

TSKB DEVELOPMENT INSIGHTS

November 2023

The Trade in Environmental Products: A New Chapter for Türkiye's Green Transformation

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Flout the Taboos



Despite the bitter rout inflicted by the pandemic, global trade managed to recover, raising its share in global GDP to around 60%. That is broadly good news in the eyes of many economists, as trade is a driving force of growth, creating better jobs, supporting higher female participation and increasing economic opportunity¹.

While remaining integrated with international trade is an important objective for many countries, it is also instrumental in tackling the ecosystem crisis. By nature, trade is not emission-free due to the production and transportation activities involved. However, if it is designed in the right way, it can help mitigate environmental impacts. The key term here is the “environmental goods and services (EGS)”.

It is somewhat difficult to provide a strict definition of environmental goods and services, which is still a source of ongoing debate. Nevertheless, it is possible to sketch the borders of coverage and the United Nations’ definition can help as a point of reference²: Environmental goods and services are products manufactured

or services rendered for the main purpose of preventing or minimizing pollution, degradation or natural resources depletion; repairing damage to air, water, waste, noise, biodiversity and landscapes; and reducing, eliminating, treating and managing pollution, degradation and depletion of natural resources.

Mindful of the winds of change when it comes to EGS, the rest of this report will focus on the trade of “environmental goods / products” from a development perspective while also cross checking the potential of the Turkish economy in this field.

The trade in environmental goods has grown more rapidly than the trade in total goods over the past two decades in the world³, with Turkey being one of the beneficiaries. Accordingly,

- As of 2022, while Turkey’s headline exports staged a five-fold increase compared to their 2003 level, exports of environmental products grew eight-fold.

¹ <https://www.worldbank.org/en/topic/trade/overview>

² <https://archive.unescwa.org/environmental-goods-and-services>

³ https://www.wto.org/english/res_e/booksp_e/wtr23_e/wtr23_e.pdf



- The share of environmental goods in Turkey's total exports rose from 4.6% in 2003 to 7% in 2022
- Turkey captured market share in environmental goods in Europe, which is traditionally our main export market

We believe this untapped story presents an exciting opportunity for the Turkish economy for more than one reason:

- Turkey is a country struggling with high youth unemployment standing at as well as a low female labor force participation ratio. An export-oriented growth model revitalized with environmental goods will address both problems while supporting the objective of price stability through the long-desired re-balancing within growth components.
- Commitment to the green transformation in Turkey has gained momentum following the ratification of the Paris Agreement at the National Assembly in 2021. Just in line, a net zero economy by 2053, is gaining more prominence in public policy documents. The WTO notes that once countries take environmental policy actions, trade serves as a multiplier for environmental gains,

if countries specialize in fields that are relatively green. Such a positive loophole demonstrates that Turkey stands poised to synchronize its trade strategy with climate policies which are still under development.

- Staying on track in the process of changing global trade pattern is vital for Turkey - a country which structurally runs a trade deficit and needs to attract foreign savings. However, advancing in the trade of environmental goods has the potential to limit this deficit while also adding to the country's pull side factors in attracting capital, helping to break some of the taboos which surround Turkey's structural weaknesses. Encouraging such an advancement and guiding the transition will fit the agenda of development finance institutions, contributing to the global green transition efforts.

- Rising environmental standards in the world not only affect the direction of trade but also the direction of capital. Promoting the deployment of environmental goods and committing to be an integral part of the international value chain will encourage companies to invest in green technologies and production methods. These companies, which are better aligned with the green transformation, will likely extend their pool of available external capital through green financing or green partnerships. This is critical both in terms of strengthening the country's finance position but also the "know-how position". The evidence suggests that multinational companies can transfer their environmental technology to the economy hosting them through foreign direct investment (Eskeland and Harrison, 2003). Thus, one should also be aware of the green learning curve that they face.

- This brings us to the fifth point, which is the technological dimension. International trade can incentivize innovation as well as investment in environmental technologies (Aghion et al., 2022). From this perspective, repositioning Turkey's trade strategy with a focus on environmental goods will also serve to place the country as part of a new international trade approach which is becoming more digital, green and inclusive.



Easier said than done!

Mentioning rising reshoring and friend shoring practices, Stiglitz noted that “Gone are the days when everyone seemed to be working for a world without borders.”⁴. This is in line with the “fragmentation” worries of the WTO, as fragmented environmental policies stand out as an important threat to efforts to narrow the inequalities between developed and developing countries.

Having said that, it is also important to emphasise the need for more involvement from developing nations in the international trade negotiations. One step in this direction was the negotiations for the establishment of the Environmental Goods Agreement⁵ launched by the World Trade Organization (WTO) back in 2014. Despite gaining international recognition, progress has been

limited due to the weak representation from developing countries.

This is a long and complex debate which goes beyond the scope of this report, but there are certain points which should be stressed. The fact that countries have not even been to agree on a final list of environmental products and have failed to raise the participation of developing countries in this debate for almost a decade highlights the need for clarification, coordination and leadership. Hence, if one approaches the issue only from a trade policy perspective, it might fall short. What we need is cooperation between countries, but also a credible strategy for each country.

⁴ <https://www.project-syndicate.org/commentary/deglobalization-and-its-discontents-by-joseph-e-stiglitz-2022-05?barrier=accesspaylog>

⁵ https://www.wto.org/english/tratop_e/envir_e/ega_e.htm

The Case for Turkey - Riding the Challenges with a Roadmap

Although I would agree that no force on Earth can stop an idea whose time has come (V. Hugo), making the time come is a different matter. This is even more apparent when it comes to developing the trade in environmental goods due to the time lost already.

Checking the stakes for Turkey, there are many opportunities as well as a long to-do list. A global conjuncture in favor of the green transformation and Turkey's capabilities highlights that investing in an industrial policy with a competitive edge in the trade of environmental goods will be beneficial. So far, however, the benefits that have been reaped are mainly demand driven. Turkey is good at meeting the demand of its trading partners in environmental goods - important, yes, and a good step, but one that can also be deemed a relatively passive stance. An active stance, conversely, goes beyond flowing with the demand patterns. It requires foreseeing the new world to come with the green transformation and shaping the supply, including certain means of production, in a way to meet the new demand for the environmental goods that will also serve country's own low carbon development goals.

An active stance in trade policy requires any given country to be aware of its comparative industrial capabilities and know-how. To facilitate such a discussion for Turkey, in the rest of the report we will derive inputs from the Atlas of Economic Complexity, exhibiting the importance of investing in diversity and complexity as means of shaping growth. We will also note certain steps that can be taken:

- ◆ Turkey's commitment to the trade of environmental goods should be reflected in official policy documents with solid policy steps
- ◆ Ensuring that this commitment is official will also help trigger communication with peers to kick-start international negotiations, in which Turkey will be able to play an important facilitator role
- ◆ Meeting the demand of our export partners for environmental goods should continue to top the agenda, with the aim of raising market share and profitability
- ◆ In a more medium-term perspective, Turkey's industrial policy should advance this approach towards a more active stance in a way that transforms the supply side of the country by foreseeing changing demand conditions
- ◆ Such an approach will require an understanding of the transformation in demand from its trade partners due to the emerging needs coming about with the green transformation
- ◆ To complete this process, a forward-looking gap analysis would be useful in highlighting the sectors and production facilities to transform, including support for advancement in new human capital to fit green jobs, which can be fueled by a new trade mindset
- ◆ It is important to be aware that certain environmental goods may be used for non-environmental purposes, which may trigger overestimating the benefits of the trade. Developing a monitoring mechanism should also be considered to ensure the country's trade interest in environmental goods is credible

Trade in environmental goods is a new and an old topic. Although it has always been discussed, it never really could top the global agenda as clearly as needed. Given the pressing need for a green transformation in the world and in a bid to tackle the trend towards fragmentation in the global economy, the time has come to dust down plans when it comes to this subject. Turkey too stands as the right actor to play a part in this, not only due to being in a position to benefit from this trade policy but also due to its abilities to facilitate this trade strategy among peers, boosting the global green transformation through the trade channel and by eliminating some frictions in the supply chain. ***It all adds up, with all the math working for everyone, pointing to "develop-develop", replacing the good old "win-win". So, here we come!***

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1. A changing Global Competitive Landscap

The ecosystem crisis is expected to have significant effects on a number of economic and social dynamics, especially financial stability, price stability, growth, income distribution, food security and demographic structure⁷. For this reason, tackling the ecosystem crisis has become the main agenda item of policymakers all over the world.

The European Green Deal (EGD) proposal published by the European Commission at the end of 2019 can be viewed

as an important turning point in the global climate crisis agenda. Europe set out its the proposal for the Carbon Border Adjustment Mechanism (CBAM) in the European Green Deal. The CBAM is the first time a carbon-based financial obligation will be introduced to international trade. In fact, the CBAM means adding nature, which had not previously been recorded as a cost item before, to the cost function, thus redefining the competitive playing field⁸. However, if we are to understand the

changing structure correctly, it is necessary to consider the systemic transformation which goes beyond the framework set out by the EGD or the CBAM. Considering that the EGD is the European version of green deals⁹ and that the issue should not only be evaluated¹⁰ within the framework of the sectors within the scope of CBAM, the pursuit of a green transformation can be taken as a framework which will bring sweeping changes to the whole competitive playing field for all sectors and products.



⁷ green-is-the-color-of-competition.pdf (tskb.com.tr)

⁸ <https://www.tskb.com.tr/uploads/file/f59289411b59bf2e7400e707790-1634727039816.pdf>

⁹ <https://www.tskb.com.tr/uploads/file/e36562f96c10584c6f9c39334715bb72-1658729419934.pdf>

¹⁰ Mutabık Mıyız? (tskb.com.tr)

2. An Analytical Approach to Monitoring the Changing Ground: The Green Atlas

The report¹¹, "Green is the Color of Competition", prepared by TSKB Economic Research emphasizes that Turkey's competitiveness in foreign trade should be re-evaluated by wearing green glasses. The study refers to the indicators in the Economic Complexity Atlas literature with a green perspective added with the Green Atlas perspective taken as a basis.

Derived from the Economic Complexity Atlas (Brown Atlas) and with additional calculations carried out by the the Economic Research department, the Green Atlas both offers some metrics regarding the products subject to global foreign trade and provides the opportunity to evaluate the issue on a country basis, specifically Turkey. In literature of the calculations of Economic Complexity, the skill accumulation required to manufacture a product is metricized under the name of Product Complexity Index (PCI). It is accepted that products with a higher PCI are of higher quality. On the other hand, in the study carried out with reference to the Green Atlas, which aims to view the story through green glasses, a green classification is added to each product. Shades of green are defined by monitoring the Product Emission Intensity (PEI) indicator calculated for each product. In this approach, it is accepted that the emission intensity of the products produced "well" (that is, with a comparative advantage) in the context of the competitiveness of countries with lower emission intensity in international trade also tends to be lower.

On the other hand, when we discuss the issue specific to Türkiye, we need to focus on the skills/knowledge sets needed to produce each product. According to the literature, some parts of the skills/knowledge required to manufacture a product are also used to manufacture other products. Thus, each product has skills/knowledge which intersect with other products in terms of the skills/knowledge they require. The skills/knowledge of a product that intersect with all other products are referred to as a "Path" in the relevant literature. Thus, the Path is seen as the strength of a product's connection with other products.

In order to understand Türkiye's position in the green transformation process, it is important to view the compatibility of products, where there is no comparative advantage, with Türkiye's existing capabilities. To this end, the density indicator in the Complexity Atlas literature is used to calculate how close the current capabilities of each country are to the products on the basis of their proscribed colour.

As the global competitive landscape changes on the green axis, the indicators derived from the Atlas literature provide a toolkit to analytically monitor this change within a structural framework. Monitoring the structural change, which can be created by gaining a competitive advantage in environmental goods, with these indicators is an area of study in the second phase of the current report. For the remaining sections of this study, we reveal Türkiye's current foreign trade outlook in relation to environmental goods.



¹¹ a961a95d653dc7855c532cd50e04050f-1678190958962.pdf (tskb.com.tr)

3. Which Products Will Be Needed in the Transformation?

When we discuss the green transformation, the first thing that comes to mind is the development of renewable energy resources. However, as expected, the issue is not limited to this. We are faced with a transformation in different fields such as equipment and machinery which enable resource-efficient production, waste management, air pollution and noise pollution. So, which processed or semi-processed goods are used in the transformation in these fields? The answer to this question should be given on a product basis rather than a sectoral one, as is the case with many issues related to green transformation.

According to the Organization for Economic Cooperation and Development (OECD), environmental goods to be used in the transformation process of the global economy include 247¹² products in 11 different categories (see Table 1¹³). These products had a total trade volume of over USD 1.6 trillion in 2021, accounting for 7.5% of world trade.

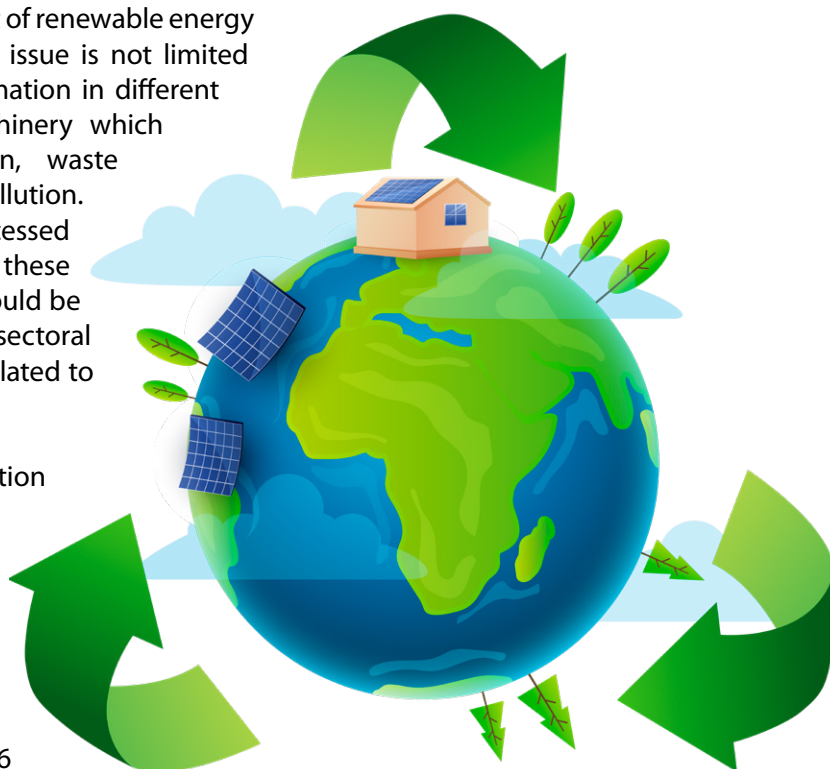


Table 1: Environmental Good Categories

Number of Goods	Subtitle	"Trade Volume (2021, billion \$)"	Share in Total Environmental Goods
54	Renewable Energy Plant	546.9	%33.8
31	Waste Water Management	323.8	%20.0
37	Environmental Monitoring, Analysis and Assessment Equipment	190.8	%11.8
25	Management of Soil and Hazardous Waste and Recycling Systems	145.0	%9.0
12	Air Pollution Control	114.4	%7.1
46	Cleaner or More Resource Efficient Technologies and Products	107.4	%6.6
26	Heat and Energy Management	96.2	%5.9
3	Noise and Vibration Abatement	66.2	%4.1
4	Clean Up or Remediation of Soil and Water	23.9	%1.5
6	Environmentally Preferable Products Based on End Use or Disposal Characteristics	1.7	%0.1
3	Natural Resources Protection	1.2	%0.1

Source: Tur (2022)

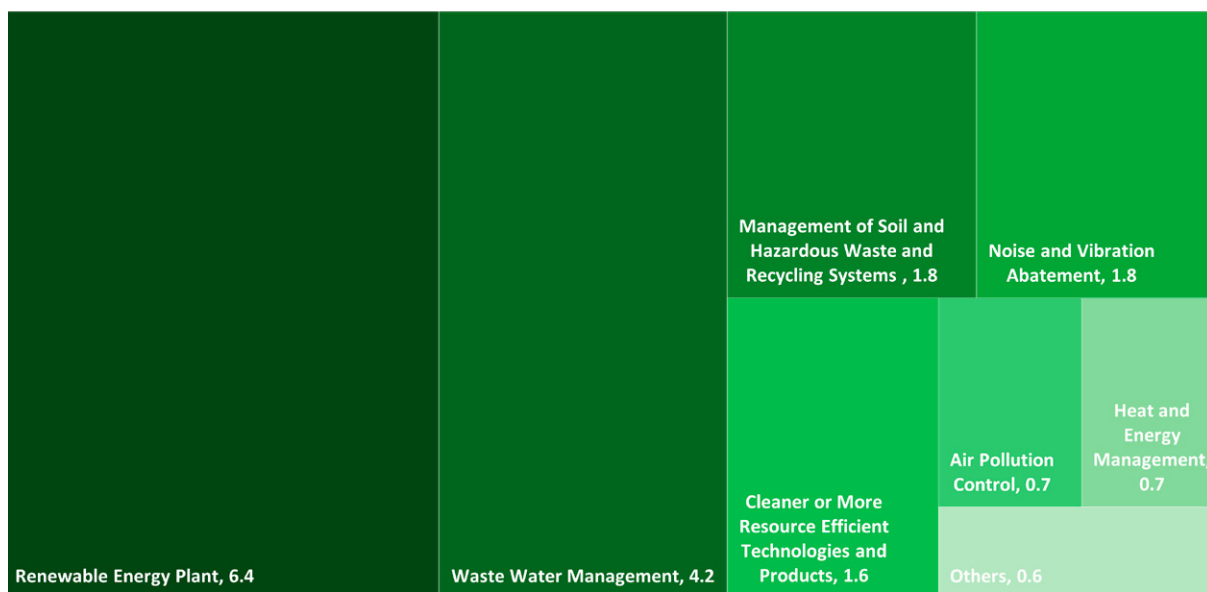
¹² According to the Harmonized System, through 6-digit product codes.

¹³ Tur, F. (2022). "Effects of the Global Green System on Türkiye's Industrialization Policies".

4. Türkiye's Foreign Trade Outlook

The share of these products in Türkiye's exports increased from 4.6% in 2003 to 6.4% in 2018 and to 7% in 2022 with a volume of USD 17.8 billion (see Chart 1 for its composition). The export of all other goods has increased 5.2-fold since 2003 while the export of environmental goods has increased 8.1-fold.

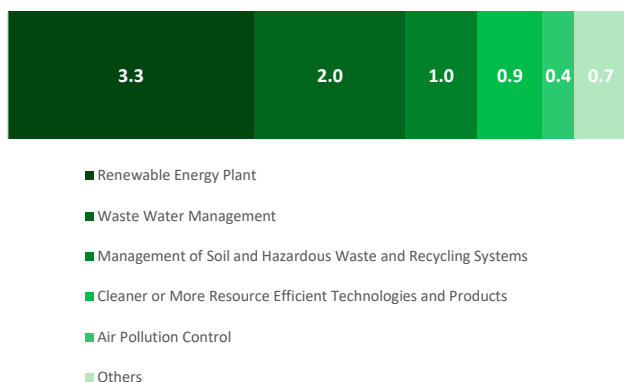
Graph 1: Composition of Turkey's Environmental Good Exports (2022 Billion \$)



Source: Tur (2022)

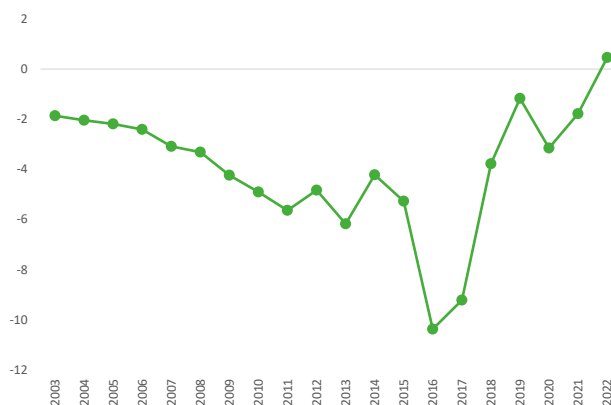
Products coming under the heading of renewable energy facilities and wastewater management have provided the strongest contribution (Chart 2) to the increase. A striking picture emerges when we look at the trade balance in environmental goods (Chart 3). While the trade deficit widened in the 2003-2016 period, it subsequently started to narrow and turned into a trade surplus in 2022. This indicates that we are in a period where Türkiye's exports of environmental goods are growing more rapidly than its imports, reflecting the growing importance of the green transformation on a global scale.

Graph 2: Environmental Product Export Increase (2022-2015, billion \$)



Source: TradeMap, TSKB Economic Research

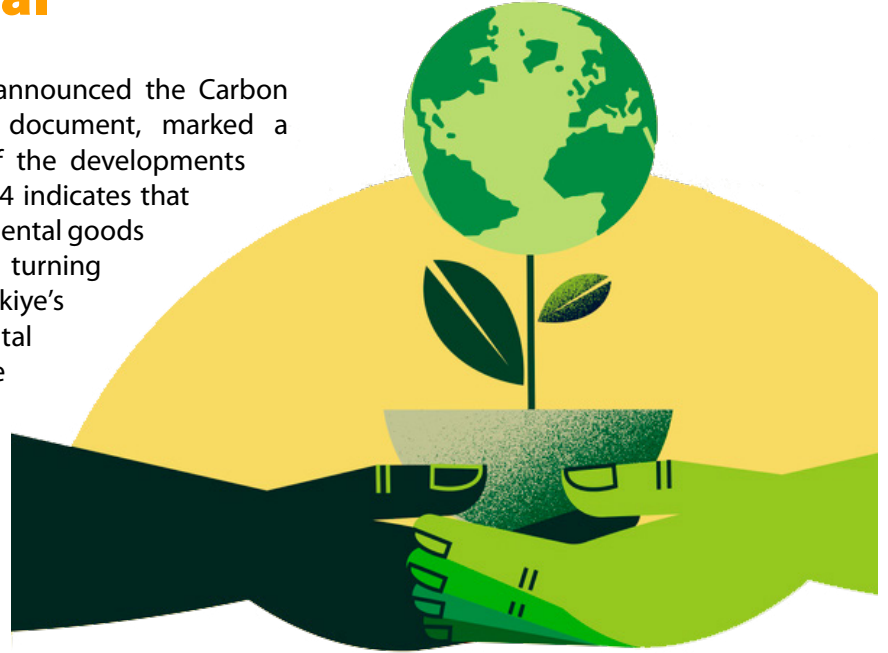
Graph 3: Environmental Product Trade Balance (\$ billion)



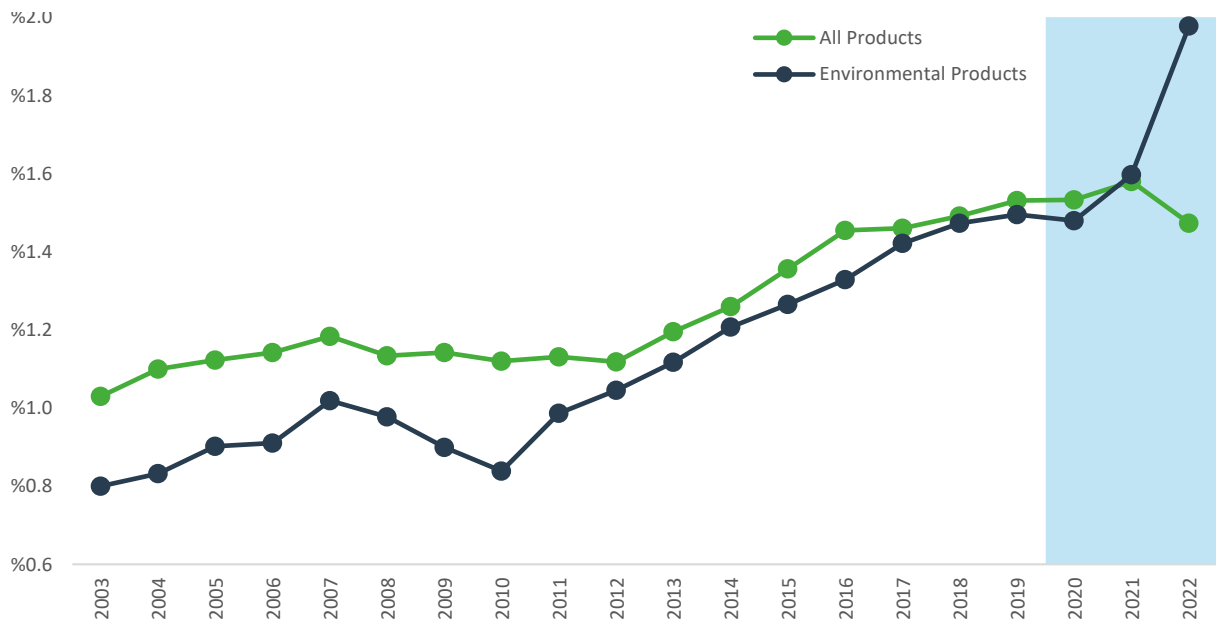
Source: TradeMap, TSKB Economic Research

5. Türkiye's Increasing Market Share With the Green Deal

December 2019, when the EU announced the Carbon Border Adjustment Mechanism document, marked a critical turning point in terms of the developments in the global green arena. Graph 4 indicates that Türkiye's market share in environmental goods in the EU increased after this turning point, with a notable surge in Türkiye's market share in environmental goods in 2022, when work on the green transformation gained momentum within the EU due to the energy crisis, with environmental goods setting themselves apart from other products. It now remains to be seen whether or not this increase will be permanent.



Graph 4: Türkiye's Share in EU Imports

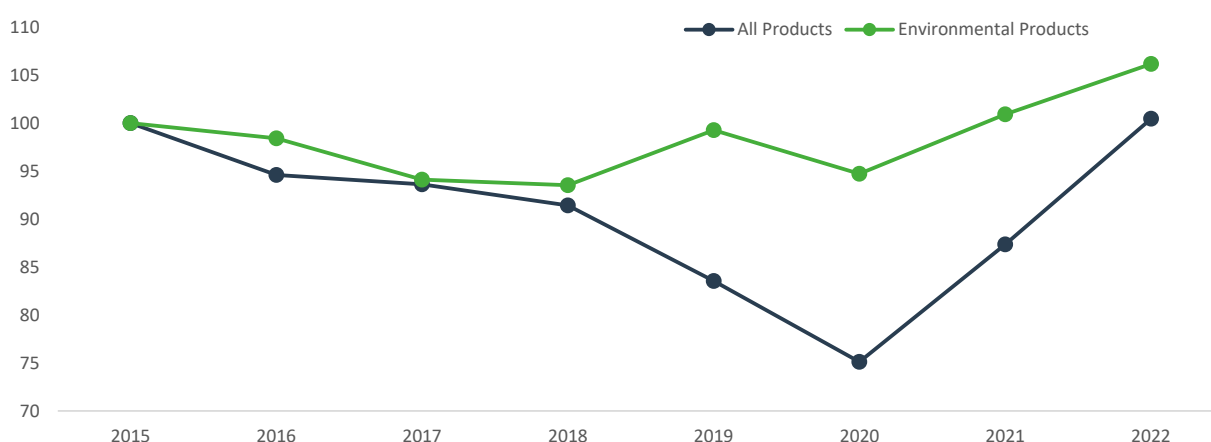


Source: TradeMap, TSKB Economic Research

6. Developments in Unit Values

Another important question surrounds the value created by these exports. Unit prices can be used in order to offer an idea regarding value added. Chart 5 presents a comparison of the unit price of environmental goods and the unit price of Türkiye's export basket. The chart illustrates that the prices of the two groups followed a parallel trend in the 2015-2018 period. On the other hand, prices in the export basket decreased significantly, especially in the 2019-2020 period, due to the impact of the pandemic. It is noteworthy that this decline was not seen for environmental goods export. This performance of unit prices of environmental goods, which differentiates itself positively from the overall export basket, is noteworthy.

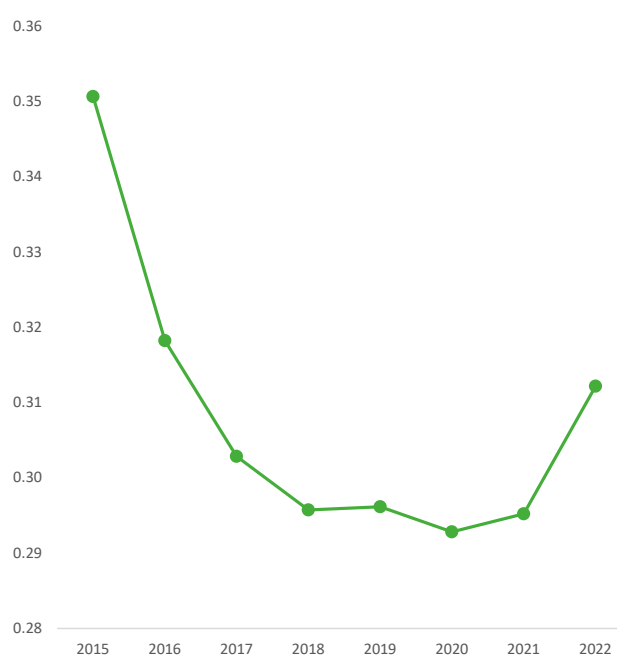
Graph 5: Development of Unit Value in Exports (\$, 2015=100)



Source: TradeMap, TSKB Economic Research

The comparison of the export prices and the import prices of environmental products may also be instructive regarding the appearance of value added. Chart 6 sets out the course of export prices compared to import prices (terms of trade). The first point to draw attention to in the graph is that the more expensive environmental goods are imported and the cheaper goods are exported. This indicates that there is considerable room for improvement in terms of value added. The second point is that there had been an improvement in the terms of trade in 2022 for the first time during the review period. In other words, the prices of the products we exported increased by more than the prices of the products we imported. In the coming period, we will scrutinise whether this is a movement specific to 2022 or the first observation of an upward trend. However, it can be currently concluded that a policy design focusing on this goal would be needed for such a movement to become stronger and permanent.

Graph 6: Terms of Trade Development in Environmental Products (Export Prices / Import Prices)



Source: TradeMap, TSKB Economic Research

7. Environmental Products: A Story That Can Be Developed with Support

It would appear that the demand that will arise on the back of the green transformation may create an opportunity for environmental goods. Our current trading performance also implies that we have the infrastructure to exploit this opportunity. However, the terms of trade highlight the possibility and even need for significant breakthroughs in development. Improving the terms of trade and being prepared for the expected surge in demand in the coming period will once again highlight the importance of data-driven policy design. In other words, it is necessary to make progress, strengthen the positive trend and seek ways to make it stronger.

The policymaker's inclusion of environmental goods in the policy design and the drafting up of policies on regulation, communication and the incentives covering these goods may be viewed as an important source of support in this process. Moreover, the financing opportunities offered by international development finance institutions within the framework of environmental goods will be able to support both Türkiye's structural transformation during the green transformation process and the manufacture of the goods necessary for the global green transformation.





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