

ANALYSIS OF FINANCIAL INTERESTS UNDER THE INTERNATIONAL TREATY UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE UNFCCC

Dorota GAWROŃSKA

Politechnika Śląska, Wydział Organizacji i Zarządzania; dorota.gawronska@polsl.pl,
ORCID: 0000-0001-8192-0789

Purpose: This article aims to analyze the financial contribution from the European Union countries' annual budget, the European Commission, and the European Investment Bank to financing activities related to climate change under the United Nations Framework Convention on Climate Change (UNFCCC).

Design/methodology/approach: Based on statistical data, an analysis was made of changes in financial shares under the treaty; the largest and smallest shareholders among the European Union countries were identified, and the changes in subsequent years in all European Union countries.

Findings: Based on the analysis, it was indicated that countries such as Germany and France are the countries with the most significant shares in budget spending under the UNFCCC, followed by the largest shareholders are the European Commission and the European Investment Bank

Research limitations/implications: The possibilities of analyzing data on the shares of European Union countries under the UNFCCC Treaty were limited due to the lack of availability of data from some periods.

Practical implications: The analysis may be the basis for more significant mobilization of countries in climate support that do not participate financially enough under the UNFCCC.

Social implications: Society should be made aware of the issue of caring for the environment, it should introduce ecological habits in its own home, encourage friends to take actions to protect the environment and encourage them to change their diet, habits, conscious purchasing, saving water and energy.

Originality/value: Analyzing the spending of European Union countries to improve the climate is of fundamental importance to find out to what extent all parties to the treaty are involved and what financial resources are available to enhance the negative consequences of climate change.

Keywords: climate change, UNFCCC treaty, climate finance under the United Nations Framework Convention.

Category of the paper: Research paper, general review.

1. Introduction

What is of concern is that, as a result of human activity, there is an increase in greenhouse gases, intensifying the greenhouse effect and increasing the average temperature of the earth's surface and atmosphere, negatively affecting the entire ecosystem. Disturbing phenomena resulting from global warming, such as the melting of natural ice sheets and glaciers, an increase in sea levels and sea levels, a greater frequency and intensity of extreme weather phenomena such as prolonged heat, sudden rainfall, storms or intense hurricanes, droughts, and floods, should involve the governments of countries to prevent the deepening of the adverse human impact on the climate. The consequence of the analysis and dialogue was the accession of countries to the international treaty - the United Nations Framework Convention (<https://isap.sejm.gov.pl/isap.nsf/download.xsp/WDU19960530238/O/D19960238.pdf>) on Climate Change (UNFCCC) in 1992, to jointly consider how to prevent harmful human interference in the climate system, how to limit average global temperature increases and the resulting climate change, as well as how to deal with the changes that have already occurred (<https://unfccc.int/topics/adaptation-and-resilience/the-big-picture/introduction#adaptation-communications>). The UNFCCC entered into force on March 21, 1994. One hundred ninety-five countries have ratified the convention. The convention's main objective is to stabilize the concentration of greenhouse gases at a level that prevents dangerous, human-induced interference in the climate system, which may cause severe disruptions in the functioning of this system. The success of the treaty's activities depends on the governments of the countries party to the convention, the active and sustained involvement of national, regional, multilateral, and international organizations, the public and private sectors, and civil society itself (<https://unfccc.int/topics/adaptation-and-resilience/the-big-picture/introduction#Facilitative-Working-Group-FWG>). The world is already experiencing changes in average temperatures and an increasing frequency of extreme weather events. Adaptation action is a crucial element of the long-term global response to climate change and should be country-, community- and ecosystem-focused and based on the best available science and knowledge (<https://unfccc.int/topics/adaptation-and-resilience/the-big-picture/introduction#Adaptation-Committee>).

This article aims to analyze the total amount spent from the annual budget of the European Union countries, the European Commission, and the European Investment Bank to finance actions related to climate change under the United Nations Framework Convention on Climate Change (UNFCCC). The presented data are reported to the European Commission based on the Regulation on the Monitoring Mechanism (Regulation (EU) No. 525/2013) for the period until 2019 and based on the Management Regulation (Regulation (EU) 2018/1999) for subsequent years. One of the goals is to achieve a climate-neutral world by mid-century, to limit global warming to well below 2°C and to aim for 1.5°C (compared to pre-industrial times), as well as to strengthen countries' resilience and capacity adaptation to climate-related natural hazards and resulting disasters.

2. Summary and analysis of the budget shares of European Union countries under the UNFCCC Treaty

The table (Table 1) below presents the shares of individual European Union countries as well as the European Commission and the European Investment Bank in financing activities related to climate change under the UNFCCC Treaty (the ":" sign means that the data is unavailable).

Table 1.

Shares of European Union countries and the European Commission and European Investment Bank in financing activities related to climate change under the UNFCCC Treaty in 2014-2022

	2014	2015	2016	2017	2018	2019	2020	2021	2022
Austria	141.27	117.62	199.26	164.14	239.47	332.82	257.95	248.61	401.29
Belgium	142.74	46.83	100.92	104.92	80.68	99.71	119.25	282.57	395.52
Bulgaria	0.07	0.10	:	:	0.00	:	0.14	0.03	0.00
Croatia	0.03	:	:	0.02	0.05	0.03	0.12	0.17	0.02
Cyprus	0.00	:	:	:	:	:	0.00	0.00	0.00
Czechia	7.66	8.19	7.55	7.07	7.20	7.47	12.23	11.51	8.49
Denmark	222.04	143.79	172.98	181.72	198.16	246.90	272.66	386.14	264.54
Estonia	0.53	1.21	0.38	0.62	0.97	0.53	1.97	2.77	2.79
Finland	132.25	115.43	43.04	119.38	46.59	146.76	125.46	146.51	161.52
France	2 921.43	2 792.83	3 334.84	4 377.38	5 088.76	5 958.78	6 715.53	5 781.84	7 667.73
Germany	5 130.61	7 406.15	8 534.08	6 729.60	6 611.98	6 811.79	7 698.28	7 844.73	9 476.29
Greece	0.04	0.23	0.23	4.59	3.77	0.69	1.11	8.28	1.98
Hungary	2.71	41.34	35.29	13.98	3.09	3.39	11.79	19.01	8.23
Ireland	41.44	36.00	52.70	64.47	77.21	70.23	89.16	91.78	118.19
Italy	143.23	327.34	242.95	632.62	451.96	417.59	582.81	731.4	957.81
Latvia	0.42	0.01	0.01	:	0.04	0.00	0.00	0.00	0.09
Lithuania	0.26	0.43	0.54	1.48	0.76	1.99	2.73	3.32	4.00
Luxembourg	36.26	45.65	129.53	40.43	40.98	51.43	31.5	39.13	66.03
Malta	0.08	0.16	0.20	0.16	0.10	0.10	0.10	0.10	0.20
Netherlands	339.98	425.84	471.89	405.44	577.83	580.79	1 109.70	618.93	804.44
Poland	4.19	5.67	5.38	4.29	49.49	12.88	22.49	8.44	19.45
Portugal	9.52	6.22	2.00	2.17	1.64	0.89	2.32	2.17	4.25
Romania	0.03	:	0.78	0.86	0.03	0.24	4.78	5.00	8.06
Slovakia	1.23	2.20	2.99	3.63	4.16	5.91	2.83	9.31	7.37
Slovenia	2.35	2.35	2.98	3.75	4.39	5.78	1.71	4.87	5.23
Spain	498.75	466.72	595.03	529.06	694.94	740.14	529.78	726.72	743.47
Sweden	384.75	341.43	402.40	515.04	608.59	708.92	507.50	1 004.62	793.85
European Commission	677.01	1 535.42	2 730.17	2 823.72	2 652.49	2 534.78	2 577.58	2 501.76	4 030.62
European Investment Bank (EIB)	2 098.50	2 214.70	1 947.72	2 640.36	2 972.44	3 184.30	2 711.51	2 563.36	2 523.44
European Union - 27 countries	10 163.87	12 333.74	14 337.95	13 906.81	14 792.83	16 205.77	18 103.89	17 977.97	21 920.86

Source: https://ec.europa.eu/eurostat/databrowser/view/sdg_13_50/default/table?lang=en&category=cli.cli_act

In the analyzed period (range 2014-2022), Germany had the largest share of the total amount spent from the annual budget of EU Member States, as well as the European Commission and the European Investment Bank, amounting to PLN 66,243.51 (in 2022, this share was PLN 9,476.29), and the smallest is Cyprus. When analyzing the shares of European Union countries, attention should be paid to the lack of data on the allocated amount in countries such as Bulgaria (2016, 2017, 2019), Croatia (2015-2016), Cyprus (2015-2019), Latvia (2017), Romania (2015). The slightest difference between the amount spent on financing activities related to climate change under the United Nations Framework Convention was shown by France, comparing the value from 2022 - a share of 7,667.73 to the value from 2015 - a share

of 2,792.83. Noteworthy is the share of the European Commission - a share of 4,030.62 in 2022 (over the period 2004-2022, the share amounted to 22,063.55) and the European Investment Bank - a share of 2,253.44 in 2022 (over the years 2014-2022, the share amounted to 22856,33). Below is a chart of the percentage share of individual European Union countries (Figure 1), the European Commission, and the European Investment Bank in expenditure on financing activities related to climate change under the United Nations Framework Convention over the years 2014-2022.

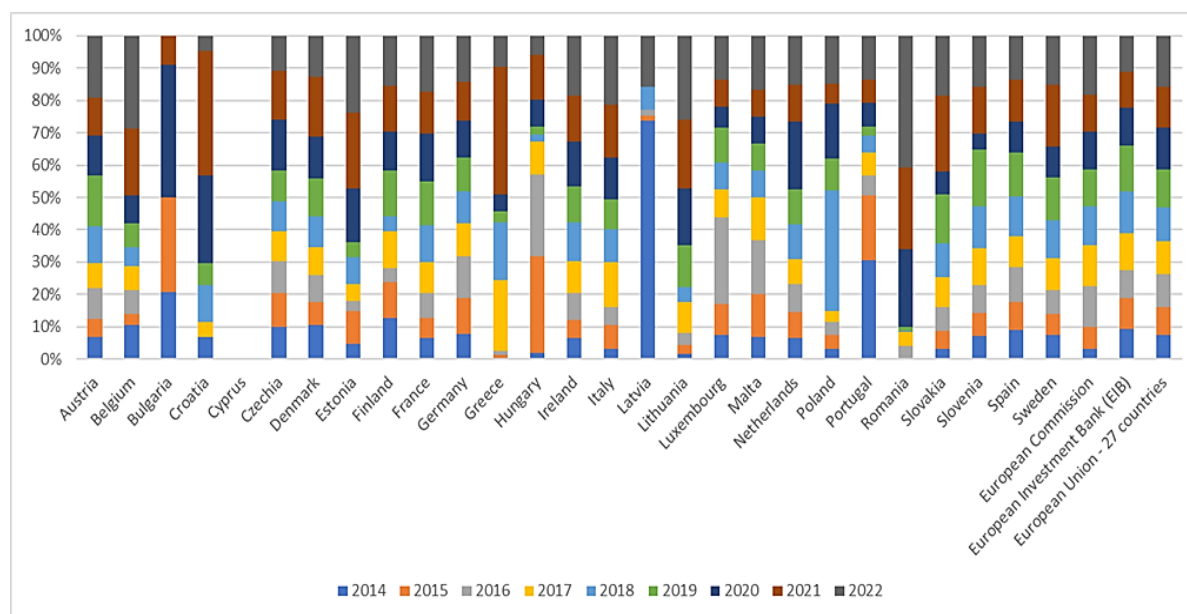


Figure 1. Chart the percentage share of individual European Union countries and the European Commission and European Investment Bank in expenditure on financing activities related to the UNFCCC Treaty in 2014-2022.

Source: own study based on https://ec.europa.eu/eurostat/databrowser/view/sdg_13_50/default/table?lang=en&category=cli.cli_act

Below, in Figure 2, the share in millions of euros of the European Union countries, the European Commission, and the European Investment Bank in expenditure on financing actions related to climate change under the United Nations Framework Convention are visualized. It can be observed that the most significant increase in the share of the European Commission took place at the turn of 2014/2015, 2015/2016, and 2021/2022. Unfortunately, since 2020, the share of the European Commission has been declining. In European Union countries, increases in shares can be observed, especially at the turn of 2021/2022. In turn, a visual analysis of the share of the European Investment Bank does not indicate significant changes in the period under study but declines in shares can be observed in 2015/2016 and declines from year to year after 2019.

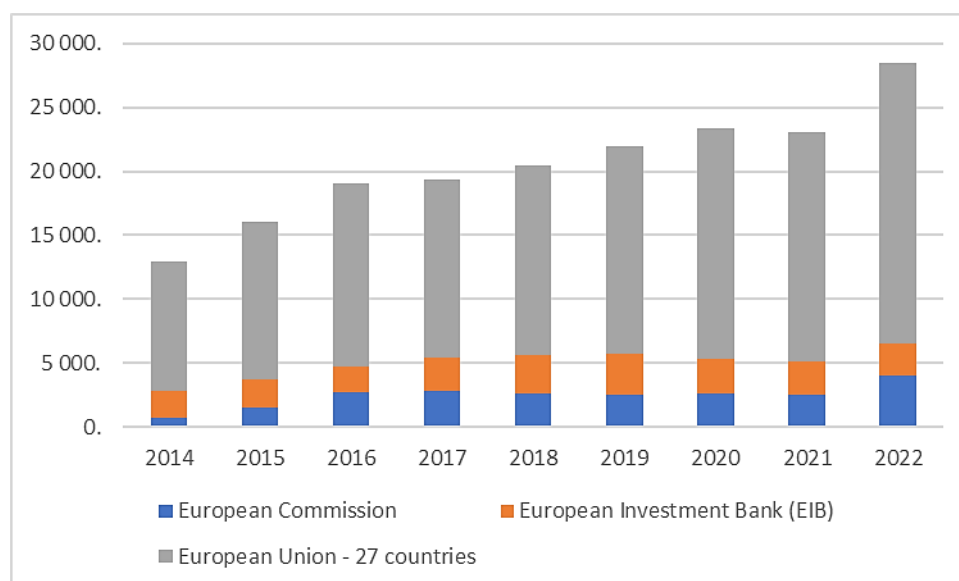


Figure 2. The relative share of European Union countries and the European Commission and European Investment Bank in expenditure on financing activities under the UNFCCC Treaty.

Source: own study based on https://ec.europa.eu/eurostat/databrowser/view/sdg_13_50/default/table?lang=en&category=cli.cli_act

In addition to analyzing the share of individual European Union countries, the European Commission, and the European Investment Bank in expenditure on financing activities related to climate change, the formation of minimum and maximum shares is interesting. The table below (Table 2) lists the minimum and maximum share values with the year this value was achieved.

Table 2.

Presentation of the minimum and maximum shares of financing under the UNFCCC Treaty with an indication of the years and their differences

	Minimum value	The year the minimum value was reached	Maximum value	The year the maximum value was reached	The difference between the minimum and maximum values
Austria	117.620	2015	401.290	2022	283.670
Belgium	46.830	2015	395.520	2022	348.690
Bulgaria	0.000	2018	0.140	2020	0.140
Croatia	0.020	2017	0.170	2021	0.150
Czechia	7.070	2017	12.230	2020	5.160
Denmark	143.790	2015	386.140	2021	242.350
Estonia	0.380	2016	2.790	2022	2.410
Finland	43.040	2016	161.520	2022	118.480
France	2792.830	2015	7667.730	2022	4874.900
Germany	5130.610	2014	9476.290	2022	4345.680
Greece	0.040	2014	8.280	2021	8.240
Hungary	2.710	2014	41.340	2015	38.630
Ireland	36.000	2015	118.190	2022	82.190
Italy	143.230	2014	957.810	2022	814.580
Latvia	0.000	2019-2021	0.420	2014	0.420
Lithuania	0.260	2014	4.000	2022	3.740
Luxembourg	31.500	2020	129.530	2016	98.030
Malta	0.080	2014	0.200	2022	0.120
Netherlands	339.980	2014	1109.700	2020	769.720
Poland	4.190	2014	49.490	2018	45.300
Portugal	0.890	2019	9.520	2014	8.630
Romania	0.030	2018	8.060	2022	8.030
Slovakia	1.230	2014	9.310	2021	8.080

Cont. table 2.

Slovenia	1.710	2020	5.780	2019	4.070
Spain	466.720	2015	743.470	2022	276.750
Sweden	341.430	2015	1004.620	2021	663.190
European Commission	677.010	2014	4030.620	2022	3353.610
European Investment Bank (EIB)	1947.720	2016	3184.300	2019	1236.580

Source: own study based on https://ec.europa.eu/eurostat/databrowser/view/sdg_13_50/default/table?lang=en&category=cli.cli_act

An analysis of expenditure in recent years also seems essential. 2020 Germany recorded the largest share (77,698.28), increasing to 7,844.73 in 2021 and 9,476.29 - in 2022. France is the second country to achieve the highest share after Germany, whose share value reached 6715.53 in 2021. France's share decreased to 5781.84 and increased in 2022 to 7667.73. In 2020, the European Investment Bank took the next place in share value with a share value of 2,711.51 and the European Commission with a share value of 2,577.58. The next place (with a much smaller share) is the Netherlands - 1109.7. In 2021, the largest shares were recorded by Germany, France, the European Investment Bank (down to 2,563.36), and the European Commission (down to 2,501.76), respectively. Sweden takes fifth place, increasing its share from 507.50 in 2020 to 1004.62. In 2022, the first place in terms of share is again taken by Germany, increasing its share to the value of 9476.29, France - also increasing its share to the level of 7667.73, the next place is taken by the European Commission, increasing its share compared to the previous year to the value of 4030.62, and the European Investment Bank slightly increasing the share to 2523.44. The lowest shares in recent years were recorded in Cyprus, Latvia, Croatia, and Bulgaria.

Table 3.

Analysis of expenses in recent years: 2020, 2021, 2022 in descending order

	2020		2021		2022
Germany	7 698.28	Germany	7 844.73	Germany	9 476.29
France	6 715.53	France	5 781.84	France	7 667.73
European Investment Bank (EIB)	2 711.51	European Investment Bank (EIB)	2 563.36	European Commission	4 030.62
European Commission	2 577.58	European Commission	2 501.76	European Investment Bank (EIB)	2 523.44
Netherlands	1 109.70	Sweden	1 004.62	Italy	957.81
Italy	582.81	Italy	731.4	Netherlands	804.44
Spain	529.78	Spain	726.72	Sweden	793.85
Sweden	507.50	Netherlands	618.93	Spain	743.47
Denmark	272.66	Denmark	386.14	Austria	401.29
Austria	257.95	Belgium	282.57	Belgium	395.52
Finland	125.46	Austria	248.61	Denmark	264.54
Belgium	119.25	Finland	146.51	Finland	161.52
Ireland	89.16	Ireland	91.78	Ireland	118.19
Luxembourg	31.5	Luxembourg	39.13	Luxembourg	66.03
Poland	22.49	Hungary	19.01	Poland	19.45
Czechia	12.23	Czechia	11.51	Czechia	8.49
Hungary	11.79	Slovakia	9.31	Hungary	8.23
Romania	4.78	Poland	8.44	Romania	8.06
Slovakia	2.83	Greece	8.28	Slovakia	7.37
Lithuania	2.73	Romania	5.00	Slovenia	5.23
Portugal	2.32	Slovenia	4.87	Portugal	4.25
Estonia	1.97	Lithuania	3.32	Lithuania	4.00
Slovenia	1.71	Estonia	2.77	Estonia	2.79
Greece	1.11	Portugal	2.17	Greece	1.98
Bulgaria	0.14	Croatia	0.17	Malta	0.20
Croatia	0.12	Malta	0.10	Latvia	0.09

Cont. table 3.

Malta	0.10	Bulgaria	0.03	Croatia	0.02
Latvia	0.00	Latvia	0.00	Bulgaria	0.00
Cyprus	0.00	Cyprus	0.00	Cyprus	0.00

Source: own study based on https://ec.europa.eu/eurostat/databrowser/view/sdg_13_50/default/table?lang=en&category=cli.cli_act

The chart below clearly shows the difference between the shares of Germany, France, the European Commission, the European Investment Bank, and other shareholders financing activities related to climate change under the United Nations Framework Convention on Climate Change (UNFCCC).

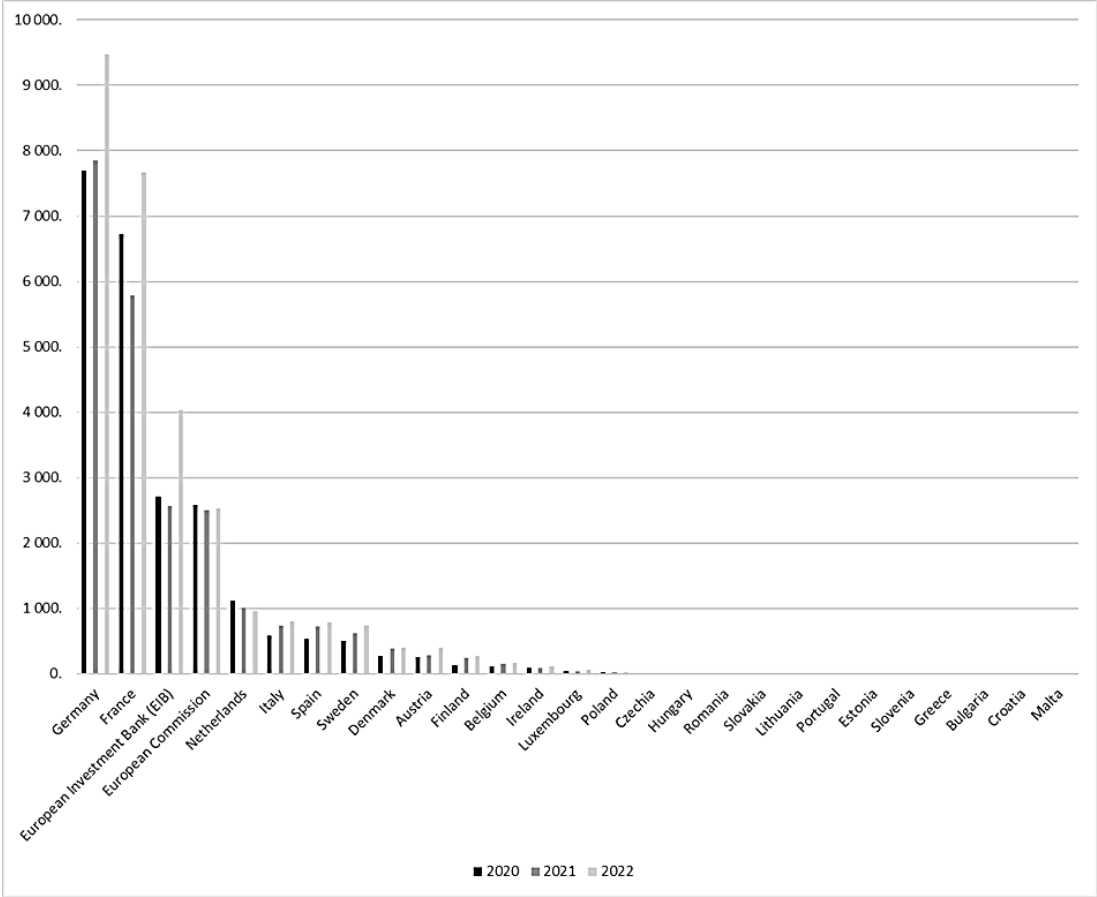


Figure 3. Financial participation of the European Union, the European Commission, and the European Investment Bank in the last three years (2020-2022).

Source: own study based on https://ec.europa.eu/eurostat/databrowser/view/sdg_13_50/default/table?lang=en&category=cli.cli_act

Analyzing the last year, the shares of European Union countries, the European Commission, and the European Investment Bank are as follows (Figure 4):

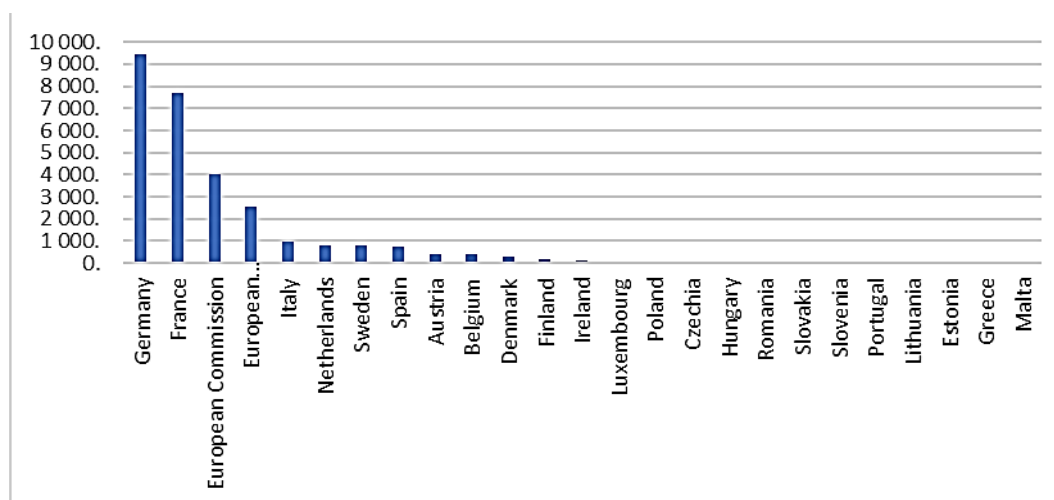


Figure 4. Shares of European Union countries, the European Commission, and the European Investment Bank in 2022.

Source: own study based on https://ec.europa.eu/eurostat/databrowser/view/sdg_13_50/default/table?lang=en&category=cli.cli_act

It is also worth analyzing the shares due to percentage changes from year to year, as presented in the table below (Table 4).

Table 4.

Financial contributions under the UNFCCC treaty due to percentage changes from year to year

	2015	2016	2017	2018	2019	2020	2021	2022	Min	Max
Austria	-16.74%	69.41%	-17.63%	45.89%	38.98%	-22.50%	-3.62%	61.41%	-22.50%	69.41%
Belgium	-67.19%	115.50%	3.96%	-23.10%	23.59%	19.60%	136.96%	39.97%	-67.19%	136.96%
Bulgaria	42.86%	-	-	-	-	-	-78.57%	-100.00%	-100.00%	42.86%
Croatia	-	-	-	150.00%	-40.00%	300.00%	41.67%	-88.24%	-88.24%	300.00%
Cyprus	-	-	-	-	-	-	-	-	0.00%	0.00%
Czechia	6.92%	-7.81%	-6.36%	1.84%	3.75%	63.72%	-5.89%	-26.24%	-26.24%	63.72%
Denmark	-35.24%	20.30%	5.05%	9.05%	24.60%	10.43%	41.62%	-31.49%	-35.24%	41.62%
Estonia	128.30%	-68.60%	63.16%	56.45%	-45.36%	271.70%	40.61%	0.72%	-68.60%	271.70%
Finland	-12.72%	-62.71%	177.37%	-60.97%	215.00%	-14.51%	16.78%	10.25%	-62.71%	215.00%
France	-4.40%	19.41%	31.26%	16.25%	17.10%	12.70%	-13.90%	32.62%	-13.90%	32.62%
Germany	44.35%	15.23%	-21.14%	-1.75%	3.02%	13.01%	1.90%	20.80%	-21.14%	44.35%
Greece	475.00%	0.00%	1895.65%	-17.86%	-81.70%	60.87%	645.95%	-76.09%	-81.70%	1895.65%
Hungary	1425.46%	-14.63%	-60.39%	-77.90%	9.71%	247.79%	61.24%	-56.71%	-77.90%	1425.46%
Ireland	-13.13%	46.39%	22.33%	19.76%	-9.04%	26.95%	2.94%	28.78%	-13.13%	46.39%
Italy	128.54%	-25.78%	160.39%	-28.56%	-7.60%	39.57%	25.50%	30.96%	-28.56%	160.39%
Latvia	-97.62%	0.00%	-	-	-100.00%	-	-	-	-100.00%	0.00%
Lithuania	65.38%	25.58%	174.07%	-48.65%	161.84%	37.19%	21.61%	20.48%	-48.65%	174.07%
Luxembourg	25.90%	183.75%	-68.79%	1.36%	25.50%	-38.75%	24.22%	68.75%	-68.79%	183.75%
Malta	100.00%	25.00%	-20.00%	-37.50%	0.00%	0.00%	0.00%	100.00%	-37.50%	100.00%
Netherlands	25.25%	10.81%	-14.08%	42.52%	0.51%	91.07%	-44.23%	29.97%	-44.23%	91.07%
Poland	35.32%	-5.11%	-20.26%	1053.61%	-73.97%	74.61%	-62.47%	130.45%	-73.97%	1053.61%
Portugal	-34.66%	-67.85%	8.50%	-24.42%	-45.73%	160.67%	-6.47%	95.85%	-67.85%	160.67%
Romania	-	-	10.26%	-96.51%	700.00%	1891.67%	4.60%	61.20%	-	-
Slovakia	78.86%	35.91%	21.40%	14.60%	42.07%	-52.12%	228.98%	-20.84%	-52.12%	228.98%
Slovenia	0.00%	26.81%	25.84%	17.07%	31.66%	-70.42%	184.80%	7.39%	-70.42%	184.80%
Spain	-6.42%	27.49%	-11.09%	31.35%	6.50%	-28.42%	37.17%	2.30%	-28.42%	37.17%
Sweden	-11.26%	17.86%	27.99%	18.16%	16.49%	-28.41%	97.95%	-20.98%	-28.41%	97.95%
European Commission	126.79%	77.81%	3.43%	-6.06%	-4.44%	1.69%	-2.94%	61.11%	-6.06%	126.79%
European Investment Bank (EIB)	5.54%	-12.05%	35.56%	12.58%	7.13%	-14.85%	-5.46%	-1.56%	-14.85%	35.56%

Source: own study based on https://ec.europa.eu/eurostat/databrowser/view/sdg_13_50/default/table?lang=en&category=cli.cli_act

Due to the lack of data on the shares of some countries over the years, the analysis was based on recorded data. On this basis, it can be determined that the most significant decrease in share was recorded by Greece in 2019 compared to 2018 at the level of -81.7%, while the country that achieved the most significant increase in share was also Greece, increasing its share in 2017 compared to 2016 by 1895.65%.

3. Summary

The critical task in the current climate change crisis is to stop the negative impact of humans on the climate and work on the possibilities of reversing the changes that have already occurred. The activities of the parties to the treaty through, among others, reporting on anthropogenic emissions of all greenhouse gases, implementing programs including measures to mitigate climate change and measures to facilitate appropriate adaptation to climate change, cooperation in the development and dissemination of technologies and experiences allowing to control, reduce and prevent anthropogenic emissions of greenhouse gases provide hope for changing the alarming trend of climate change and its negative impacts on the ecosystem. It seems reasonable that everyone should be aware of the need to take care of the climate and that each country should participate in climate protection expenses. Unfortunately, not all European Union countries participate at a sufficiently high level in financial expenditure under the UFCEEE treaty.

References

1. Archer, D., Rahmstorf, S. (2009). *The Future We Choose: Surviving the Climate Crisis*, *The Climate Crisis*. Cambridge University Press.
2. <https://unfccc.int/topics/adaptation-and-resilience/the-big-picture/introduction#Adaptation-Committee>
3. <https://unfccc.int/topics/adaptation-and-resilience/the-big-picture/introduction#adaptation-communications>
4. <https://unfccc.int/topics/adaptation-and-resilience/the-big-picture/introduction#Facilitative-Working-Group-FWG>
5. <https://unfccc.int/topics/adaptation-and-resilience/the-big-picture/introduction#Glasgow-Sharm-el-Sheikh-work-programme-on-the-global-goal-on-adaptation->
6. <https://unfccc.int/topics/adaptation-and-resilience/the-big-picture/introduction#The-Least-Developed-Countries-Expert-Group-LEG>

7. <https://unfccc.int/topics/adaptation-and-resilience/the-big-picture/introduction#National-Adaptation-Plans>
8. <https://unfccc.int/topics/adaptation-and-resilience/the-big-picture/introduction#Nairobi-work-programme-on-impacts-vulnerability-and-adaptation-to-climate-change>
9. Klugmann-Radziemska, E. (2023). *Energetyka i ochrona środowiska*. PWN.
10. Markiewka, T.Sz. (2021). *Zmienić świat raz jeszcze. Jak wygrać walkę o klimat*. Wydawnictwo Czarna owca.
11. Maslin, M. (2018) *Zmiany klimatu* Wydawnictwo Uniwersytetu Łódzkiego.
12. Popkiewicz, M., Kardaś, A., Malinowski, Sz. (2023). *Nauka o klimacie*. Wydawnictwo Sonia Draga.
13. Werle, S., Ferdyn-Grygierek, J. (2021). *Ochrona klimatu i środowiska, nowoczesna energetyka*. Wydawnictwo Politechniki Śląskiej.
14. Wójcik, J. (2022). *Antropogeniczne zmiany środowiska przyrodniczego ziemi*. PWN.