

EXPLORING THE DYNAMICS OF INTERNATIONAL TRADE IN PLASTICS BETWEEN THE WESTERN BALKANS AND THE EU: A FOCUS ON CIRCULAR ECONOMY PRACTICES

Ivana Ivanova

“Ss. Cyril and Methodius” University, Faculty of Economics-Skopje, RN Macedonia,
ivana_kole@yahoo.com

Irena Kikerkova

“Ss. Cyril and Methodius” University, Faculty of Economics-Skopje, RN Macedonia,
irena@eccf.ukim.edu.mk

Abstract: The increasing emphasis on sustainability within the European Union has brought the issue of plastics to the forefront of the discourse of circular economy. The increment of global awareness of plastic pollution creates significant implications for international trade in goods, particularly for regions like the Western Balkans. This region, aspiring for deeper integration with the EU, has to manage the complexities of trade in plastics while adhering to implement environmental standards.

Recently developed circular economy strategic documents and roadmaps of the Western Balkan countries indicate that they are still in the early phase of adopting circular economy practices, often failing to realize that the circular economy is a much broader approach than merely waste management. Unfortunately, plastics is still not a high priority on the agenda of these countries.

This paper presents a comprehensive analysis of the international trade in plastics between the Western Balkans and the European Union, specifically examining the status of primary plastics as a vital raw material. Additionally, it analyzes intratrade dynamics among the Western Balkan countries, focusing on the patterns, flows, and implications of trade in plastics within the region.

The study addresses several critical questions: Firstly, what are the current export/import patterns of plastics in the Western Balkan countries with the EU which serves as their largest trading partner, and among themselves? Secondly, does the region exhibit a dependence on imported plastics, and how might principles of circular economy be leveraged to reduce it? Thirdly, what is the degree of the region's dependence on primary imports of plastics? Additionally, what are the intratrade flows of plastics within the Western Balkan countries? Lastly, why is it imperative for the Western Balkans to formulate national strategies focused on plastic management within the region?

To facilitate this analysis, the research utilizes the COMTRADE database provided by the United Nations. The analysis of trade in plastics relies on the Harmonized System (HS) codes, specifically HS:39, which is used for declaring plastic materials and their products. COMTRADE data, as well as data from the World Customs Organization data base, primarily serve as a mechanism for trade statistics regarding imports and exports of plastics. They enable comprehensive comparisons across different countries and time periods, expressed in CIF and FOB values in US dollars. However, a limitation of this classification system is its focus on customs needs rather than statistical analysis, which may affect the depth of insights drawn from the data. This paper aims to fill the critical gap in the existing literature, particularly having on mind the lack of statistical data on these trade flows within the region.

Keywords: plastics, circular economy, Western Balkans, European Union, international trade.

1. INTRODUCTION

The world is moving towards a new circular economy model which currently gains on importance. This model highlights the way of usage of companies' resources in a linear and unsustainable way. The circular economy model promises greater competitive advantages with reduced dependence on imports of plastics. Central to this shift is the introduction of circular practices, with which resources - particularly plastics and the polymers from which they are derived - are integrated into a circular system and are retained in use for as long as possible. Unfortunately, citizens in the Western Balkans do not perceive plastics as a potential resource that might add value as a recycled secondary material. Even though recycled plastics might decrease the import dependence on this material, lack of public awareness is highly evident in the region. Responsible institutions also show a lack of capacity to apply special and environmentally friendly methods of treatment of different kinds of waste, which is one of the reasons for not insisting on waste sorting at household level. Facts from academic research on this important challenge that the modern world faces might contribute to the creation of a clear picture of the alarming state of pollution with plastics in the region,

as well as the economic added value of restructuring efforts aimed at reducing dependence on imports of primary plastics and polymers.

High rates of mixed municipal waste disposal in the WB (over 83%), also reflect the initial phase of citizens' awareness regarding the advantages of the circular economy. Countries in the Western Balkans still equate waste management with circular economy principles. The adoption of Roadmap Strategies indicates that the commitment to implement the so-called Green Balkans agenda is present, but the path to the anticipated structural changes and reforms is long and not easy to implement, particularly considering that only 9% of the global economy is currently circular (WBCS, online). Good example is the European Union, toward which the Western Balkans countries are strongly committed. Despite of the EU Circular Economy Action Plan, only a minimal increase in the circularity rate has been recorded from 2010 (10.7%) to 2023 (11.8%). This data suggests that the economy still largely adheres to a linear model (EEA, 06.01.2025), with recycling rates, especially in the case of plastics, remaining unsatisfactory. The EU Plastics Strategy, as part of the efforts for a circular EU, was adopted in 2018 (European Commission, 16.01.2018), and following the signing of the Sofia Declaration in 2020, countries in the Western Balkans have been facing the challenge of establishing regional cooperation on plastics within the Open Balkan Initiative, led by the RCC (Hamburg Declaration, 08 Oct. 2024; Sofia Declaration, 2020).

2. METHODS

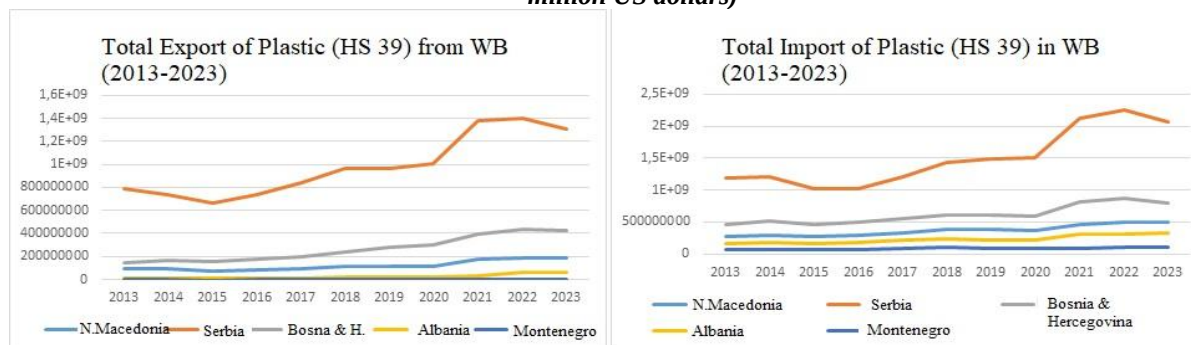
For the needs of the analysis of trade in plastics, the research utilizes the COMTRADE database provided by the United Nations which relies on the Harmonized System (HS) codes. Authors use specifically HS:39 code, which is used for declaring plastic materials and their products. Using comparative analysis on macro level, we present data on trade in plastics between the EU and the WB, the WB and the world, but also the intra trade analysis of the flows and patterns within the WB region. Patterns and flows were mainly analysed in a period of one decade, 2013-2023, and detailed analysis is offered from the year of 2023 data in the system, which is the last available data base. Kosovo is not included into the analysis. WB data refer only to available data for Albania, Bosnia and Hercegovina, Montenegro, Serbia and N. Macedonia.

For the analyses of primary plastics, we use 3901- 3906 HS codes, although we are aware that not the total volume of primary plastics is declared under these codes. SITC Classification was not our first choice, for the evident lack of patterns of primary plastics. COMTRADE framework by UN, derived from data from the World Customs Organization, serves primarily as a trade statistics mechanism on exports and imports of plastics. It enables comprehensive comparison across different countries and time periods, expressed in CIF and FOB values in US dollars. We also have on mind this classification system's limitations, as its focus is on customs needs rather than on statistical analysis, which may affect the depth of the analysis and the conclusions drawn from it. Yet, we believe that our work will help to fill some of the gap in the existing literature, particularly in regard of the lack of statistical data on trade flows of plastics within the region.

3. RESULTS

The analysis of external trade in plastics of the Western Balkan countries points out that, over the course of a decade (2013-2023), trade in plastics in the region has been continuously growing, reaching an export value of 1.6 billion US dollars in 2023 and an import value of 3.7 billion US dollars (see Graph 1). As a percentage of total export of goods, plastics accounted for only 3.5%. The percentage of imported plastics in comparison to the total import of goods in the WB region represented 4.62% (see Table 1 and Table 2).

Graph 1: Total Export and Import of Plastics in the Western Balkan countries (HS 39) from 2013 to 2023 (in million US dollars)



Source: Authors calculations based on UN COMTRADE data

In terms of exports, the largest trading partners in 2023 for the Western Balkans countries were all from Europe, especially from the EU. Yet, the analysis of the largest trading partners of imports of plastics in this region shows another picture, as participation of trading partners out of Europe like China, Saudi Arabia and Turkey increases. Nevertheless, WB region's dependence on imported plastics is still reflected in its trade with the European Union, which accounts for 75.7% of its total imports of plastics (see Table 2). All countries in this region are net-importers of plastics from the EU. The total value of the imported plastics from the EU reached 2.8 billion US dollars in 2023. At the same time, the exports of plastics to the EU reached 1.4 billion US dollars (see Table 1). Serbia was the most significant trading partner of the EU in import/export of the plastics.

Table 1: Exports of plastics within the WB and between the WB and the EU in 2023 (HS 39 in US million/billion dollars)

Country	Total export of goods	Total export of plastics	Export of plastics as % of total export of goods	Export of plastics to the EU	EU export as % of total export of plastics	Export of plastics to the WB	Export to WB as a % of total export of plastics	Trade partners of export of plastics
Serbia	30.9 b	1.3 b	4.20%	884m	68%	208.1 m	15.9%	133
N. Macedonia	8.9 b	189.2 m	2.10%	97.1 m	51.3%	78.9 m	41.7%	70
B&H	9.2 b	429.9 m	4.60%	370.6 m	86.2%	40.9 m	9.5%	67
Montenegro	722.5 m	5.4 m	0.70%	0.88 m	16.3%	3.2 m	60.4%	42
Albania	4.4 b	60.3 m	1.40%	53 m	87.9%	5.8 m	9.6%	44
WB	45 b	1.6 b	3.50%	1.4 b	87.5%	336.9 m	22.5%	

Source: Authors calculations based on UN COMTRADE data (m: million US dollars, b: billion US dollars) for each WB country, Kosovo not included.

Table 2: Import of plastics among the WB countries, from the world, and from the EU in 2023 (HS 39 in US million/billion dollars)

Country	Total import of goods	Total import of plastics	Import of plastics as % of total trade import	Import of plastics from the EU	EU Import as % of total import of plastics	Import of plastics from WB	Import from WB as a % of total import of plastics	Trade partners of import of plastics
Serbia	39 b	2 b	5.13%	1.7 b	77.70%	64.3 m	3.80%	122
N. Macedonia	12 b	487 m	4.05%	303.5 m	62.32%	41.5 m	8.52%	93
B&H	15 b	791.8 m	5.30%	551.6 m	69.66%	87.7 m	11.10%	108
Montenegro	4 b	111.7 m	0.30%	34.9 m	31.20%	41.8 m	37.40%	96
Albania	8 b	325 m	4.00%	174.7 m	53.75%	25.8 m	8.00%	86
WB	80 b	3.7 b	4.62%	2.8 b	75.67%	261.1 m	7.05%	

Source: Authors calculations based on UN COMTRADE data (m: million US dollars, b: billion US dollars)

The most significant trading partner for export of plastics from the WB in 2023 was Germany, which accounted for nearly one-fifth or 18.2% of the total exports of plastics to the EU in 2023. This is primarily due to exports of plastics from Serbia and B&H. For the region, other important export destinations in 2023 from the EU family were Italy and Croatia (both 12.3%), Hungary (8.1%), Bulgaria (6.8%), Czech Republic (6.4%), Romania (5.8%), Greece, the Netherlands (both 3.4%) and Poland (3.10%).

Intra-trade in plastics in the WB

Intra-regional trade shows that 7.05% of imports into the Western Balkans was effectuated within the region in 2023, where only Serbia and N. Macedonia happen to be net-exporters of plastics at regional level. B&H, Montenegro, and Albania were net-importers of plastics. Exports within the region accounted for 22.5% of the total export of plastics, and Serbia was the biggest partner for all the WB countries. Nearly half of the exports of plastics of Serbia went to B&H (see Table 1, Table 2 and Table 3).

Table 3: Export of plastics among WB countries in 2023 (HS 39 Code in US million dollars)

Country Exporter	Importer Serbia	Importer N. Macedonia	Importer B&H	Importer Montenegro	Importer Albania
Serbia		38.4	108.9	51.5	9.4
N. Macedonia	61		5.9	1.7	10.3
B&H	29.8	3.6		6.2	1.3
Montenegro	1.5	0.08	1.2		0.5
Albania	4.4	0.7	0.04	0.6	

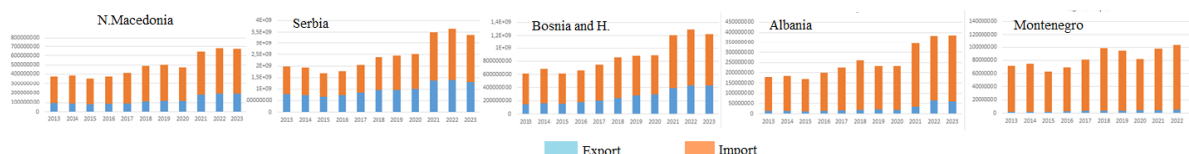
Source: Authors calculations based on UN COMTRADE data based on export data from each WB country except for the export data of plastics to the EU, taken from EU reported imports; Kosovo is not included

The WB import dependence on plastics also extends to primary plastics as raw material, which happened to be a crucial component of all industrial production of plastic materials in the region. The polymers from which plastics are made - such as ethylene, styrene, and vinyl chloride - contributed up to one-quarter to one-fifth of the total import of plastic (HS 39) in almost all countries in the region, although the study did not include the entire primary classification (only HS 3901, 3902, 2903, 3904, 3905 and 3906 included). The most commonly used primary plastics in 2023 accounted for between 2.7% and 26.3% of the total imported plastics into the region: N. Macedonia 22.2%, Serbia 26.3%, Albania 18.4%, B&H 22.4%, and Montenegro 2.7% (see Table 4).

4. DISCUSSIONS

„... Rising populations and incomes drive a relentless increase in the amount of plastic being used and thrown away, policies to curb its leakage into the environment are falling short...” (OECD,2022). The increased trade in plastics of the WB in the past decade showed that citizens in the region with their increased income and living standard stimulated the demand for and consumption of plastics. On the one hand, WB countries have increased import for plastics and increased demand for polymers, but on other hand they still don't manage properly the separation of different kinds of plastic, and they face challenges in recycling, as well as waste treatment of plastic. There is an outstanding import dependence on plastics in the region, especially in some countries like Albania and Montenegro (See Graph 1).

Graph 1: Import dependence on plastics in Western Balkan countries (HS 39) from 2013 to 2023 in million US dollars



Source: Authors calculations based on UN COMTRADE data

Plastic waste in WB has to be identified as a future resource. The famous Club of Rome and its „Limits to Grow“ have already notified that, „...resources from the global system of nature in which we all live cannot support present rates of economic and population growth, unless we decide to act...“. Polymers of which plastics are made, as a definite resource, are mostly derived from petroleum (Vincent V.et all 2021.p. 2), and therefore WB must accept circular economy practices as soon as possible. The region has to take responsibility for its own consumption of this limited resource, imported and extracted from elsewhere on the planet, polluting the nature.

In terms of plastic pollution, literature findings are already alarming. WB countries have greatest per capita plastic leakage in the Mediterranean basin for macro- and micro-plastics, (IUCN, 2020, pp. 26-29) and more than 83% of

waste is disposed off in the regions landfills (OECD p. 232) Concerns grow further with the fact that recycling rates of municipal waste among the WB economies (8.5% on average) remains more that 20 percentage points below that of the EU, leading to increased resource depletion (OECD, 2024, p. 201). The lack of academic reserch on the amount of plastics contained in municipal waste which might turn into micro-plastics, is also evident. It is already well known that not only micro-plastics are present in clouds and might be transported by them, but also they might influence cloud formation and changes in the weather and the climate (ACS, 2023). Micro-plastics has been found in human blood (Leslie H. et.al., 2022), after it had already been confirmed in new mothers' feces and placenta. These findings, combined with the fact that „...the air quality across the WB is among the lowest in the world, the status of waterbodies is largely unsatisfactory, and soil degradation is prevalent and extensive throughout the region...“ (JRC,2022) shows urgent need to define the negative role of plastics in regard of the long lasting polution of the environment.

In most of the WB countries, primary plastics or polymers already account one-quarter to one-fifth of total import of plastics (see Table 4), pointing once again the import dependence for such products in the region. This leads to the conclusion that in the WB, the imported plastics that was processed and ended up as plastic waste, has the potential to become a future recycled raw material and serve as "nurture" for the needs of plastic production capacities through the circular economy, relying on its mechanical or future more advanced chemical recycling. WB companies are due to develop awareness of eco-design of their products in order to reduce the amount of plastics used in new products or to try to replace it with bio-materials, while plastics for single-use should ultimately be banned in the future in accordance with the directives and practices of the European Union (Official Journal of the EU, Directive (EU) 2019/904, 12.06.2019).

Table 4: Specific types of plastic participation in primary form in the total plastic imports in WB countries in 2023 (m: million, b: billion US dollars)

Import country	HS 39	HS 3901	HS 3902	HS 3903	HS 3904	HS 3905	HS 3906
Albania	325 m	6.80%	2.10%	3.50%	1.20%	1.50%	3.30%
B&H	791.8 m	8.90%	3.70%	4.30%	3.50%	1.10%	0.90%
N. Macedonia	487 m	11.50%	4%	3.60%	1.90%	0.50%	0.70%
Serbia	2 b	9.30%	5.40%	4.50%	3.08%	1.80%	2.20%
Montenegro	111.7 m	1.90%	0.07%	0.25%	0.16%	0.13%	0.15%

Source: Authors calculations based on UN COMTRADE data (Note: HS 3901 Polymers of ethylene, in primary forms, HS 3902 Polymers of propylene or of other olefins, in primary forms, HS 3903 Polymers of styrene, in primary forms, HS 3904 Polymers of vinyl chloride or of other halogenated olefins, in primary forms HS 3905 Polymers of vinyl acetate or of other vinyl esters, in primary forms 3906 Other polymers, in primary forms)

The largest WB trading partner are the EU member-states, especially Germany as the most important strategic trading partner of Serbia, both in terms of export and import of plastics outside the region. This indicates that part of the imported plastics from Germany in Serbia indirectly flows to the rest of the region. Since Germany is one of the EU countries that is the largest importer of primary plastics globally (in 2022, it accounted for 4.8% of the total EU ethylene imports), this impacts the entire EU's dependence on imports of plastics. Therefore, the concept of a circular economy, where plastics should circulate and new imports should be avoided to achieve resilience, is a concept that should be mirrored in the WB countries aspiring to join the EU.

There is a clear reason why EU actively monitors trends in the trade of this polymer. "...because Europe, after East Asia and Latin America, recorded the largest trade deficit in 2022 amounting to 4.5 billion US dollars. Among the ten largest importing countries in the same year, six are from the EU: Germany (4.8%), Italy (3.6%), France (2.4%), Poland (2.35%), Spain (2.1%), and Belgium (2.0%). Together, they account for 17.2% of the total global import of this product, compared to China, which is the largest global importer with 21.6% of world imports..." (UN Comtrade, 2022). These figures confirm that it is especially important for the EU to understand the approach that the WB countries take toward primary plastics. The increased import dependence on this primary raw material means that the EU accession of WB countries will play a significant role in the global sustainability of the Union and its future resilience. This is also one of the indicators used for measuing circular economy progress that the Union aims for to be able to reach the goal of climate-neutrality by 2050.

The EU expects from the WB to work on the so-called Green Agenda for the Balkans, which is focused on the circular economy and prioritizes plastics on the agendas of individual national governments. In future, exporting products to the European market will face additional pressure to meet certain criteria, such as the inclusion of a specific amount of recycled plastics. Therefore, the WB countries have to prepare a strategy on the transition

towards the European integration with a special focus on these materials. The concept of green public procurement and its power to boost sustainable public consumption should be implemented in the WB as well. In 2023 WB public procurement reached a value of 14.2 billion euros or 9.52% of GDP (Balkan Tender Watch, 2024). This should be seen as a potential to contribute to produce less plastic waste, but also to use the public activity as an example for the future sustainable business decisions and public awareness towards circular approaches.

At the same time, from international perspective, import dependency on plastics of the WB might be compensated by expanding export in plastic products. According to the Policy Study from the German Economic Team 2023, financed by the Federal Ministry for Economic Affairs and Climate Action, and by applying a trade complementary model, it is estimated that the WB has a potential of additional 2.0 billion US dollars in exports per year and 24% higher exports within the region itself. The strongest potential in this regard is evident in the sector machines and equipment, followed by chemicals and plastics (HS 28-49). B&H might generate additional value from export of plastics to N. Macedonia (HS 392690) estimated at 14.32 million US dollars. Kosovo might boost export to N. Macedonia in (HS 390110) in value of 1.55 million US dollars and towards Serbia (HS 392329) in value of 3.52 million US dollars, as well as towards B&H in value of 2.45 million US dollars for additional export (HS 392321). Montenegro with export towards B&H can accumulate additional value of 1.48 million US dollars. Serbia might also export more plastics to N. Macedonia in value of 10.67 million US dollars of (HS 392690). According to this study, the WB has the potential of additional export of plastics within the region of at least 34 million US more. (GET, 2023)

5. CONCLUSION

Trade exchange in plastics in the WB over the course of a decade has been continuously growing, reaching an export of total of 1,6 billion US dollars and an import of total of 3,7 billion US dollars in 2023. The import dependence on plastics is also reflected in the trade with the EU, which accounts for 75.7% of the total plastics imports in WB. All countries of the region are net-importers of plastics in the trade exchange with the EU. (export 1.4 billion US dollars/import 2.8 billion US in 2023). Serbia is the most significant trading partner of the EU on both export/import side of the trade in plastics. At the same time, the intra-regional trade data showed that 7.05% of imports in the Western Balkans came from within the region itself, with only Serbia and N. Macedonia acting as regional net-exporters of plastics. 21% Of the total exports of plastics from WB was effectuated in its intra-trade. Serbia was the most significant partner for all countries in the region, with half of its exports directed towards B&H. The WB import dependence is also evident in primary plastic used as a raw material, as it is an important component of all industrial production of plastic masses in the region. The most commonly used plastic in primary form in 2023 accounted for between 2.7% to 26.3% of total plastics imports in the region: N. Macedonia 22.2%, Serbia 26.3%, Albania 18.4%, B&H 22.4%, and Montenegro 2.7%.

Plastics, as a complex material that increasingly catches the focus of the model of circular economy, is still not a priority in research within the countries of the Western Balkans. Although this material is becoming more present in the exports of goods from the region, in its primary form it still remains untouched by academic research. With the progress of circular economy policies and the introduction of new measures in regard of plastics treatment in the EU, the WB countries have to position themselves strategically in plastics trade exchange and develop national strategies on this raw material that align with the already established circular economy strategies to encompass all essential economic and ecological impacts that this material carries during its use.

The idea of a "Green Balkans" cannot be thoroughly realized without considering plastics and its impact at all stages of its life cycle. Unfortunately, currently, the circular economy is viewed only as waste management, with more focus on managing plastic waste rather than on more fundamental restructuring, such as introducing eco-designs, reducing the production of new plastic products where possible, spreading public awareness and promoting green public procurements.

REFERENCES

- ACS. (2023). "Not so silver lining: Microplastics found in clouds could affect the weather".
<https://www.acs.org/pressroom/presspacs/2023/november/microplastics-found-in-clouds-could-affect-the-weather.html>
- Balkan Tender Watch. (Sept.2024) *Comparative Report on Public Procurement in Western Balkans 2024*, Foundation Open Society Macedonia. <https://levizjafol.org/wp-content/uploads/2024/09/Comparative-Report-on-Public-Procurement-in-the-Western-Balkans-September-2024.pdf> viewed on 06. 12.2024
- Circle Economy. (2019). *Circularity gap report 2019*. Circle Economy. <https://www.circularity-gap.world/2019>
- European Commission. (2020). *A new circular economy action plan: For a cleaner and more competitive Europe*. Communication from the Commission to the European Parliament, the Council, the European Economic and

- Social Committee, and the Committee of the Regions. <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1583933814386&uri=COM:2020:98:FIN>
- European Commission. (2024). "Trade in goods with Western Balkans 6". https://webgate.ec.europa.eu/isdb_results/factsheets/region/details_western-balkans-6_en.pdf
- European Commission. (n.d.). Single-use plastics. https://environment.ec.europa.eu/topics/plastics/single-use-plastics_en
- European Environment Agency. (2025, January 6). "Circular material use rate in Europe". <https://www.eea.europa.eu/en/analysis/indicators/circular-material-use-rate-in-europe>
- German Economic Team. (2023). *Policy study Western Balkan: Trade within the Western Balkans: Patterns, potentials, and barriers*. Berlin Economics.Berlin.
- Hamburg Declaration. (2024). *Hamburg Declaration on the Green Agenda for the Western Balkans*. https://file:///C:/Users/Test/Downloads/Hamburg%20Declaration%20GAWB_final_.pdf
- Meadows, D. H., Meadows, D. L., Randers, J., & Behrens, W. W. (1972). *The limits to growth: A report for the Club of Rome's project on the predicament of mankind*. Universe Books. New York.
- OECD. (2022). *Global plastics outlook: Economic drivers, environmental impacts and policy options*. OECD Publishing. <https://doi.org/10.1787/de747aef-en>
- OECD. (2024). *Western Balkans competitiveness outlook 2024: Regional profile, competitiveness and private sector development*. OECD Publishing. <https://doi.org/10.1787/170b0e53-en>
- Official Journal of the European Union. (2019). *Directive (EU) 2019/904 of the European Parliament and of the Council of 5 June 2019 on the reduction of the impact of certain plastic products on the environment*. <https://eur-lex.europa.eu/eli/dir/2019/904/oj>
- United Nations. (2023). *2022 International trade statistics yearbook (Volume I trade by country)*. ST/ESA/STAT/SER.G/71 (Vol. I). Department of Economic and Social Affairs Statistics Division. <https://comtradeapi.un.org/files/v1/app/publicationfiles/2022/VolI2022.pdf>
- United Nations. (2023). *2022 International trade statistics yearbook (Volume II trade by product)*. ST/ESA/STAT/SER.G/71 (Vol. II). Department of Economic and Social Affairs Statistics Division. <https://comtradeapi.un.org/files/v1/app/publicationfiles/2022/VolII2022.pdf>
- Voet, V., Folkersma, R., & Jager, J. (2021). *Plastics in the circular economy*. Walter de Gruyter GmbH & Co KG. Berlin/ Boston.
- Leslie, H. A., van Velzen, M. J. M., Brandsma, S. H., Vethaak, A. D., García-Vallejo, J., & Lamoree, M. H. (2022). *Discovery and quantification of plastic particle pollution in human blood*. Environment International. Elsevier. Amsterdam, The Netherlands.
- United Nations Environment Programme (UNEP). (2020). *Mediterranean marine plastic pollution: Trends, risks and impacts* (Report No. 2020). United Nations Environment Programme. Geneve. <https://www.unep.org/resources/report/mediterranean-marine-plastic-pollution-trends-risks-and-impacts>