ESSENTIALITIES CONCERNING THE ENVIRONMENTAL POLICY IN THE EUROPEAN UNION, 2008-2017 PERIOD

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Abstract: *The paper "Essentialities concerning the Environmental Policy in the European Union, 2008-2017 period" presents aspects related to the total environmental expenses for each country in the European Union, the total CO_2 emissions for the fossil fuel consumption and industrial processes, the consumption of chemical substances in the European Union depending on the hazard. In many countries, a strong development of the thermal energy sector from renewable resources was a decisive key in achieving and exceeding these intermediate objectives of the member countries. This is the case, for example, in Bulgaria, Finland and Sweden, where the development was determined mainly by the types of low cost biomass. In Estonia, Italy and Portugal, the electricity sector contributed the most to exceeding the general objectives provided for these countries in their national; action plans in the field of energy from renewable sources.*

Keywords: Environmental policy, Environmental expenses, Gas emissions, Consumption of chemical substances

JEL Classification Codes: Q50, Q51, Q52, Q53.

1. INTRODUCTION

1.1. General principles

EU environment policy rests on the principles of precaution, prevention and rectifying pollution at source, and on the 'polluter pays' principle. The precautionary principle is a risk management tool that may be invoked when there is scientific uncertainty about a suspected risk to human health or to the environment emanating from a certain action or policy. For example, should doubts arise about the potentially harmful effects of a product, and should, following an objective scientific evaluation, uncertainty persist, instructions may be given to stop the distribution of the product or to remove it from the market. Such measures must be non-discriminatory and proportionate, and must be reviewed once more scientific information is available. (Călin & Tudor, 2007)

The 'polluter pays' principle is implemented by the Environmental Liability Directive, which aims to prevent or otherwise remedy environmental damage (i.e. protected species or to natural habitats, water and soil. Operators of certain occupational activities such as the transport of dangerous substances, or of activities that imply discharge into waters, have to take preventive measures in case of an imminent threat to the environment.

If damage has already occurred, they are obliged to take the appropriate measures to remedy it and pay for the costs. The scope of the directive has been broadened three times to include the management of extractive waste, the operation of geological storage sites, and the safety of offshore oil and gas operations respectively. (https://www.europarl.europa.eu/factsheets/ro/sheet/71/politica-de-mediu-principii-generale si-cadrul-de-baza)

The Committee of Ministers is the main decision-making body of the European Union, being responsible for decisions made. In it, the Environmental Council meets for the coordination of the environmental policies. The status of coordinator and decision maker is accompanied by the main role played in the establishment of budgets, as well as by the attributions it has in formulating objectives underlying the outlining of environmental policies. (Stănescu, 2012)

Bringing together ministers in charge with environmental problems in all member countries, this council has an important role in reducing gaps recorded between the European Union countries in relation to the environmental standards. Thus, they try to find a balance between the northern countries, known for the much stricter environmental rules compared to the other EU members and the newer EU members in the centre and the east which have been facing difficulties in aligning with the required standards. Moreover, the internal context related to the environmental situation is different in the developed, strongly industrialized states, compared to the developing states, which makes the decision-making process difficult within the Council. Besides the challenges the continuously changing nature itself implies, the political changes (the change of governments) determines constant lack in the positions adopted by the countries, which may implicitly affect the adopted policies. (Wallace & Pollack, 2005)

1.2. The basic framework

A. Environmental action programmes

From 1973, the Commission has been initiating multiannual environmental action programmes (EAP) which set the future legislative proposals and the future objectives for the EU environmental policy. In 2013, the Council and the Parliament adopted the 7th EAP for the period until 2020, entitled "Living well within the limits of our planet."

B. Horizontal strategies

The Europe 2020 strategy for economic growth aims "a smart, sustainable and inclusive growth". Under the aegis of this strategy, Resource efficient Europe" paves the way for a sustainable growth and supports the shift to a resource efficient economy and low carbon emissions. (https://eur-lex.europa.eu/legal-content/ro/TXT/?uri=CELEX:52011DC0571)

C. International cooperation in the environmental field

EU has a crucial role in the international negotiations in the environmental field. EU is part of the many global, regional and sub-regional in the environmental field aiming at a wide range of action, among which nature protection and biodiversity, the climate change and the cross-border air or water pollution.

D. Assessment of the impact on the environment and public participation

The Aarhus Convention (a multilateral environmental agreement under the auspices of the United Nations Economic Commission for Europe (UNECE), which came into force in 2001 and to which EU and all the member countries are parties) guarantees three rights to the public: the citizens' right to take part into Environmental Decisions, the right to have access to information related to the environment held by public authorities (for example, in relation to the situation of the environment and on people's health if it is affected by the situation of the environment) and the right to have access to justice if the two aforementioned rights are violated.

E. Implementation, compliance and monitoring

In May 2016, the Commission launched the Assessment of the implementation of the environmental policies, a new tool meant to contribute to the full implementation of the EU environmental legislation, which is closely related to the verification of the compliance (The European Commission's regulatory fitness and performance (REFIT) programme) with the monitoring and reporting in the environmental field, in order to simplify it and reduce costs. (Wallace & Pollack, 2005)

2. ASPECTS OF THE ENVIRONMENTAL POLICY IN THE EU COUNTRIES IN THE 2008-2017 PERIOD

Austria, Germany and Belgium recycled the largest proportion of the urban wastes in Europe in 2010. Despite the fact that, in some countries, recycling rates have been growing rapidly, Europe is still wasting large quantities of valuable resources by sending them to landfills, and many countries risk to fail to reach their mandatory recycling objectives.

In many countries, a strong development of the sector of thermal energy from renewable sources was a decisive key-factor in achieving and exceeding these intermediary objectives of the member states. This is the case for example, for Bulgaria, Finland, and Sweden, where the development was mainly determined by the types of low-costs biomass. In Estonia, Italy and Portugal, the electricity had the biggest contribution in exceeding the general objectives set for these countries in their national action plans in the renewable energy sector (PNAESR).

The production of wind power grew more than three times in the 2005-2014 period and became the second most important contributor to the renewable energy, exceeding biomass. The preliminary data for 2014 indicate that the production of wind power reached 247 TWh compared to 234 TWh in 2013. The first three wind power producers in the EU are Germany, Spain and the United Kingdom.

The data for 2017 show that in most member countries, greenhouse gas emissions were lower than their annual emission allocations. In nine countries (Greece, Slovakia, Croatia, Romania, Hungary, Portugal, Sweden, the Netherlands and Slovenia), emissions were at least 10 percentage points lower. It is estimated that Malta, Germany, Ireland, Austria, Cyprus, Poland and Finland exceeded their AEA (annual emission allocations); as in Bulgaria, Estonia and Lithuania, in the case of these latter countries, the excess being less than 1 percentage point though.

Table 1. Total environmental expenses for each EU country (% of GDP)

	YEARS									
COUNTRIES	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Belgium	0.56	0.61	0.61	0.7	0.63	-	0.59	0.53	0.57	0.55
Bulgaria	0.59	0.64	0.51	0.6	0.73	1.06	0.54	0.57	0.62	0.7
Czech Republic	0.35	0.43	0.52	0.51	0.56	0.48	-	-	0.51	0.54
Denmark	0.55	0.63	0.6	0.54	0.55	0.64	-	0.53	-	0.57
Germany	0.33	0.34	0.33	-	-	-	0.33	0.36	0.37	0.38
Estonia	0.16	0.29	0.16	0.31	-	-	0.3	0.2	0.2	0.23
Ireland	-	-	-	-	-	-	-	-	-	-
Greece	-	-	-	-	-	-	-	-	-	-
Spain	0.29	0.33	0.25	0.26	0.22	-	0.31	0.33	0.28	0.33
France	0.57	0.6	0.6	0.58	0.59	-	0.54	0.6	0.62	0.61
Croatia	0.02	0.02	0.07	0.32	0.26	0.32	-	0.3	0.32	0.36
Italy	0.84	0.89	0.88	0.88	-	-	0.86	0.87	0.88	0.89
Cyprus	-	-	0.59	0.58	0.43	0.51	-	-	0.45	0.5
Latvia	0.88	0.88	0.58	0.68	0.73	-	0.6	0.75	0.73	0.95
Lithuania	0.85	1.2	1.36	0.94	0.9	0.56	-	-	0.75	0.89

Luxembourg	0.51	0.68	0.55	0.53	0.56	0.57	0.68	0.72	0.63	0.52
Hungary	0.26	0.31	0.46	0.39	0.42	-	0.5	0.43	0.43	0.53
Malta	1.54	1.57	1.92	1.2	1.38	-	1.34	1.42	1.54	1.66
Holland	-	1.48	-	1.44	-	-	-	1.48	-	1.58
Austria	0.58	0.59	0.5	0.42	0.44	-	0.56	0.6	0.62	0.55
Poland	0.4	0.48	0.49	0.53	0.53	0.48	0.47	0.5	-	-
Portugal	0.54	0.59	0.51	0.48	0.51	0.44	0.47	0.48	0.56	0.52
Romania	0.58	0.59	0.81	0.95	0.6	0.46	0.54	0.57	-	0.93
Slovenia	0.77	0.91	0.73	0.8	0.7	-	0.95	0.82	0.71	0.71
Slovakia	0.24	0.27	0.28	0.31	0.32	0.28	0.28	0.26	0.26	0.3
Finland	0.56	0.59	0.64	0.59	0.64	-	0.58	0.59	0.6	0.55
Sweden	0.34	0.36	0.34	0.33	0.34	0.33	0.34	0.39	0.39	0.35
Great Britain	0.91	1.05	1.02	0.93	0.91	-	0.9	-	0.9	0.96

Source:https://ec.europa.eu/eurostat/guip/themeAction.do;jsessionid=SHJFnIGnWrYU2FlgZVe0Fv2UeRY35gCY2h6R-b5yB2i_s2ZI3tDK!-866751107

In 2017, the EU member countries spent 297 billion EUR for environmental protection, which was 1.9% of the Gross Domestic Product (GDP). The purchase of environmental services by households and by the government and investments made by environmental service providers and corporations to reduce the impact of their activity on the environment represented almost two thirds of expenses (61%).

Between 2008 and 2017, household expenses for environmental services grew by almost 50% throughout the entire period, which is the equivalent of an annual average growth rate of 3.4%. However, environmental protection accounted for a very low percentage of household expenses (less than 1%), and this share remained stable in the last decade. (Table 1.)

In 2017, EU – 28 invested 64 billion EUR) in essential assets to provide environmental services (for example, wastewater treatment plants, waste transport vehicles and purchase of land to create a natural reserve or cleaner equipment to manufacture with less pollutant emissions).

Table 2. Gross Domestic Product (GDP– billions)

	YEARS									
COUNTRIES	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Belgium	518.6	484.6	483.5	527	497.9	520.9	530.8	455	467.5	492.7
Bulgaria	54.41	51.88	50.61	57.42	53.9	55.76	56.73	50.2	53.24	58.34
Czech Republic	235.7	206.2	207.5	227.9	207.4	209.4	207.8	186.8	195.3	215.7
Denmark	353.4	321.2	322	344	327.1	343.6	353	301.3	306.9	324.9
Germany	3744.85	3407.56	3402.44	3748.6	3529.38	3733.86	3890.1	3362.24	3468.2	3664.51
Estonia	24.19	19.65	19.49	23.17	23.04	25.14	26.22	22.57	23.34	25.92
Ireland	275	236.3	222	239	225.6	239.4	258.1	290.6	304.8	333.7
Greece	354.5	330	299.4	287.8	245.7	239.9	237	195.5	192.7	200.3
Spain	1641.51	1503.41	1434.18	1489.76	1336.79	1362.26	1379.10	1999.69	1237.99	1317.1
France	2929.98	2697.96	2647.35	2864.65	2685.37	2811.92	2856.70	2439.44	2472.28	2591.78
Croatia	70.48	62.7	59.83	62.38	56.57	58.09	57.63	49.43	51.34	54.85
Italy	2400.23	2191.44	2128.87	2278.87	2074.02	2131.13	2155.15	1833.2	1869.95	1950.7
Cyprus	27.84	25.94	25.56	27.43	25.04	24.08	23.36	19.68	20.15	21.65
Latvia	35.60	26.17	23.76	28.22	28.12	30.25	34.34	26.97	27.57	30.26
Lithuania	47.85	37.44	37.12	43.48	42.85	46.42	48.52	41.51	42.77	47.17
Luxemburg	55.85	51.37	53.21	60	56.68	61.74	66.33	57.78	58.63	62.4
Hungary	158	130.6	130.9	140.8	127.9	135.2	140.1	122.9	125.8	139.1
Malta	8.98	8.53	8.74	9.51	9.21	10.15	11.23	10.57	11.28	12.54

Holland	936.2	857.9	836.4	893.8	828.9	866.7	879.6	758	777.2	826.2
Austria	430.3	400.2	391.9	431.1	409.4	430.1	441.9	382.1	390.8	416.6
Poland	533.8	439.8	479.3	528.8	500.4	524.2	545.2	477.4	471.4	524.5
Portugal	262	243.7	238.3	244.9	216.4	226.1	229.6	199.4	205.2	217.6
Romania	213.6	172.6	166.7	184.4	171.7	191.5	199.5	177.9	187.8	211.8
Slovenia	55.59	50.24	48.01	51.29	46.35	48.12	49.9	43.07	44.71	48.77
Slovakia	100.3	88.95	89.5	98.18	93.41	98.48	100.9	87.5	89.77	95.77
Finland	283.7	251.5	247.8	273.7	256.7	270	272.6	232.5	238.7	251.9
Sweden	514	429.7	488.4	563.1	543.9	578.7	573.8	497.9	514.5	538
Great Britain	2934.74	2403.36	2455.31	2635.8	2677.08	2755.36	3036.31	2897.06	2669.11	2640.07

Source: https://countryeconomy.com/gdp

Approximately 37 billion EUR (58% of the total investments in the environmental protection) were spent by corporations (for example, private companies specializing in the waste collection and processing, and in sewage) for the development and purchase of equipment meant to reduce environmental pressure (for example, equipment that reduces air emissions).

Public administration expenses for environmental protection services grew by 7.5% from 2008 to 2017, i.e. on average by 0.6% per annum. In 2017, final expenses for environmental protection services represented 1.4% of the final total consumption of these sectors. (Table 3.)

Table 3. Total environmental expenses for each EU country (billions)

	YEARS									
COUNTRIES	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Belgium	2.9	2.96	2.95	3.69	3.14	-	3.13	2.41	2.66	2.71
Bulgaria	0.32	0.33	0.26	0.34	0.39	0.6	0.31	0.29	0.33	0.41
Czech Republic	0.82	0.89	1.08	1.16	1.16	1	-	-	1	1.16
Denmark	1.94	2.02	1.93	1.86	1.8	2.2	-	1.6	-	1.85
Germany	12.36	11.59	11.22	-	-	-	12.84	12.1	12.83	13.93
Estonia	0.04	0.06	0.03	0.07	-	-	0.08	0.05	0.05	0.06
Ireland	-	-	-	-	-	-	-	-	-	-
Greece	-	-	-	-	-	-	-	-	-	-
Spain	4.76	4.96	3.59	3.87	2.94	-	4.28	6.6	3.47	4.35
France	16.7	16.19	15.88	16.61	15.84	-	15.43	14.66	15.33	15.81
Croatia	0.01	0.01	0.04	0.2	0.15	0.19	-	0.15	0.16	0.2
Italy	20.16	19.5	18.73	20.05	-	-	18.53	15.95	16.46	17.36
Cyprus	-	-	0.15	0.16	0.11	0.12	-	-	0.09	0.11
Latvia	0.31	0.23	0.14	0.19	0.21	-	0.21	0.2	0.2	0.29
Lithuania	0.41	0.45	0.5	0.41	0.39	0.26	-	-	0.32	0.42
Luxemburg	0.28	0.35	0.29	0.32	0.32	0.35	0.45	0.42	0.37	0.32
Hungary	0.41	0.4	0.6	0.55	0.51	-	0.7	0.53	0.54	0.74
Malta	0.14	0.13	0.17	0.11	0.13	-	0.15	0.15	0.17	0.21
Holland	-	12.7	-	12.87	-	-	-	11.22	-	13.05
Austria	2.5	2.36	1.96	1.81	1.8	-	2.47	2.3	2.41	2.29
Poland	2.14	2.11	2.35	2.8	2.65	2.52	2.56	2.39	-	-
Portugal	1.41	1.44	1.22	1.18	1.1	1	1.08	0.96	1.15	1.13
Romania	1.24	1.02	1.35	1.75	1.03	0.89	1.08	1.01	-	1.97
Slovenia	0.43	0.46	0.35	0.41	0.32	-	0.47	0.35	0.32	0.35
Slovakia	0.24	0.24	0.25	0.3	0.3	0.28	0.28	0.23	0.23	0.29
Finland	1.59	1.48	1.59	1.61	1.64	-	1.58	1.38	1.43	1.39
Sweden	1.75	1.55	1.66	1.86	1.85	1.91	1.95	1.94	2	1.88
Great Britain	26.71	25.24	25.04	24.51	24.36	-	27.33	-	24.02	25.34

*Source: Total environmental expenses for each EU country (table 1. – % of GDP) * GDP (table 2. – billions)*

Greenhouse gas emissions from households grew in 2015 compared to 2008 by 1.6 mil. CO_2 equivalent tonnes. In 2015, greenhouse gas emissions from households keep the same structure as in the other analysed years, most of them coming from transport with 59.2%, followed by house heating with a share of 1.7%. In 2015 compared to the first year of the analysed period, an increase of greenhouse gas emissions from households by approximately 11% was also recorded, most of it from transport, with an average share for the entire analysed period by 56.3% and house heating with an average share of 34.0%. (Table 4.)

In 2016, compared to the previous year, Romania recorded a decrease by 1.4% of the level of CO_2 emissions coming from burning fossil fuels, according to assessments supplied by Eurostat. As a total, at EU level, carbon dioxide emissions decreased by 0.4%.

Table 4. Total CO_2 emissions for the fossil fuel consumption and industrial (tonnes)

	YEARS									
COUNTRIES	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Belgium	115.505	107.855	115.749	105.187	103.791	105.314	99.223	104.097	104.320	104.221
Bulgaria	54.073	46.085	48.639	53.842	48.977	44.414	47.289	49.282	45.842	49.568
Czech Republic	125.665	117.597	120.691	117.985	113.906	110.284	107.999	109.038	108.950	109.756
Denmark	51.261	48.924	48.994	43.944	38.741	40.549	36.385	33.943	36.200	33.573
Germany	829.357	768.827	815.945	790.986	803.979	821.624	784.831	789.893	798.582	796.529
Estonia	20.984	17.930	22.097	21.429	20.376	22.974	22.749	19.891	15.847	17.890
Ireland	46.830	41.635	41.271	37.070	37.762	36.427	36.234	37.839	39.434	38.914
Greece	103.062	97.172	89.996	87.020	82.446	74.993	72.271	70.617	68.180	72.145
Spain	341.279	301.535	288.033	290.130	284.971	257.504	255.736	271.171	263.908	282.364
France	384.857	368.357	378.391	347.997	349.349	351.728	319.470	327.725	332.034	338.193
Croatia	24.413	22.199	21.445	20.894	19.262	18.813	18.100	18.342	18.548	17.466
Italy	469.748	417.589	427.370	417.896	396.793	363.761	344.603	354.355	356.461	361.176
Cyprus	8.445	8.248	7.979	7.696	7.160	6.143	6.209	6.325	6.952	7.035
Latvia	8.661	7.905	8.909	8.116	7.986	7.864	7.659	7.774	8.091	8.049
Lithuania	15.628	13.005	13.818	14.184	14.369	13.291	13.213	13.437	15.171	15.311
Luxemburg	11.244	10.636	11.243	11.127	10.904	10.348	9.842	9.330	9.206	9.540
Hungary	57.023	50.940	51.681	50.812	47.074	44.026	43.799	46.869	48.039	50.856
Malta	2.632	2.517	2.634	2.606	2.771	2.437	2.423	1.719	1.842	1.876
Holland	46.159	44.779	46.468	42.351	43.655	44.572	40.797	40.036	38.919	39.738
Austria	76.609	69.994	75.308	73.458	70.743	71.478	68.006	69.559	69.803	72.249
Poland	323.734	310.163	327.833	325.380	317.177	312.375	300.203	302.962	315.092	319.028
Portugal	59,601	58,889	53,507	51,925	50,472	48,900	48,300	52,270	52,132	56,771
Romania	104.496	85.231	82.666	88.984	86.775	76.355	75.973	77.748	76.421	81.131
Slovenia	19.580	17.602	17.888	16.788	16.295	15.765	14.365	14.366	15.350	15.209
Slovakia	40.821	36.957	39.657	37.919	36.430	36.930	34.776	35.103	35.558	37.855
Finland	59.560	56.753	65.320	57.947	52.026	52.871	48.775	45.431	49.000	46.846
Sweden	51.052	47.332	53.344	49.110	45.977	44.147	49.408	49.554	51.222	50.874
Great Britain	536.612	485.600	502.367	462.785	486.995	471.910	433.359	416.749	391.472	379.150

Source: https://countryeconomy.com/energy-and-environment/co2-emissions

In 2016, the share of CO_2 emissions in Romania was 2.1% of the total CO_2 emissions in the EU.

On the one hand, most increases of these types of emissions were recorded in Finland (+8.5%), Cyprus (+7.0%), Slovenia (+5.8%) and Denmark (+5.7%).

On the other hand, the biggest decreases were recorded in Malta (-18.2%), Bulgaria (-7.0%), Portugal (-5.7%) and also in Great Britain (-4.8%). As a total, the decrease of CO_2 emissions was recorded in 11 member countries.

CO_2 emissions represent 80% of all greenhouse gas emissions generated in the EU and are a massive contributor to the global warming.

According to the statistical office of the European Union, an EU member county can generate more or less CO_2 emissions depending on the specific climate conditions, the economic growth, the population size, the development of the transport sector or of the industrial activities of the respective country.

Table 5. Chemical substance consumption in the EU depending on hazard (million tonnes)

	YEARS									
	2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Hazardous for health	247.7	210.9	241.1	230.2	223.6	221.5	225.7	220.8	216.9	219.7
Hazardous for the environment	94.1	77.6	88.2	85.5	80.7	80.4	80.8	78.5	75.2	73.8
Total	321.9	279.5	317.9	306	301.6	300.3	305.5	301.5	300	306.2

Source: https://ec.europa.eu/eurostat/tgm/table.do?tab=table

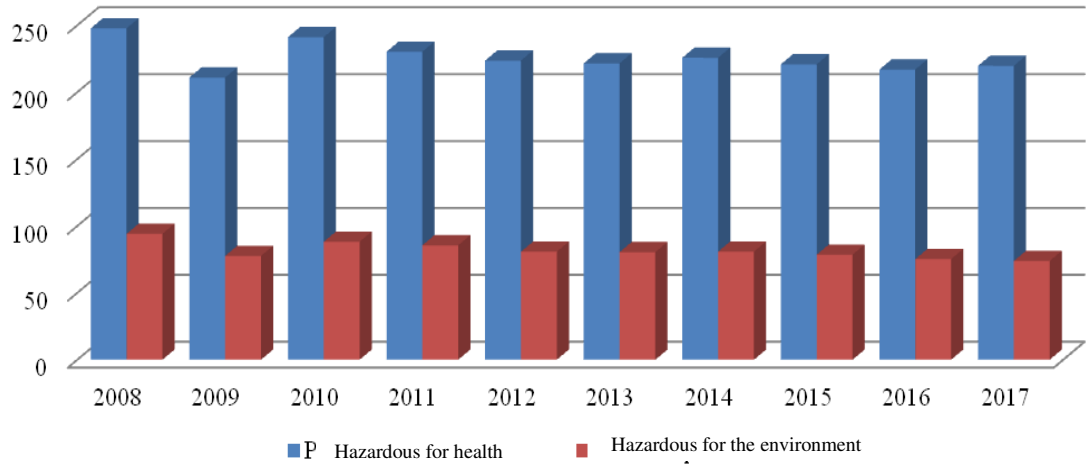

Figure 1. Chemical substance consumption in the EU depending on hazard (million tonnes)
Source: Prepared by the author based on the data in Table 5.

The production of chemical hazardous for health grew in the EU by 10 million tonnes in 2017. In 2017, the consumption of chemical substances hazardous for health grew in the EU by 2 million tonnes.

The total consumption of industrial chemicals in the EU – 28 during the financial and economic crisis decreased in 2008 and continued to decrease in 2009 (by approximately 21%). In 2011, the consumption of chemicals in the EU – 28 decreased again and remained relatively stable in the 2011-2016 period.

The consumption of chemical substances hazardous to the environment: in the 2008 – 2015 period, the differences between the consumption and the production of chemical substances range between 0% and 5% (approximately 4 million tonnes) and the consumption is almost always higher than the production, so a net import surplus appears for each year. (Table 5. and Figure 1.)

The consumption of chemical substances hazardous to health: the differences between the consumption and the production are relatively small. The net trade adds between 8% (20 million tonnes) and the sum of the production of the five classes of chemicals hazardous to health. Unlike the chemicals hazardous to the environment, the consumption is always bigger than the production. Thus, a net import surplus appears for each year. In 2016 and 2017, indeed, net imports decrease sharply, but the net trade results in an import surplus of approximately 1 million tonnes.

3. CONCLUSIONS

Austria, Germany and Belgium recycled the largest proportion of the urban wastes in Europe in 2010. Despite the fact that, in some countries, recycling rates have been growing rapidly, Europe is still wasting large quantities of valuable resources by sending them to landfills, and many countries risk to fail to reach their mandatory recycling objectives.

In many countries, a strong development of the sector of thermal energy from renewable sources was a decisive key-factor in achieving and exceeding these intermediary objectives of the member states. This is the case for example, for Bulgaria, Finland, and Sweden, where the development was mainly determined by the types of low-costs biomass. In Estonia, Italy and Portugal, the electricity had the biggest contribution in exceeding the general objectives set for these countries in their national action plans in the renewable energy sector (PNAESR).

In 2017, EU – 28 invested 64 billion EUR) in essential assets to provide environmental services (for example, wastewater treatment plants, waste transport vehicles and purchase of land to create a natural reserve or cleaner equipment to manufacture with less pollutant emissions).

Approximately 37 billion EUR (58% of the total investments in the environmental protection) were spent by corporations (for example, private companies specializing in the waste collection and processing, and in sewage) for the development and purchase of equipment meant to reduce environmental pressure (for example, equipment that reduces air emissions).

Greenhouse gas emissions from households grew in 2015 compared to 2008 by 1.6 mil. CO2 equivalent tonnes. In 2015, greenhouse gas emissions from households keep the same structure as in the other analysed years, most of them coming from transport with 59.2%, followed by house heating with a share of 1.7%. In 2015 compared to the first year of the analysed period, an increase of greenhouse gas emissions from households by approximately 11% was also recorded, most of it from transport, with an average share for the entire analysed period by 56.3% and house heating with an average share of 34.0%.

In 2016, compared to the previous year, Romania recorded a decrease by 1.4% of the level of CO2 emissions coming from burning fossil fuels, according to assessments supplied by Eurostat. As a total, at EU level, carbon dioxide emissions decreased by 0.4%.

According to the statistical office of the European Union, an EU member county can generate more or less CO2 emissions depending on the specific climate conditions, the economic growth, the population size, the development of the transport sector or of the industrial activities of the respective country.

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