

Додаток 3.1.1

Узагальнення результатів досліджень Євросоюзу стосовно емісій спалювальних установок та полігонів побутових відходів в оточуюче природне середовище та їх екологічної і економічної оцінки

Waste Management Technical Approach

Cost-Benefit Analysis of the Different Municipal Solid Waste Management Systems

Table 1 Summary of valuation results of air emissions for the studies (EURO/per kg emission) (incinerators)

No	Emission type	Study (year of valuation)			
		Study 1 (1998)	Study 2 (1996)	Study 3 (1995)	Study 4 (1993)
1	2	3	4	5	6
1	CO ₂	-	-	0.04	0.004
2	PM ₁₀	13.6	28.7	20.5	9.5-12.8
3	SO ₂	12.2	7.3	2.1	3.1-7.3
4	NO _x	18.05	18.34	6.0	2.5-4.3
5	VOC	0.7	2.53	1.4	-
6	CO	0.00207	-	-	0.007
7	As	150	999	1,015,735	-
8	Cd	18.3	81.4	125,370	-
9	Cr VI	123	819	200,642	-
10	Ni	2.53	16.8	101,549	-
11	Dioxins (TEQ)	16,300,000	2,000,000	713,175,937	-
12	Pl	-	-	34,627	-
13	Hg	-	-	25,909	-
14	HCL	-	-	6.1	-
15	HF	-	-	2,210	-

Particulates flue gas - Particulatis (- PM₁₀) - PM₁₀

Volative organic compaunds - VOC

Table 2 Summary of valuation results of air emissions for the studies (EURO /per kg emission) (landfills)

No	Emission type	Study (year of valuation)		
		Study 1 (1993)	Study 2 (1995)	Study 3 (1993)
1	2	3	4	5
1	CO ₂	0.002-0.015	0.042	0.004
2	CH ₄	0.053-0.237	2.223	0.086
3	VOC	-	1.351	-
4	N ₂ O	-	-	1.469
5	VC	-	257.863	-
6	NO _x	-	6.017	-

Table 3 Summary of valuation results of emissions to soil and water for (EURO) (landfills)

No	Emission type	Study (year of valuation)			
		Study 1 (1998) per tonne waste landfilled	Study 2 (1996) per tonne waste landfilled	Study 3 (1995) per kg emission to water	Study 4 (1993) per kg emission to soil
1	2	3	4	5	6
1	Leachate	0.77 (0-1.54)	0-1.09	-	-
2	Lead (Pb)	-	-	178	5
3	Cadmium (Cd)	-	-	622	1,514
4	Mercury (Hg)	-	-	1,022	37
5	Dioxins	-	-	62,824,889	n.a.
6	Antimony (Sb)	-	-	121,366	121,366
7	Arsenic (As)	-	-	308	12
8	Barium (Ba)	-	-	31	37
8	Beryllium (Be)	-	-	44,928	44,928
10	Copper (Cu)	-	-	5	1
11	Chromium (Cr)	-	-	17,479	320
12	Nickel (Ni)	-	-	12	4
13	Selenium (Se)	-	-	16,125	16,125
14	Zinc (Zn)	-	-	1	1

Table 4 Summary of externality costs for incineration of waste (EURO/tonne waste incinerated)

No	Impact	Example no		
		1	2	3
1	2	3	4	5
1	Global warming	0.8	0.8	0.8
2	Damage from air pollution	20	50	69
3	Damage from leachate	0	0	0
4	Disamenity	8	8	8
5	Total external cost	28	58	77
6	Pollution displacement	- 71	- 21	0
7	Net external cost	- 43	37	77

Table 5 Summary of externality costs for landfill disposal of waste (EURO/tonne waste disposed at landfill)

No	Impact	Example no	
		1	2
1	2	3	4
1	Global warming	5	8
2	Damage from air pollution	0.1	0
3	Damage from leachate	0	1.5
4	Disamenity	10	10
5	Total external cost	15	20
6	Pollution displacement	-4	0
7	Net external cost	11	20

Table 6 Externality costs for incineration of waste (with oil as alternative energy source) (EURO/ tonne waste incinerated)

No	Impact	Example no		
		1	2	3
1	2	3	4	5
1	Total external cost	28	58	77
2	Pollution displacement	- 37	- 14	0
3	Net external cost	- 9	44	77

Table 7 Externality costs for landfill disposal of waste (with oil as alternanative energy source) (EURO/ tonne waste disposed at landfill)

No	Impact	Example no	
		1	2
1	2	3	4
1	Total external cost	16	20
2	Pollution displacement	- 3	0
3	Net external cost	13	20