

工學碩士 學位論文

廢棄物 管理 拘縮 方案

A Study on the efficient construction of wastes
management System

指導教授 郭 圭 錫

2001年 2月

韓國海洋大學校 大學院

物流 工學科

孫 炳 錫

本 論 文 孫 炳 錫 工 學 碩 士 學 位 論 文 認 准

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委 員 工 學 博 士 郭 圭 錫 ①

2000年 12月 16日

韓 國 海 洋 大 學 教 大 學 院

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A Study on the efficient construction of wastes management System

- Case Study on the Young-Do Gu in Pusan Metropolitan City -

Byeong-Seok Son

Department of Logistics Engineering

Graduate School of Kora Maritime University

Abstract

1. Background

As the number of people is increasing and the industry is developing, the amount of wastes is increasing simultaneously. Our nation dispose wastes by burial or incineration, people reuse them occasionally.

The costs of waste disposal are estimated about 1,800 billions in 1998, 72 percent of total costs are logistic costs . It said that the process of burial bring about a lot of environment pollution problems such as heavy metal, dioxin, sewage leak especially. So the people require the process of reuse and incineration than burial on those situations.

2. Purpose

The aim of this paper is for the efficient construction of waste

management systems through the recent analysis about waste collection, carriage, and disposal.

3. Methodologies and Results

The methodologies of this paper is cost analysis, I compare with alternatives and draw out the best alternative. The results of analysis was that alternative no.2 was the best.

4. Contribution

The waste policy of government is aimed for the foundation construction of economic social that the resources are well recycled, and the government promotes the construction of systems such as wastes minimization, wastes recycling, wastes efficient management.

In the case, these policies can obtain the desired results if only the related studies on its execution are preceded.

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1.1

가 가 , 가 ,

가 , .

1998 1 8 .

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(72.13%) .

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	가 .가	2 8

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(1973) “ ” “ ” ,

2.2.2 (1978 1986)

1970 , 가 가
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1) , , 1998, pp.11 13.

2.2.3 (1986 1992)

1986
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6%

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, 1998, p.14.

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2.3.2.1

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“ 21”
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1993 “ 가 ” , 1996
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가
가 8 가
(, 1996) .

3) , , 1999.12, p.29.

가

3

- 1 (1996 1997) : 21
- 2 (1998 1999) : 21
- 3 (2000 2001) : 21

가

< 2-3> 가

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2.4

가
가
가

2.4.1

2.4.1.1

1997 189,199.7 / , 25.3%,
49.4%, 25.3%
, '98 1 9,900
3.5%
40.4% ,
4)

4) , , 1999. 12, pp.61 ~ 63.

< 2-6>

(1997)

	(/)					
	189,199.7	47,894.8	40,330.4	7,564.4	93,528.4	47,776.5
	10,258	4,146	3,386	760	2,195	3,917
	24,652.9	12,661.9	9,940.6	2,721.3	1,930.0	1,0061.0
	8,799.6	2,744.9	2,119.3	625.6	1,990.6	4,064.1
	9,956.9	2,056.5	1,907.5	149.0	4,557.1	3,343.3
	2,939.8	1,546.5	1,296.5	250.0	436.7	956.6
	3,855.7	1,488.1	1,273.0	215.1	427.1	1,940.5
	6,123.3	1,237.8	1,033.1	204.7	3,128.5	1,757.0

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2.4.1.2

100%

가 , 가 가

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: , 1999.12, p.79

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 “ (EPR : Extended Producer Responsibility)”
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 , 가

가

2.4.1.3

‘98

56.2%

가

< 2-8 >

	56.2%	57%	41.1%
	8.8%	5.1%	14.5%
	35.0%	38.2%	44.3%
	100%	100%	100%

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, ‘98
, 1999.12

, 1999,

58%가
 1%, 39% ,
 81% 1720.16 /

< 2-9 >

	31%	81%	38%
	6%	1%	10%
	58%	1%	39%
	5%	17%	14%
	100%	100%	100%

: , '98 , 1999,
 , 1999.12

가 .

. ,
 ,
 83%

< 2- 10>

	14.9%	36.2%	13.5%
	2.1%	0.1%	4.3%
	83%	63.7%	82.2%
	100%	100%	100%

: , '98 , 1999,
 , 1999.12

2.4.1.4

가
()
()
, 1998 (1,378 /
) 87.9% 1,212 ,
12.1% 167 .

가 .5)
,
53,955.4 / , 28.5%
, 83% 가

5) , , 1999.12, p.89

< 2- 11>

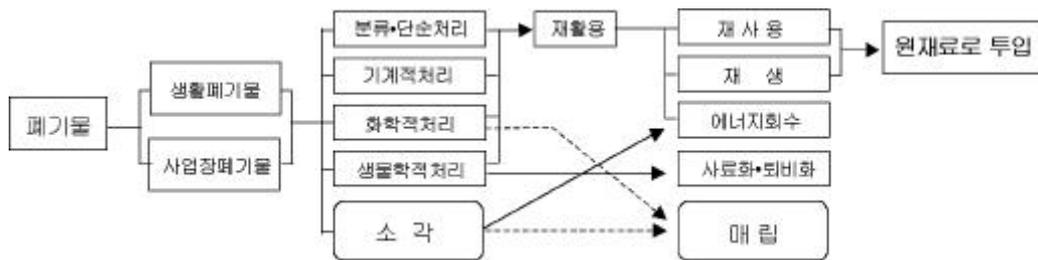
(: /)

	15,566.0(44,582.6) 35%	4,107.6(10,764.7) 38.2%	1,725.1(3,892.4) 44.3%
	53,955.4(92,712.9) 58%	28.5(2,120.5) 1%	854.2(2,206.2) 39%
	39,574.0(47,692.7) 83%	5,805.8(9,116.6) 63.7%	3,126.9(3,802.1) 82.2%

: , '98 , 1999, , 1999.12

가

. < 2-2>



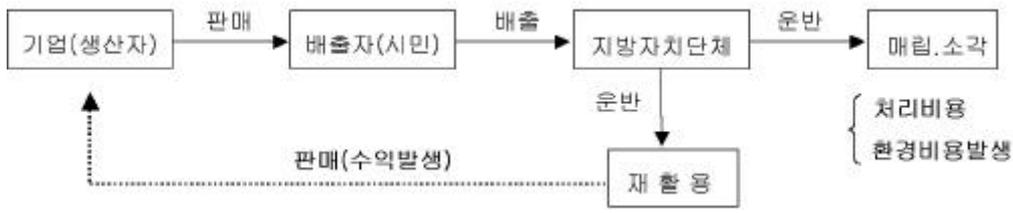
< 2-2>

3

가

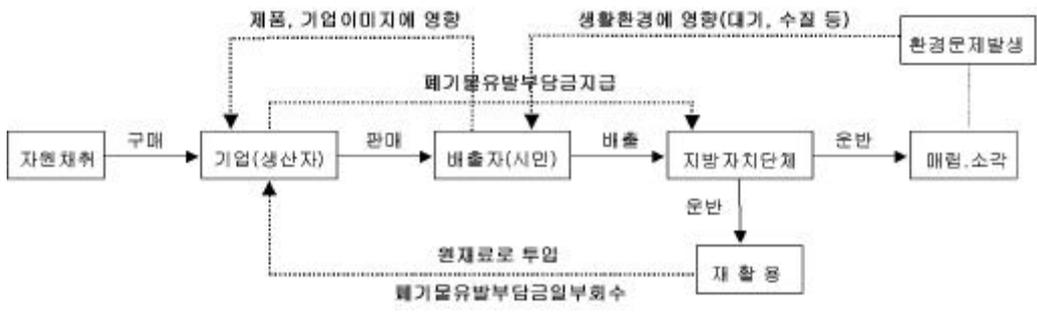
3.1

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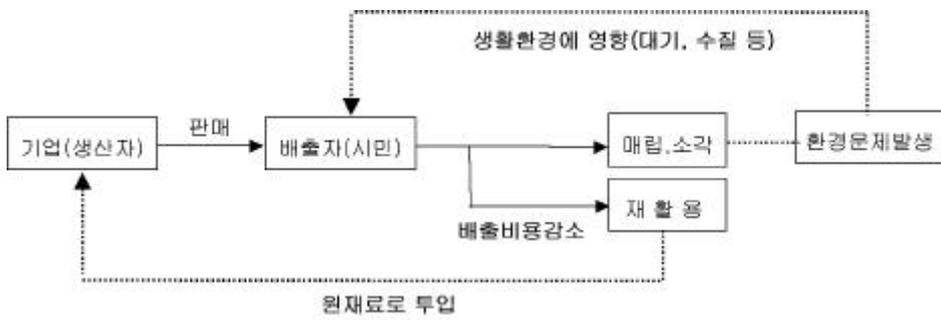
< 3-1>



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가



< 3-3> ()

가 가 , . 가
가 가 . 가

3.2

가

가 , , ,
 가 “ ”

가 .

가 . ,
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(1999.12)

가 .

3.2.1

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< 3-1> 가

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: = (+) - (+) , 1997 ,
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3.2.2 가

6) , , 1999.12, pp. 245 247.

(Private economic feasibility) (Social economic feasibility)

7)

가

가

가

2

3 4

, 1997

가

8)

7) : , 1997.5, p.12

8) , 1999.12, pp. 245 247.

< 3-2>

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: , . 가 , 1997.5

< 3-3>

9)

	- 7,000	- 40,984	- 47,984	63,736	43,821	107,557	65,281	69,035	134,316
	- 23,420	9,734	- 13,686	99,825	21,902	121,727			
	- 5,758	9,734	3,976	99,825	21,902	121,727			
	- 155,538	24,404	- 131,134	245,339	36,572	281,911			
	- 4,000	2,237	- 1,763	30,746	8,281	39,027			
	203,251	2,237	205,488	241,497	10,781	252,278			
PET	167,000	21,020	188,020	196,859	58,787	255,646	171,417	82,058	253,475
PE	160,529	23,024	183,553	217,227	60,791	278,018	129,420	84,602	213,482
PP	129,360	23,024	152,384	217,227	60,791	278,018	129,420	84,602	213,482
PS	131,253	23,024	154,277	217,227	60,791	278,018	129,420	84,602	213,482
(HDPE)	319,400	20,767	340,167	89,523	58,534	148,057	97,211	81,805	179,016
(LDPE)	60,000	12,287	72,287	110,582	50,054	160,906	85,939	73,325	159,264
	130,000	23,024	153,024	217,227	60,791	278,018	129,420	84,062	213,482
	10,000	9,543	19,543	96,846	49,027	145,873	64,193	46,516	110,709
	- 8,466	10,976	2,511	110,649	25,583	136,502	131,402	64,569	195,971
가 (TV)	30,285	7,811	38,096	80,111	21,719	101,830	114,468	40,406	154,873
가 ()	57,626	14,374	72,001	139,340	36,938	176,278	144,070	70,754	214,824

: 47,044 / .
: , 가 , 1997

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가 , , 가 가

9) , , 1999.12, p.247

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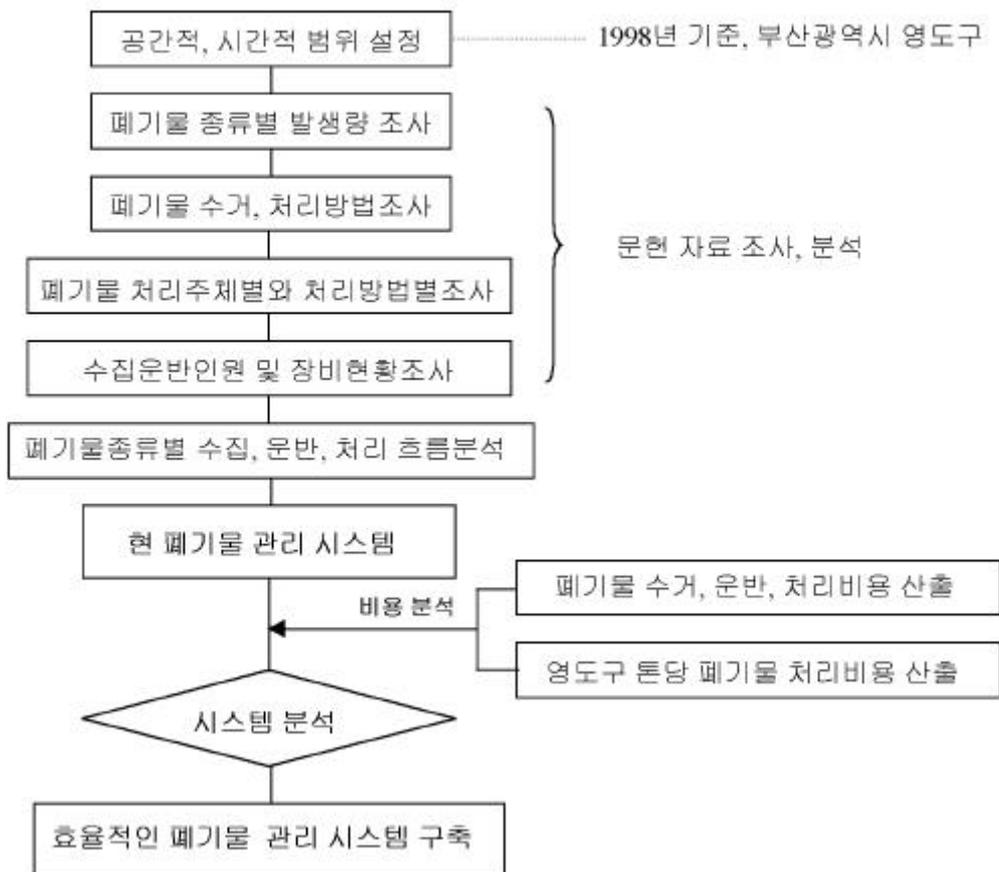
가

가

가

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폐기물 관리 시스템 구축 모형



< 4-1 >

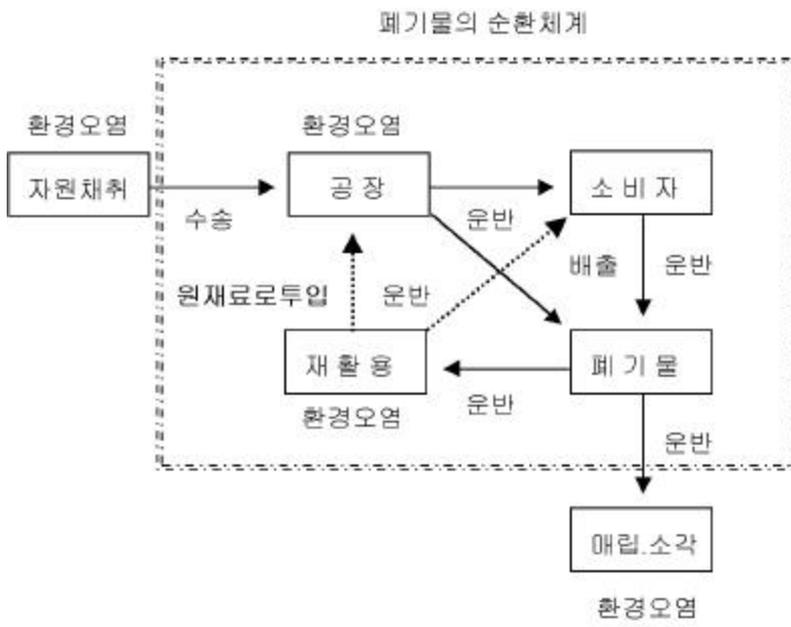
< 4-1>

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	- - - , - .	, ,
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	- - - - - - -	, , ,

: , , 1999.12

< 4-1>

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	3,4 , 1 , 2 , 3 , 1 , 2 , 3 ,	,
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	, 40 50 가	,

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4.3.2

가 ,
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가

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가 .

· '98 (, 1999)
 (, 1999.12)

< 4-3>

	143.5 /	가 90%
	6.6 /	가 ,
	31.0 /	가 ,
	195.0 /	75%
	50	,

< 4-4>

(: /)

											가			
	3,191.6	1,703.7	1,187.2	516.5	1,703.7	1,187.2	516.5	0	0	0	0	0	0	1,487.9
	143.5	80.5	78.9	1.6	80.5	78.9	1.6	0	0	0	0	0	0	63.0

< 4-4>

< 4-5>

(: /)

								가						
	700.8	463.6	414.3	49.3	414.3	414.3	0	0	0	0	49.3	0	49.3	237.2
	6.6	2.9	2.3	0.6	2.3	2.3	0	0	0	0	0.6	0	0.6	3.7

< 4-6>

(: /)

								가				
	2,206.2	0	0	0	1,033.6	841.3	192.3	19.4	0	19.4	854.2	299.0
	31.0	0	0	0	21.8	9.8	12.0	0.7	0	0.7	8.5	0

< 4-5>, < 4-6>

, 가

< 4-7>

(: /)

								가			
	3,802.1	0	0	0	675.2	512.9	162.3	0	0	0	3,126.9
	195.0	0	0	0	49.0	31.0	18.0	0	0	0	146.0

< 4-8>

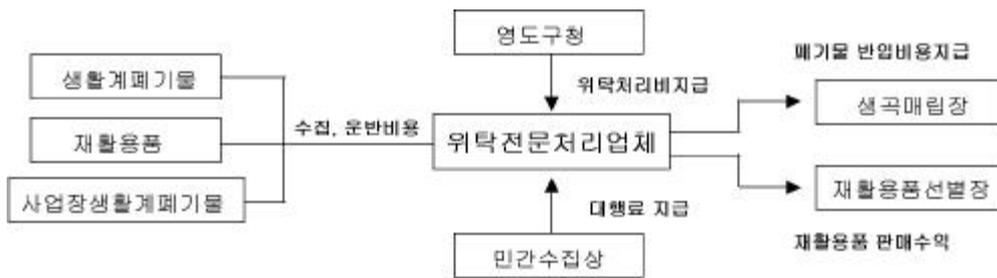
													가			
	()	()	()	()	()	()	()	()	()	()	()	()	()	()	()	()
	3,537	679	977	8	2,176	265	764	1	1,281	390	197	6	80	24	16	1
	141	24	18	0	115	18	18	0	26	12	0	0	0	0	0	0

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4.4

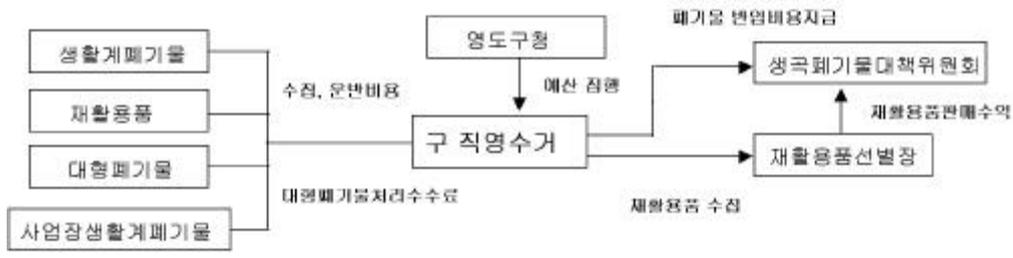
4.4.1



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가

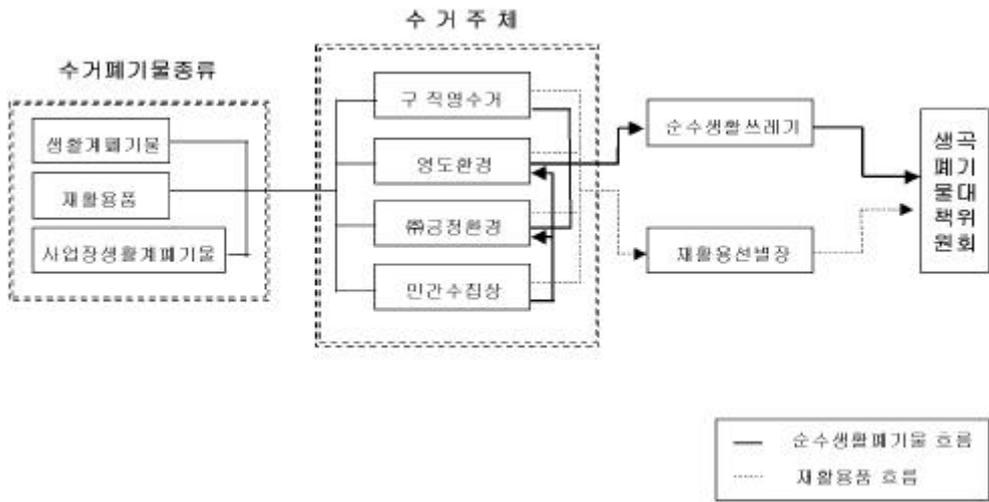


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< 4-5> ()

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(8,000)



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4.4.2

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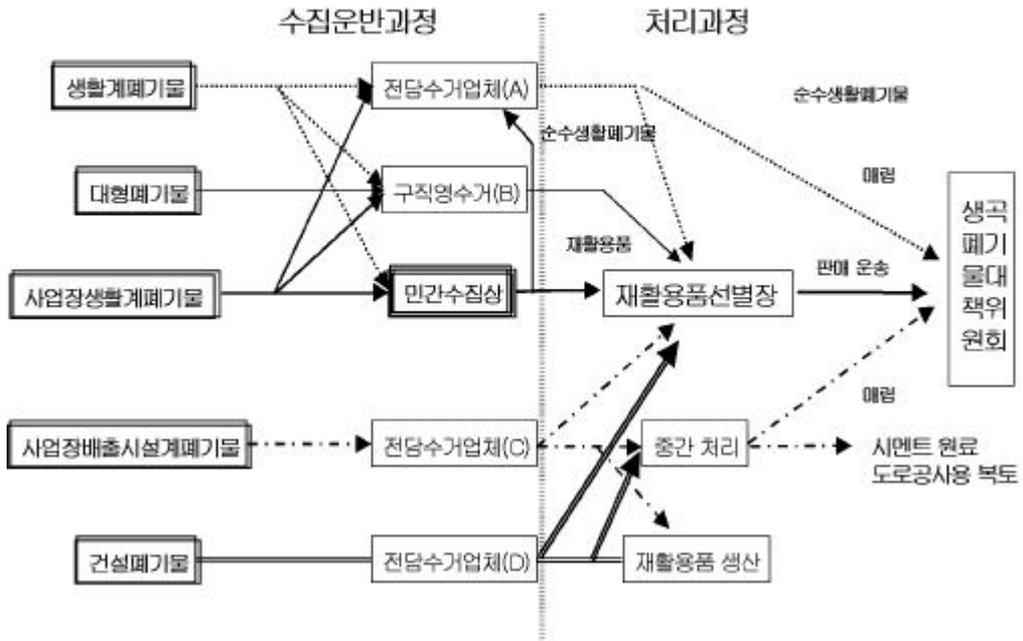
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영도구 폐기물 관리 시스템



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< 4-7 >

< 4-9>

					(/)
		()	()	()	
· · ·		115	18	0	7,451
		12	6	0	11,542
	()	14	6	0	9,992
·	()	4	4	0	55,884
·	()	3	3	0	69,506
		5	5	1	5,000
		7	6	3	26,261

: , '98 , 1999,
, 1999.12

4.5.1.2

가

< 4- 10>

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(:)

		(.)
		: 2,689,989
	: 1,374,731	: 109,088
	: 112,358	: 53,000
	: 9,844	: 1,361,243
		: 56,043
		: 1,104,399
	1,496,939	5,373,762

: , '98 , 1999, , 1999.12

: *

$$= \frac{\cdot}{(+)}$$

$$* \cdot = + + + +$$

* 1,400(/)가

*

137,629 .

4.5.2

15 1

가 , 14 1
가

1

< 4- 11 >

	4,172	4,612	4,164	5,374	12,020	6,444	5,804	7,744	8,928	11,227	8,107	2,079	4,787	7,739	6,910	1,193
	1,299	1,286	1,290	1,497	3,650	2,240	2,031	2,239	2,942	2,905	2,828	121	1,600	2,391	2,384	223
	25,203	23,861	27,921	28,985	79,377	59,142	39,064	36,836	53,549	53,915	50,507	8,240	40,589	25,787	53,601	9,032
	116	143	106	138	107	73	99	153	114	157	107	238	81	209	86	109

: , , , ,

15 1 , 가
(238) , 138 6

가 2,689,989
50% , >

'98 115 23,391,208
(5) 1,271,680(/)
(10 7) 1,387,358(/)¹⁰⁾ , 171

10) , 가 , 1997.5

1,361,243 , 가 21,534(/)
 , , , . ,
 7,451(/) , ,
 778,000 11) .
 , 63,216 ,
 104,415 , ,
 (, : 1,400 , : 1,500
).
 ,
 가 ,

11) , , 1999.12, p.125

4.6

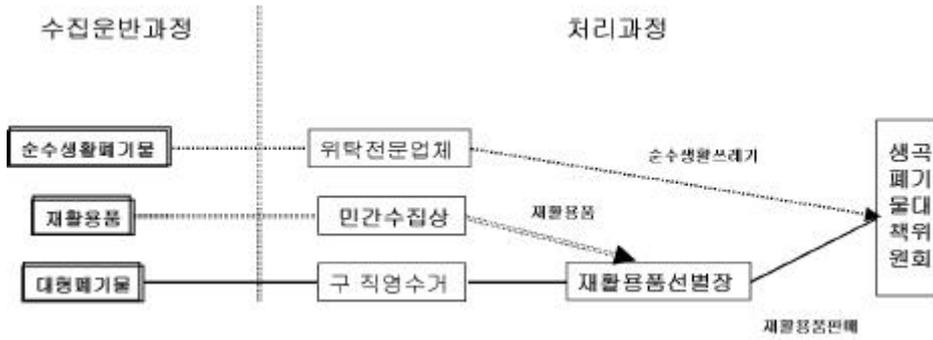
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가
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4.6.1

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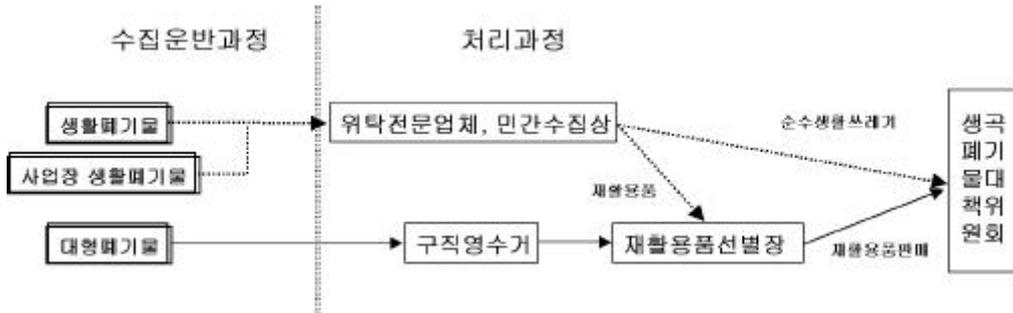
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< 4-8> 1

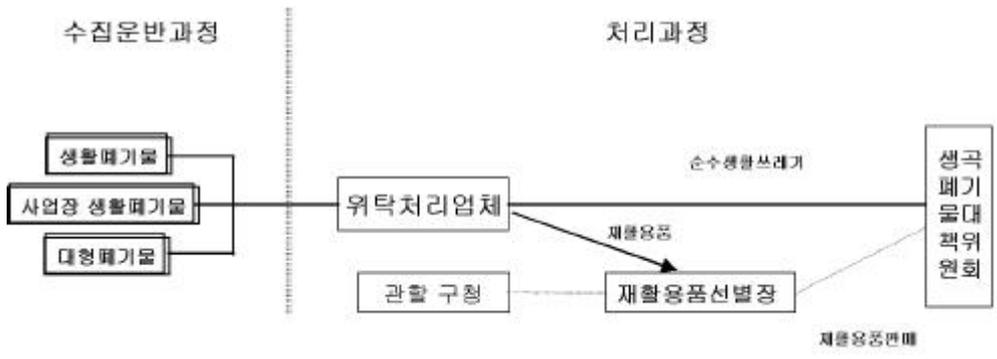
가

가



< 4-9> 2

가 , 가



< 4-10> 3

4.6.2

가

, 가 , , < 1>
 , , < 3> 가
 가 , 가 , < 2>
 가 < 2> .
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4.6.3

< 2>가 가
 . < 2>

< 4- 12>

2

(:)

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	28,985 /	
		: 1,374,731
		: 112,358
		: 9,844
	: 2,689,989	: 1,001,880,864
	: 109,088	: 266,580,000
	: 53,000	: 53,000
	: 1,361,243	: 1,832,315,760
	: 56,043	: 56,043
	: 1,104,399 +	: 1,104,399
	5,373,000	4,314,218,624
	137,629	97,198

: , ,

< 4- 13>

2

	2	2.5ton : 5,140,000 /
	2	(10 7) : 1,387,358 / ,
	4	: 1,300,000 / ,
	5	: 1,300,000 / ,
	2	11.5ton : 8,189,000 /
	2	(10 7) : 1,387,358 / ,
	4	: 1,300,000 / ,
	4	(5) : 1,271,680 / ,
가	48	(5) : 1,271,680 / ,
	63,216	28,985 /

: , (가), 1996,

< 2> 97,198 .
, 3,989,176,565 <
2> 2,817,279,624 , 11
. , , ,
, < 2>가
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가

, 가

가

가

“ ”

가,

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