is undoubtedly a significant step forward in the conservation of biodiversity. However, these forms of branding schemes combined with organic certification procedures as an example of BioTrade-based positive incentives have their limits, as they require the voluntary participation of market actors in the economy to obey certain sustainability standards. Environment Labels have been granted to a total of nine companies starting from the year 2020. The product range is limited to ceramic tiles, textiles, tissue paper, and dishwashing detergent for now (T.C. Çevre ve Şehircilik Bakanlığı).

In terms of regulatory interventions and enforcement measures in the international trade of biodiversity, CITES serves as the main foundation, while Türkiye has been a party to the convention for 27 years. The Regulation on the implementation of the CITES was published in 2001 and revised in 2019 (Official Gazette, No: 24623 & Official Gazette, No: 30837). Accordingly, international trade in species of animals and plants is strictly regulated concerning three categories of CITES. For achieving an international trade permit to export a specimen from Category I species, designated authorities[34] must identify that the concerned specimen is obtained in compliance with related legal provisions on the protection of the plant and animal species. In addition, the scientific authority (TUBITAK) must furnish a written opinion clearly

34 For terrestrial invertebrates, mollusks, bivalves, aquatic products including marine and inland water plants and their eggs, marine mammals, the Directorate General of Fisheries and Aquaculture; for all live plants, the Directorate General of Plant Production; for birds, mammals except marine mammals, reptiles, arthropods and other species, the General Directorate of Nature Conservation and National Parks are determined as designated authorities with the related regulation. These General Directorates are affiliated with the Ministry of Agriculture and Forestry.

stating that the exportation will not harm the survival of the specimen in question. Lastly, the healthy transportation of the live specimen must be guaranteed to the designated authorities. In the case of imports, the scientific authority is required to provide an additional written opinion explicitly stating that the importation will not have any adverse effects on the native species of the country. Besides importer must guarantee that the sample specimen shall not be used for trade purposes. For Category II, the trade permits are conditional to compliance with the annual quota set specified for that specimen, while there isn't any specific quota for Category III.

Table 3. Wildlife export quotas of Türkiye

	Family	Species Name	2003	2013	2023*
Plants	Amaryllidaceae	Galanthus elwesii	6000000	6500000	7200000
		Galanthus woronowii	2000000	3500000	7800000
		Leucojum aestivum		4000000	8000000
	Araceae	Arum italicum		350000	
		Arum dioscoridis		250000	
		Dracunculus vulgaris		350000	
	Asparagaceae	Drimia maritima		15000	500000
	Geraniaceae	Geranium tuberosum		1000000	
	Liliaceae	Lilium martagon		2500	
	Primulaceae	Cyclamen cilicium	250000	300000	830000
		Cyclamen coum	300000	750000	1200000
		Cyclamen hederifolium	1750000	2000000	3650000
	Ranunculaceae	Anemone blanda		6000000	
		Eranthis hyemalis		3500000	3000000
Animals	Anguillidae	Anguilla anguilla		20000	100000
	Hirudinidae	Hirudo medicinalis	8000		
		Hirudo verbana		3000	1500

Source: for all species in 2003 & animal species in 2013 and 2023; CITES, retrieved from: https://cites.org/eng/resources/quotas/export_quotas, (accessed 02.07.2023). For plant species of 2013 and 2023; Annexes of Official Gazette, No: 28489 & Official Gazette, No: 32050.

Table 3 illustrates wildlife export quotas of Category II in Türkiye by comparing three periods. For the year 2023, species of two flower families, better known as Primroses (*Primulaceae*) and Amaryllis (*Amaryllidaceae*) are regulated with a maximum of 5680000 and 23 million pieces, respectively. Together with Winter Aconite (*Eranthis hyemalis*) and Maritime Squill (*Drimia maritima*), the export quota of total flower bulbs reaches 32180000 in 2023. Besides, the animal species of European Eel (*Anguilla Anguilla*) and Medicinal Leech (*Hirudo verbana*) are regulated at 100000 kg and 1500 kg, respectively. All the plants in question are geophytes, primarily cultivated on a large industrial scale worldwide to cater to the demand

in the cut flowers and dried bulbs markets. In addition to their role in the ornamental plant industry, some of these plants are also utilized as medicinal resources for the treatment of specific illnesses. There are three approved methods for exporting these plants: wild collection, nurturing, and artificial production. In addition to species that have export quotas, the Ministry of Agriculture and Forestry compiles and publishes a list of species prohibited for export each year through an official communiqué in the Official Gazette.

Upon examining these lists every year, the following pattern becomes evident. While the scope of the prohibition of exports via wild collection has expanded, exports through artificial production have become increasingly liberalized. By comparing the list of 2006 with the list of 2023, it is observed that the exportation of nine species, which were previously allowed to be exported through wild collection under a specific quota, has now been prohibited, and the export of these species has become unrestricted as long as they are exported through artificial production.[35]. This regulation implies a policy shift in favor of artificial production at the expense of wild collection. Since the 1970s, with the unregulated and unconscious collection of geophytes from the wild, some species like *Orchidaceae* threatened with extinction. The policies that prohibit the wild collection of these species for an extended duration have not effectively prevented it. On the contrary, these policies have inadvertently stimulated an increase in illegal collection activities. Therefore, the primary policy approach that emerged as effective was the encouragement of sourcing these bulbs from production areas (Demir, 2009: 37-48).

Table 4. International Trade of Plant Species by Top Ten Countries, 2021

	Exporter	Number of Specimens	Importer	Number of Specimens
1	China	89524158	USA	66782923
2	Netherlands	36984531	Germany	56945609
3	Dominican Rep.	30764835	Netherlands	30131407
4	Thailand	25892100	Viet Nam	20712913
5	**Türkiye**	23116136	UK	17531122
6	Zimbabwe	18964800	South Korea	7970558
7	Kenya	16486000	**Türkiye**	5959644
8	South Korea	8362915	Canada	5602277
9	Costa Rica	3483457	UAE	4965487
10	South Africa	1082028	Japan	3754409

Source: CITES Wildlife Tradeview. accessed 18/05/2023.

35 For a detailed list of names of related species for 2006 and 2023, see Official Gazette, No: 25996 & Annex of Official Gazette, No: 32050, respectively.

Türkiye's export of CITES-listed species has mainly concentrated on plant species. Table 4 shows that Türkiye ranks 5th in the exports and 7th in the imports of plants in terms of CITES taxa all over the world. In 2021, the number of plants, exported and imported accounted for around 23,1 million and 5,96 million, respectively. Among these plants, the amaryllis family was the most exported family with 15,1 million roots. In terms of export destinations, the Netherlands ranks first by far with a 70% share in the exports of Türkiye, followed by the United Arab Emirates (14%), Réunion (9%), and the United Kingdom (6%). In the case of Réunion, the bilateral flows consist of re-exports of Türkiye from France and Belgium (CITES Wildlife Tradeview).

Lastly, Türkiye has also signed biodiversity-related trade agreements with a couple of provisions. The first agreement was signed in 1991 with EFTA on the protection of whales and seals and MEA provisions for CITES. Since then, Türkiye has signed other agreements with Malaysia, Chile, and Korea, including a total of eight provisions related to biodiversity (TREND Database).

4. Concluding Remarks

Biodiversity loss has been a multidimensional and multilayered phenomenon with its mutually reinforcing drivers and complex impacts. It is mainly driven by the increased commodification and commercialization of biodiversity-based products. International trade is a significant driver of biodiversity loss, as it exacerbates not just import demand, particularly for biodiversity-based products but also maritime transport, road building, and aviation facilities for the continuous flow of all tradable products. The "Food and beverage" industry ranked first in the composition of biotrade flows, followed by "Pharmaceuticals", "Wood and derived products" and "Natural fibres and articles thereof". Increased specialization comes with overexploitation of biodiversity, especially for those countries which are directly dependent on it. Hence, the regulation of global biodiversity-based production and trade is crucial for the conservation and sustainability of biodiversity. However, designing adequate instruments for protecting biodiversity has been a challenge, while the historical relationship between biodiversity and trade includes the demands of different interest groups (firms, countries, local communities, etc.) and the conflicts and negotiations that arise in response to these demands.

In the global governance of biodiversity-based trade, international organizations sometimes have contradictory policy obligations depending upon their primary concern. In this respect, developing countries are constrained by WTO rules to guarantee that restrictive measures to preserve the environment do not discriminate or are not overly trade-restrictive, while

the CBD and CITES rather give developing countries some room to protect their biodiversity against biotrade-driven extraction. In terms of trade-related measures and their effect on the protection of biodiversity, two policy choices are in the foreground: regulatory interventions as in the case of CITES trade quotas, and market-based solutions that include non-mandatory standards by private entities, supported by the BioTrade Initiative of UNCTAD. It can be argued that NTMs and reciprocal preferential trade agreements provide more flexibility in this system of WTO-regulated global trade when it comes to incorporating provisions related to biodiversity. While it cannot be asserted that these international regulations embody the ideal standards for the protection of biodiversity, they do represent a progressive and comprehensive framework compared to the standards observed in developing countries. Currently, developing countries face a dual challenge. On the one hand, they strive to safeguard their interests concerning their economic development. On the other, they cannot avoid embracing the prevailing global economic paradigm of green development and the concept of "protection via valuation". Hence, developing countries reshape their national legislation about these developments.

In a similar vein, the legal status of biodiversity in Türkiye has begun to be shaped by laws & related bylaws after taking part in international conventions since the 1990s. Türkiye hosts a wide variety of terrestrial, aquatic, and aerial ecosystems as well as being a homeland for flora and fauna species. Besides, Türkiye plays a significant role in the emergence of cereals & horticultural crops, which serves as a basis for the country's agricultural product specialization and trade. However, improper practices within agricultural areas, pollution resulting from agricultural, industrial, and domestic waste, unregulated irrigation projects, construction of the power plants and dams, illegal hunting, fishing, wild collection of plants, and invasive alien species are the primary reasons for ecosystem degradation in Türkiye. Besides, recent studies show the insufficiency of Türkiye at in-situ conservation. An international comparison of Türkiye with its counterparts also shows that Türkiye performed poorly with an EVI score of 20.3. As one of the richest countries in the Mediterranean region in terms of species and habitat diversity and high endemism rate, it is crucial to take enhanced conservation measures and to expand protected areas to effectively encompass and safeguard Türkiye's crucial ecosystems and the species that depend on them. To achieve the strategic objectives aimed at effectively protecting and sustainably utilizing biological diversity, one of the key shortcomings that need to be addressed is the lack of coordination among different institutions that possess authority or responsibility stemming from diverse legal regulations. Despite Türkiye's notable advancements since the planned development era, the fundamental outlook of the public au-

thority has exhibited limited transformation. It has persisted in prioritizing economic growth, particularly in sectors like agriculture, which are highly sensitive to biodiversity, as well as in tourism, energy, mining, and industry. Recently, the ongoing debates surrounding the draft law on biodiversity reveal a clear trade-off between the preservation of biodiversity and economic development. The ongoing situation in Türkiye serves as an example that highlights the challenges associated with the CBD's acknowledgment of each nation's sovereign rights over biodiversity. It demonstrates that the exercise of this right by developing countries does not necessarily guarantee actions that favor the conservation of biodiversity.

Lastly, Türkiye's biotrade exports account for 23.5% of the total merchandise exports of the country and 1.4% of the total world biotrade. It can be said that biotrade exports have a significant share in the country's specialization pattern, although its world market share is low. In terms of product groups, it is observed that two product groups stand out in this composition: (i) food and beverage and (ii) natural fibres and articles thereof. While the former is related directly to agricultural production, the demand for the latter is driven by the textile and clothing industry. In terms of trade-related measures, Türkiye applies market-based regulations such as organic farming and environmental labeling as well as regulatory interventions by aligning its legislation with CITES requirements. Organic farming is mainly conducted by small-scale agricultural enterprises in fragmented and dispersed areas. In this kind of production structure, producers are insufficient in collaborating to cover the high costs of the certification system. Hence, it becomes infeasible to apply organic agriculture across all forms of food production. The total value of organic farming exports in 2021 accounts for barely 0,012% of all biotrade in food and beverage. On the other hand, eco-labeling is a very recent development for Türkiye with a limited number of firms in ceramic tiles, textiles, tissue paper, and dishwashing detergent production. Finally, the wildlife export quotas of Türkiye comprise eight plant species and two animal species. In addition to species that have export quotas, the Ministry of Agriculture and Forestry compiles and publishes a list of plant species prohibited for export. Upon examining these lists every year, the following pattern becomes evident. While the scope of the prohibition of exports via wild collection has expanded, exports through artificial production have become increasingly liberalized. This policy shift is a consequence of certain species being endangered due to unregulated and unconscious harvesting from the wild. Because Türkiye ranks 5th in the exports and 7th in the imports of plants in terms of CITES taxa all over the world, enforcement measures are becoming even more important for the conservation of biodiversity. It can be argued that no matter which regulation is implemented, it is necessary to mainstream biodiversity in national development policies and across different sectors.

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Appendix

Table A1. Ecosystem Vitality Index and its components for Türkiye, 2022

		Score*	World Rank	Regional Rank	10 Year Change	Regional Mean	Weights**
ECO	Ecosystem Vitality	20.3	176	19	-1.7	55.68	0.42
BDH	Biodiversity & Habitat	7.5	178	19	0.1	69.38	0.4285
TBN	Terrestrial biome protection (national weights)	1.1	178	19	0	84.59	0.2222
TBG	Terrestrial biome protection (global weights)	1.4	178	19	0	86.59	0.2222
MPA	Marine protected areas	0.0	119	12	0	64.68	0.2222
PAR	Protected Areas Representativeness Index	9.1	158	19	2	40.76	0.13888
SHI	Species Habitat Index	87.1	72	8	-10.2	80.44	0.08335
SPI	Species Protection Index	1.1	171	19	0.1	69.57	0.08335
BHV	Biodiversity Habitat Index	37.3	132	9	0	37.27	0.0278
ECS	Ecosystem Services	22	111	13	-6.1	27.95	0.19045
TCL	Tree cover loss	17.1	76	11	-5.1	17.06	0.75
GRL	Grassland loss	30.6	134	17	-8	54.69	0.125
WTL	Wetland loss	43.0	93	13	-10.2	66.53	0.125
FSH	Fisheries	9.5	125	11	-5.6	23.56	0.11905
FSS	Fish Stock Status	6.9	102	6	-16.6	34.37	0.36
RMS	Marine Trophic Index	13.1	72	9	0	25.25	0.36
FTD	Fish caught by trawling	8.2	59	6	1.5	11.42	0.28
ACD	Acidification	61.8	113	18	-1.2	92.87	0.09524
SDA	Adjusted emissions growth rate for sulfur dioxide	55.9	125	18	-5.1	92.81	0.5
NXA	Adjusted emissions growth rate for nitrous oxides	67.7	84	18	2.6	92.94	0.5
AGR	Agriculture	39.1	75	13	2.2	46.86	0.09524
SPU	Sustainable Pesticide Use	20.9	113	14	0	40.61	0.5
SNM	Sustainable Nitrogen Management Index	57.4	32	11	4.5	53.09	0.5
WRS	Water Resources	30.5	52	12	0	42.75	0.0715
WWT	Wastewater treatment	30.5	52	12	0	42.75	1

Source: EARTHDATA. Socioeconomic data. and application center. https://sedac.ciesin.columbia.edu/data/set/epi-environmental-performance-index-2022/data-download (accessed 29.05.2023).
* The data for each performance indicator is transformed by Wolf et al. (2022) into scores ranging between 0 and 100. from worst to best performance.
**Weights show the contribution of each performance indicator to the calculation of each of the 6 issue categories. and then these issue categories are weighted to compute the Ecosystem Vitality Index (EVI). The final weight (42%) for the EVI shows the contribution of this policy objective to the EPI score.

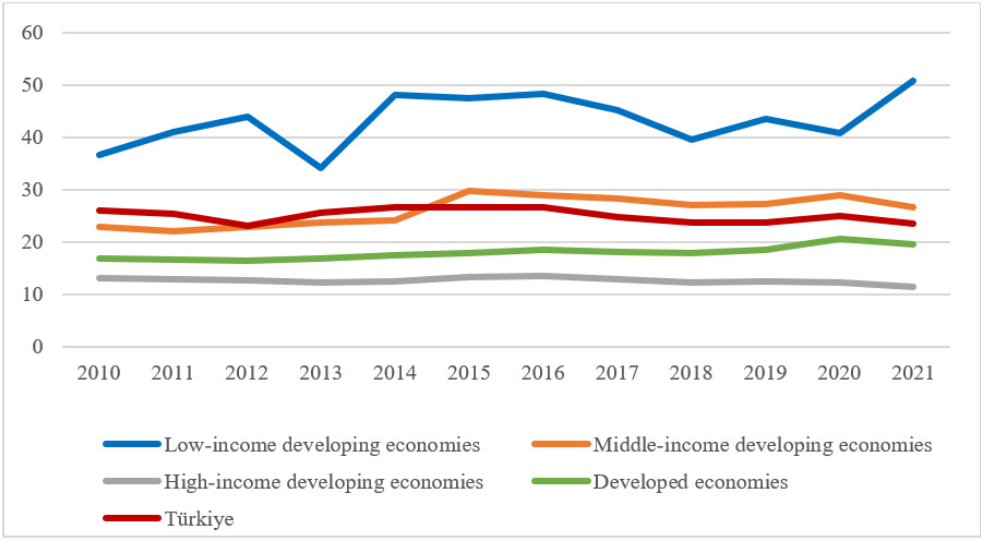

Figure A1. The share of biotrade in total merchandise exports: A comparison of Türkiye with other groups of economies
Source: UNCTADSTAT. retrieved from https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=227725. accessed 30/05/2023.

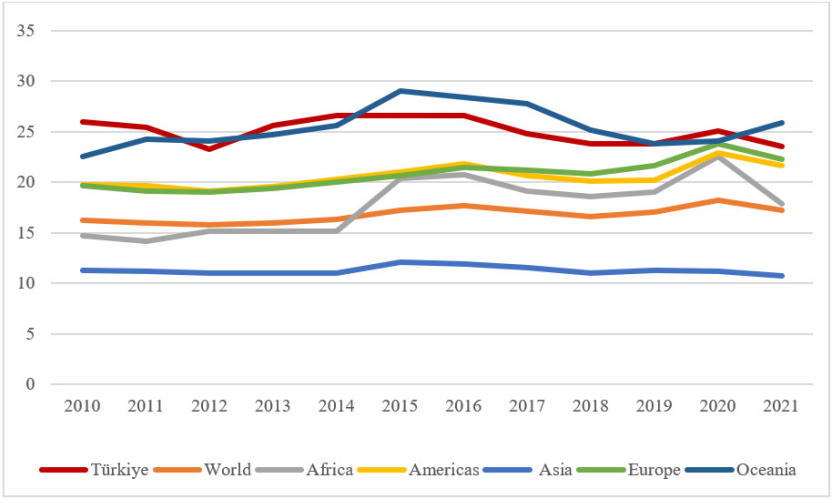

Figure A2. The share of biotrade in total merchandise exports: A comparison of Türkiye with other geographical regions
Source: UNCTADSTAT. retrieved from https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=227725. accessed 30/05/2023.