Development of waste statistics to estimate activity data

- Waste Statistics in Korea -

The 9th Workshop on GHG Inventories in Asia (WGIA9) J 13-15 July 2011, Phnom Penh, Cambodia

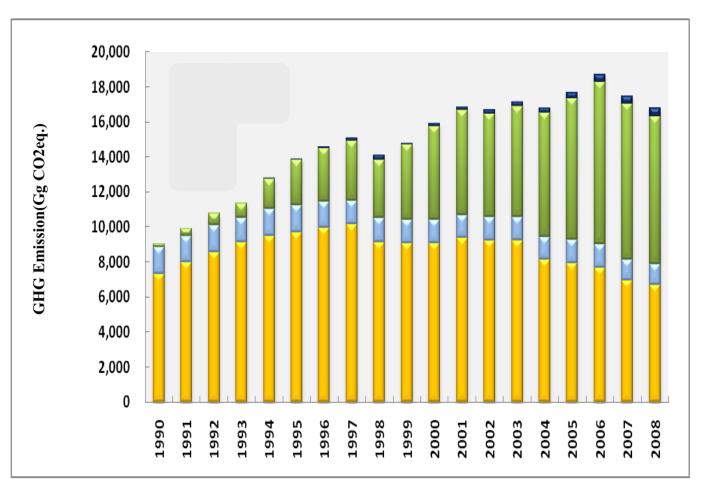
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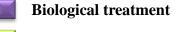
Wonseok Baek GHG Inventory team, Climate Environment Dept.

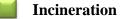
wsbaek@keco.or.kr

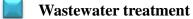


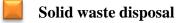
2008 year GHG emission trend in waste sector





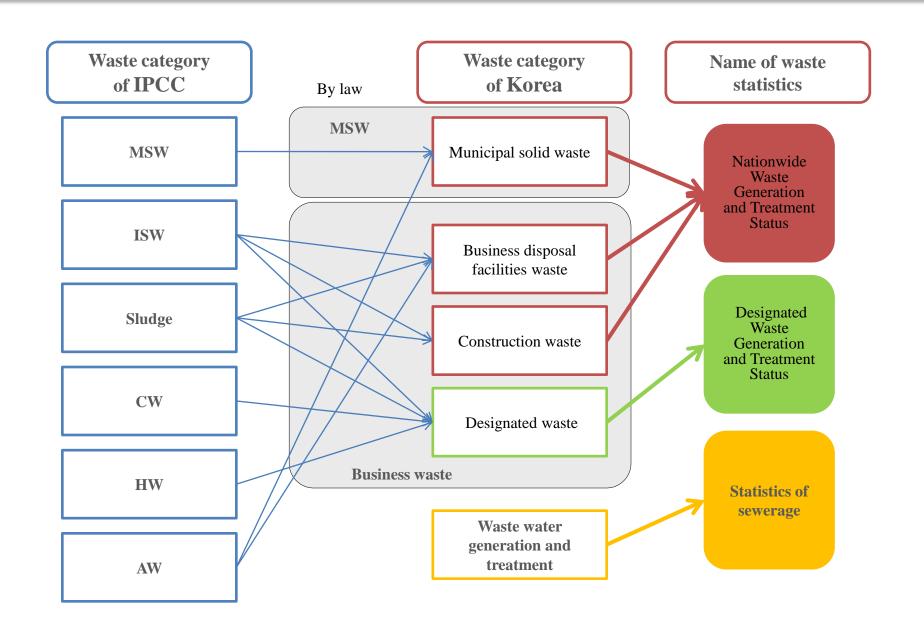






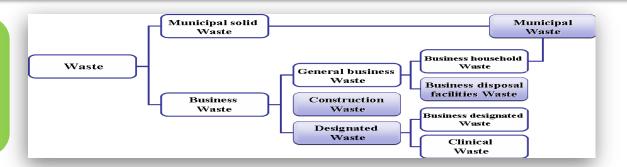
Emission trend in waste sector

Categories	Guidelines	Method	GHG	Country specific EFs /Parameters	Activity Data
Landfill	1996 IPCC GLs, IPCC GPG	Tier 2	CH ₄	• DOC • Methane recovery(R)	 Disposed waste Nationwide waste generation and treatment status Designated waste generation and treatment status
Incineration		Tier 2	CO ₂ , N ₂ O	 CO₂ Emission factor N₂O Emission factor 	 Incinerated waste Nationwide waste generation and treatment status Designated waste generation and treatment status
Wastewater	2000	Tier 2	CH ₄ , N ₂ O	• CH ₄ Emission factor	 Discharged wastewater Sewer Statistics Generation and disposal of industrial wastewater Related night soil generation Statistical yearbook of ministry of health and welfare Census, NSO
Others (Biological Treatment)	2006 IPCC GLs	Tier 1	CH ₄ , N ₂ O		 Mass of organic waste treated by biological treatment Nationwide waste generation and treatment status



Nationwide
Waste
Generation
and Treatment
Status

Designated
Waste
Generation
and Treatment
Status



Purpose

- Analysis for the trend and the amount of waste generation and treatment for MSW and Business waste as the waste type, composition and administrative zone
- Determine the status of treatment facility for the municipal solid waste and Business waste and the carrier collection, intermediate processing, and end-processing firms.
- Determine the status of Local governments' budget.

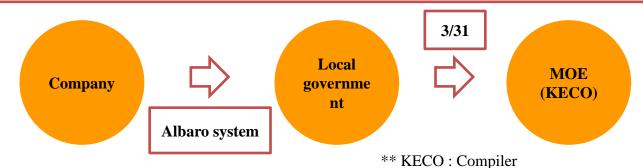
Basis

- Waste Control Act Article 30, 58 and the same law enforcement rules Article 60, 81

Contents

- The status of administrative zone for MSW.
- The status of emission company for Business waste.
- The status of generation and treatment for MSW and Business waste.
- The status of the number of operating people, equipments, facilities and budget.

Flow of data compilation



Waste statistics in Korea

Nationwide Waste Generation and Treatment Status

	기물 발생	색 및	및 처리현	- 황 기물+사업장	샙홛게폐기·	₩)					_			-		-		-		-				
	종라게 봉투 바출																							
구분 바까타다							**	3세 출구 박		물 연 설											재활-			
			처리현황 출계		출계 소계	A = 11	음식률			고무	풀라	-1-1			_		-1-1	소계	쫄이큐	유리별	캠류	플라 스틱	합설 수지류	전자 제품
시도	시군구					소계	채소류	쫄이큐	나무류	피역류	스틱류	기타	소계	유리큐	青春春	토사큐	기타			- "			1544	
		H	발생량	50,908.2	21,690.0	17,977.3	417.2	4,915.3	2,340.6	1,115.3	2,818.7	6,372.2	3,712.7	425.0	376.1	873.2	2,038.4	15,515.1	5,183.9		727.6		883.9	172.6
전국	함계	취리	매립	9,470.8	9,404.1	6,523.3	214.4	1,892.4	402.0	304.7	1,012.9	2,898.9	2,880.8	340.4	295.5	800.0	1,844.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		발	소각	10,308.8	10,008.7	9,835.6	158.9	3,125.2	1,125.3	884.8	1,676.0	3,188.4	173.1	33.1	31.7	20.8	87.7	0.0	0.0	0.0	0.0		0.0	0.0
			재활용	31,128.8	2,277.2	1,818.4	43.9	97.7	813.3	145.8	228.8	288.9	858.8	51.5	48.9	252.8	305.8	15,515.1	5,163.9		727.6		883.9	172.8
	소계	<u> </u>	발생량	11,338.8	3,739.6	3,528.4	0.0	782.8	200.3	168.1	433.8	1,943.8	211.1	24.4	24.8	55.9	108.2	4,149.9	1,616.2		178.9		201.1	68.8
		리	매 립 소 간	1,480.0	1,480.0	1,340.8	0.0	244.3 523.1	84.2	47.7	132.1	862.6	139.2	14.2 4.5	17.0 5.1	28.8	81.2 21.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		발	교 각 개활용	2,135.2 7.721.8	2,135.2	2,100.8 87.0	0.0	15.4	133.0	119.5	285.2 38.3	1,059.8	34.8 37.3	5.7	2.5	3.9 25.2	3.9	4,149.9	1,818.2	0.0 589.3	178.9	408.4	201.1	58.6
			발생량	385.4	142.5	138.3	0.0	0.7	3.5	0.6	0.5	131.1	8.2	0.7	0.2	2.8	3.2	121.5	53.3	17.8	4.5	10.2	8.7	1.8
		÷	매립	43.7	43.7	37.8		0.2	0.1	0.2	0.3	37.0	5.9	0.2	0.1	2.5	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	쫄로구		소간	98.8	98.8	98.6	 	0.5	3.4	0.3	0.2	94.1	0.3	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		발	재활용	242.9	0.0	0.0	 	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	121.5	63.3	17.8	4.5		8.7	1.8
		H	발생량	487.4	198.7	195.1	0.0	60.0	23.5	8.6	13.4	99.6	1.8	0.0	0.0	0.0	1.8	147.4	67.8	19.8	8.7	13.8	8.8	1.8
		처	매립	41.4	41.4	39.8	0.0	5.9	0.6	0.6	0.0	32.9	1.6	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	출구	티반	소각	155.3	155.3	155.3	0.0	44.1	23.0	8.1	13.4	88.7	 (0.0	0.0	0.0	0:01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		범	재활용	290.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	0.0	0.0	0.0	147.4	67.8	19.8	8.7	13.8	8.8	1.8
		F	발생량	328.7	117.4	112.2	0.0	7.2	6.1	2.3	2.9	93.7	5.2	0.2	0.2	0.2	4.8	115.9	52.0	18.2	5.2	8.1	8.3	1.7
	용산구	처	매립	18.8	18.8	17.4	0.0	2.6	1.8	1.0	0.8	11.2	1.4	O.	0.0	0.2	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	⊕ 27⊤	탈	소각	90.8	90.8	87.0	0.0	4.6	4.3	1.3	2.1	74.7	8.8	0.1	0.2	0.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		벌	재활용	217.1	7.8	7.8	0.0	0.0	0.0	0.0	0.0	7.8	0.0	0.0	0.0	0.0	0.0	115.9	52.0	18.2	5.2	8.1	8.3	1.7
		-	발생량	312.5	111.1	109.4	0.0	42.2	2.8	2.2	25.8	38.4	1.7	0.4	0.2	0.6	0.8	118.3	40.9	19.0	8.2	11.4	8.9	2.0
서움	설몰구	처	매립	25.3	25.3	23.6	0.0	9.1	0.7	0.7	5.5	7.8	1.7	0.4	0.2	0.5	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-413		탈	소각	85.8	85.8	85.8	0.0	33.1	2.1	1.5	20.3	28.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	 1기:	#	재활용 2기+L+	201.4	0.0	o.o CH /22		0.0 +L1 /3	o.o DF/3LF	0.0 -/3EH	o.o /3라/	o.o 4가 4기	o.o - 1/52	o.o 5LH	0.0 /GDL/	o.o 6LH 6	0.0 CF /72	118.3 L /7L L	40.9 /8가	19.0	6.2	11.4 /8라	8.9 -{8D}	2.0 /97h
$\rightarrow \rightarrow$			4275キレロ	_ (4) (ZL[/ Z	L[/ 40	2[/ O/[7					421/41	_[/ 0/		/6カ/	6Lt / 6	ロスカ		/ O/[]	/ OL[/	/8Ch	/ OCT		(9)

Waste statistics in Korea

Designated
Waste
Generation
and Treatment
Status

2.5			 _		
가 지정폐기물 발생량 '	및 처리방법별 :	처리 혀홧			

기: 시 8페기를 필 8 8 :	* VIO 0 1 5 7						(론/년)	
폐기물 종류	발생	내역		보관량				
	전년도 이윌량	'09년 발생량	소각	매립	재활용	기타		
총합계	35,385.8	3,184,610.5	466,144.4	684,896.1	1,876,560.4	134,305.4	58,090.0	
공정오니	137.6	50,577.0	14,027.5	22,923.8	11,483.7	863.9	1,415.7	
광재	125.5	12,776.1	0.0	749.7	8,181.1	3,680.2	290.6	
기타 폐유기용제	6,385.9	663,556.6	136,337.2	0.0	527,015.9	328.4	6,261.0	
분진	2,132.0	456,670.3	0.0	239,974.7	212,294.5	2,149.6	4,383.5	
소각재	3,279.7	144,448.9	0.0	135,496.1	7,212.3	165.6	4,854.6	
안정화 또는 고형화 처리물	149.8	49,202.8	0.0	48,890.9	0.0	0.5	461.2	
폐내화물 및 도자기조각	0.0	502.1	0.0	502.1	0.0	0.0	0.0	
폐농약	0.3	1,218.4	1,134.5	0.0	84.2	0.0	0.0	
폐산	3,635.7	511,635.7	689.6	11.5	464,704.2	45,228.1	4,638.0	
폐석면	144.3	116,566.0	0.0	95,752.9	0.0	16,952.3	4,005.1	
폐수처리오니	1,467.5	170,693.2	1,346.9	133,750.9	24,780.6	10,105.5	2,176.8	
폐알칼리	480.9	46,354.8	1,796.9	384.9	19,800.4	24,324.3	529.2	
폐유	10,447.7	724,274.5	204,366.9	408.1	501,363.6	9,007.4	19,576.2	
폐유독물	3.7	10,054.0	9,039.5	0.0	721.1	284.0	13.1	
폐주물사 및 폐사	0.1	15,758.4	0.0	1,433.8	14,299.4	0.0	25.3	
폐촉매	300.0	15,085.4	0.0	642.8	8,450.9	5,093.9	1,197.8	
폐페인트 및 폐락카	2,972.6	132,652.9	79,646.0	0.0	51,823.2	1,096.6	3,059.7	
폐합성고무	7.5	290.2	252.2	0.0	38.5	0.0	7.0	
폐합성수지	94.8	12,426.5	8,747.1	81.8	3,468.3	91.9	132.2	
폐흡착제 및 폐흡수제	140.1	13,759.0	1,127.4	3,892.1	8,734.8	3.6	141.2	
할로겐족유기용제	508.2	19,244.3	7,373.7	0.0	12,103.7	14.2	260.9	
PCB함유폐기물	2,971.9	16,863.4	259.0	0.0	0.0	14,915.4	4,660.9	
→ M 1-1/1-2/1-3/1	-4/1-5/1-6/	/1-7_/1-8_/%						

Statistics of sewerage

Purpose

- Determine the status of a major component of sewer as sewer pipe and ditch, sewage treatment facilities, night soil treatment facilities, etc.
- Investigation about the cost and contents of sewage facility installation, maintenance and management.
- Analysis for the test results of influent and effluent water quality in sewage treatment and night soil treatment facilities.

Basis

- Sewerage Law

Contents

- The status of sewerage spread and pipe and ditch.
- The amount of sewer and night soil.
- The status of public and personal sewer treatment and the night soil treatment facilities.

Flow of data compilation

Local governme nt

Waterworks and sewer information system

MOE (KWWA)

^{**} KWWA(Korea Water and Wastewater works Association): Compiler