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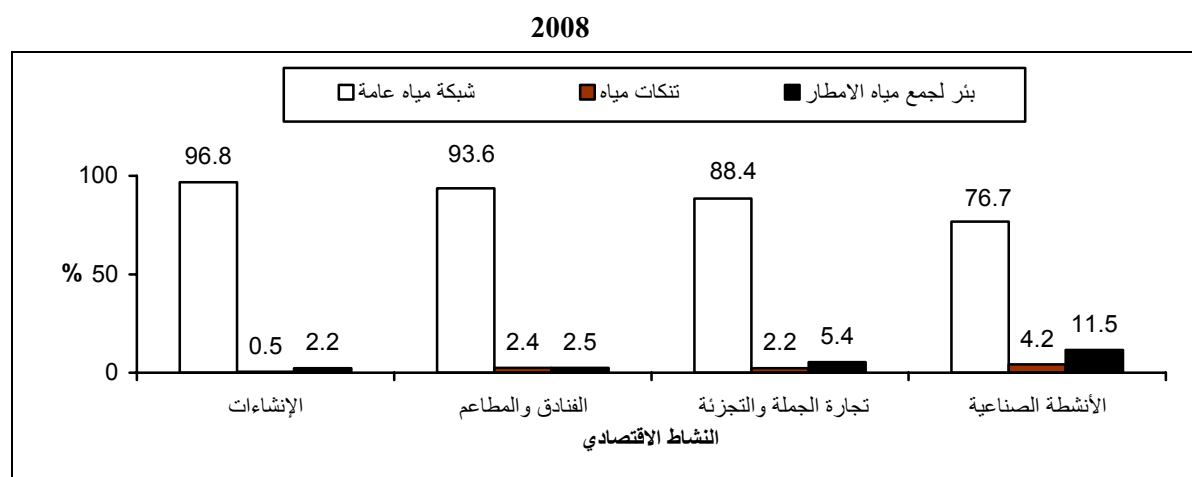
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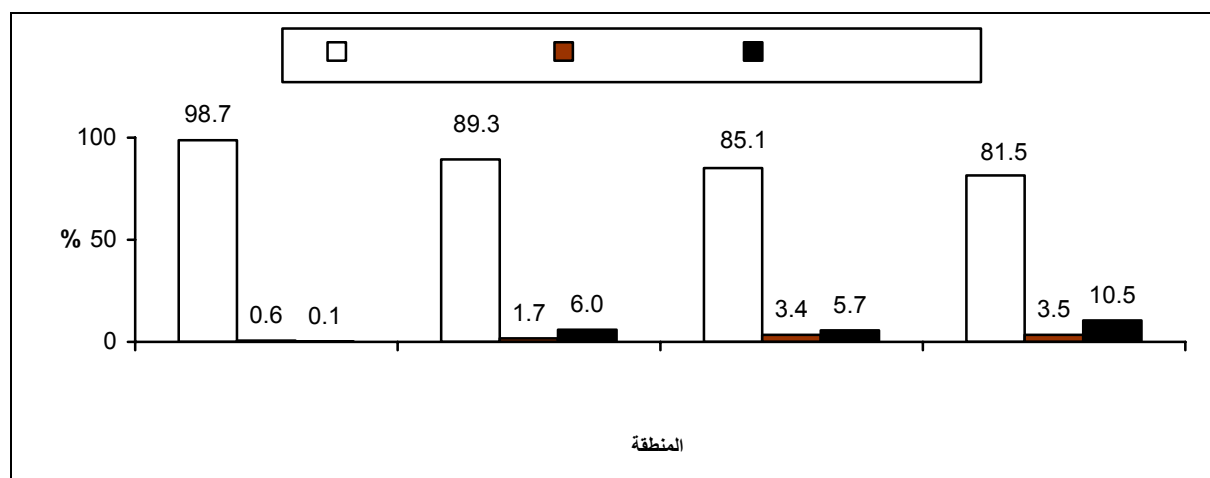
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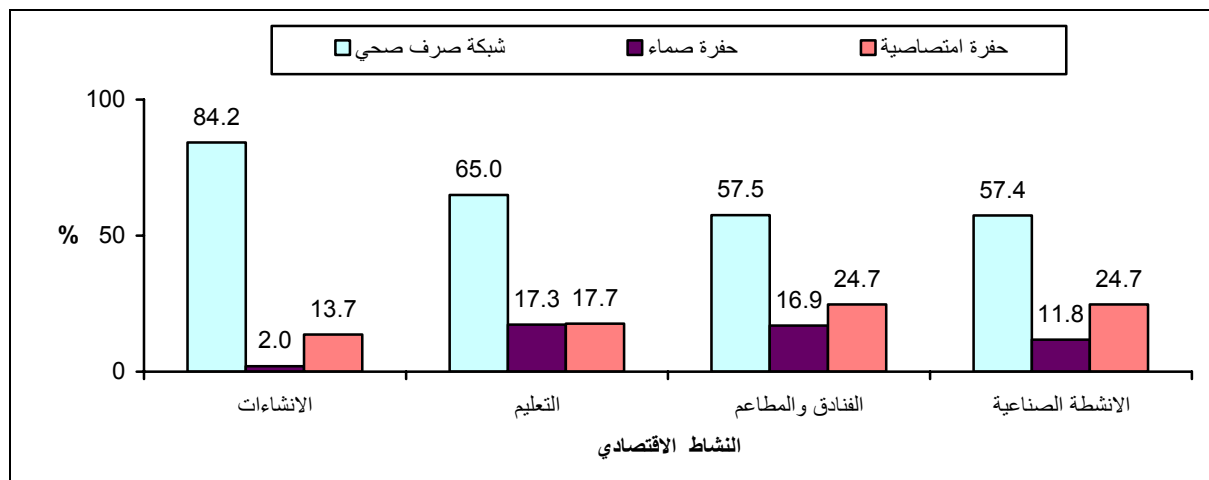
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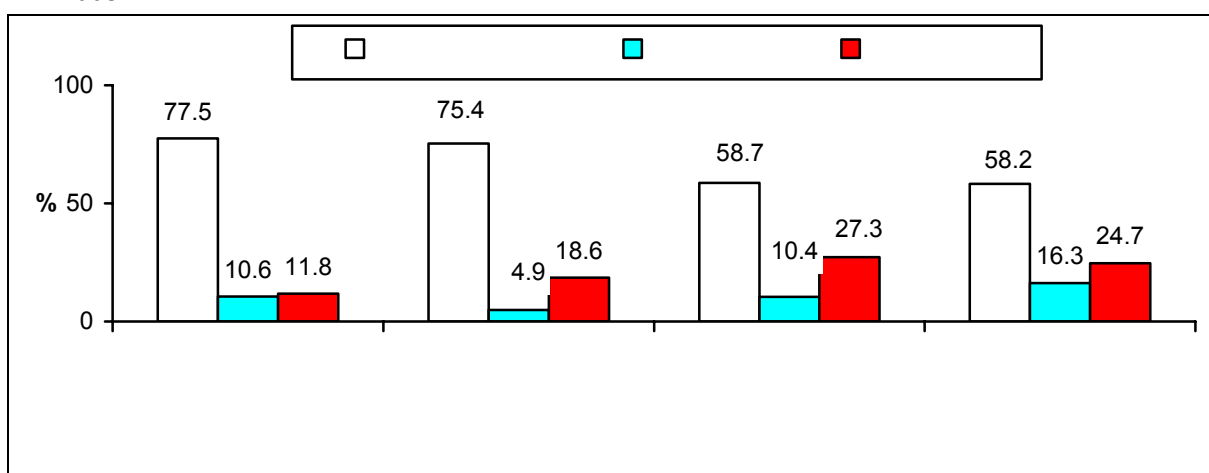


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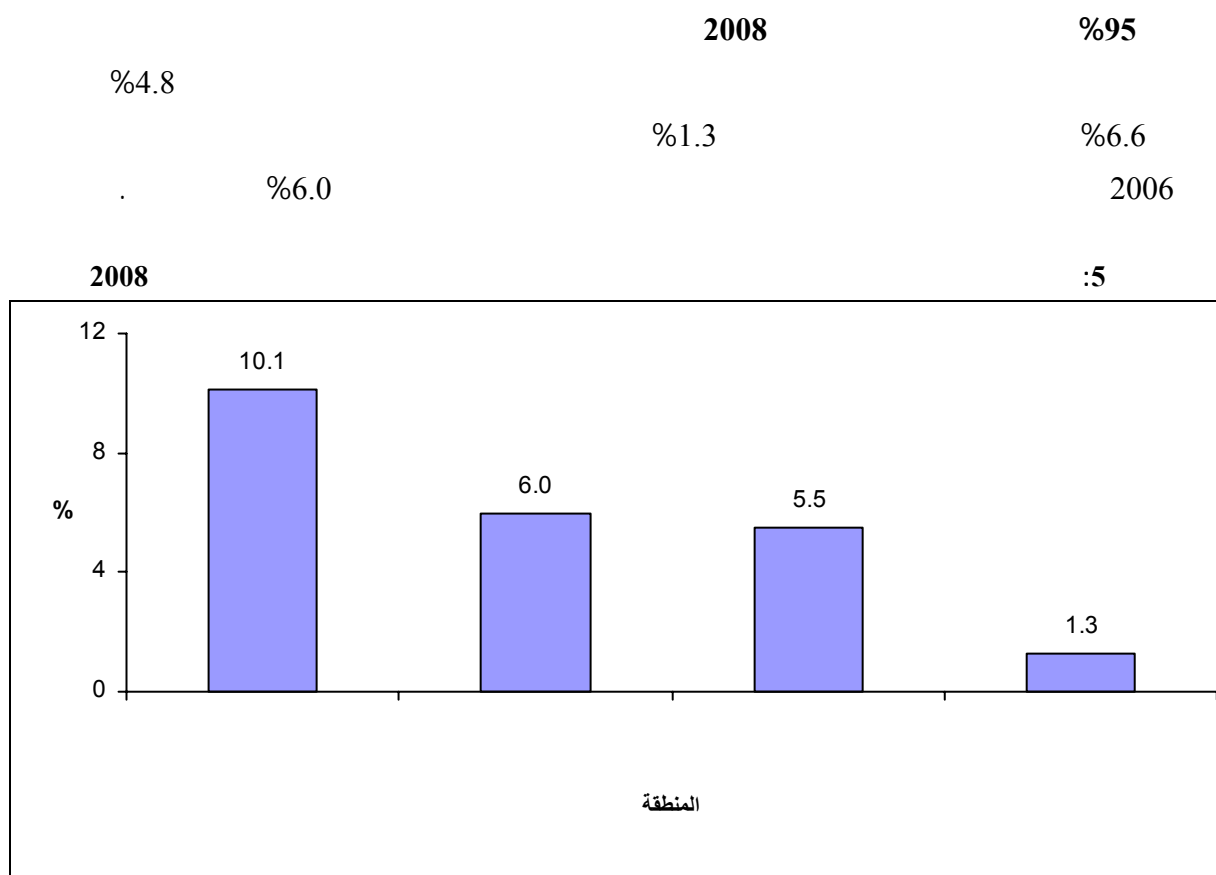
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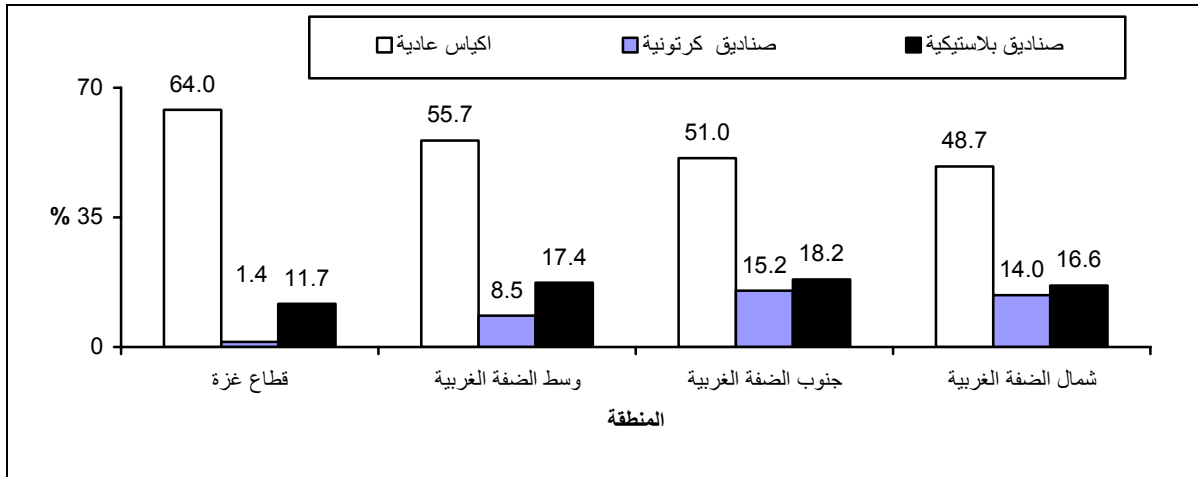
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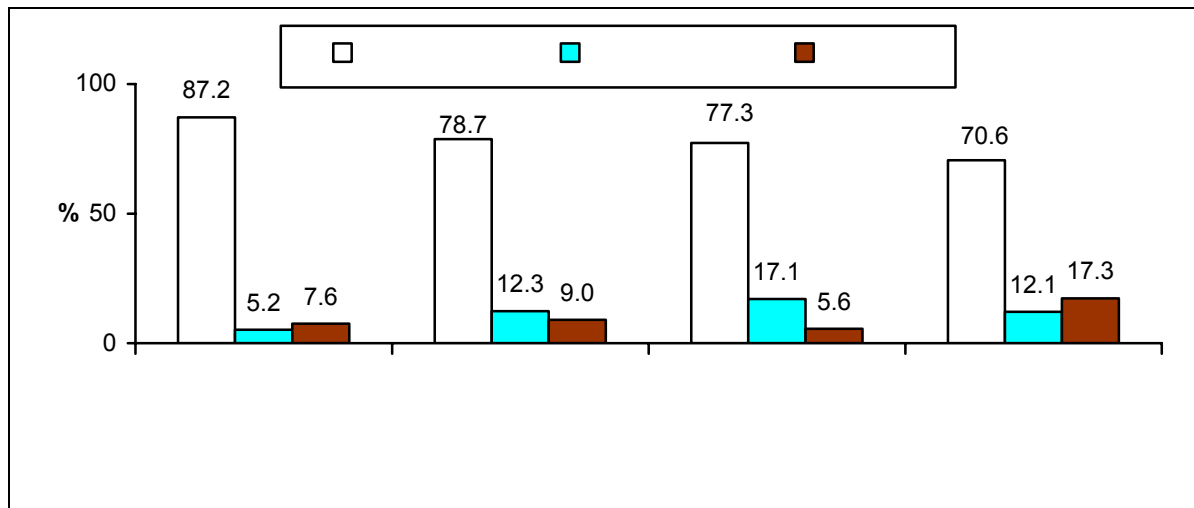
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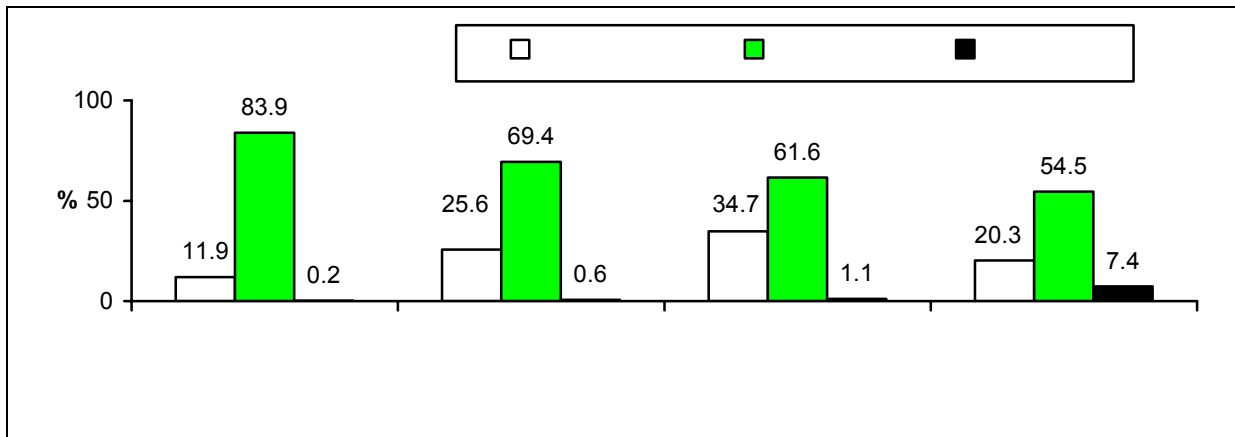
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Tables

Table1: Main Selected Environmental Indicators about the Activity of the Economic Establishments in the Palestinian Territory for the Years 2003, 2004, 2006 and 2008

Indicator	2008	2006	2004	2003	
Percentage Distribution of Economic Establishments by					
Means of obtaining water for normal uses					
Water network	87.5	86.7	93.6	93.2	
Water tanks	2.5	3.4	3.0	1.3	
Collection rain water well	6.1	6.7	2.4	4.1	
Others	3.9	3.2	1.0	1.4	
Wastewater disposal method					
Wastewater network	66.4	66.8	67.9	72.7	
Tight cesspit	10.0	8.2	8.1	3.6	
Porous cesspit	21.9	21.1	20.2	23.6	
Others	1.7	3.9	3.8	0.1	
Solid waste separation existence	4.8	6.0	7.4	9.6	
Component of separated solid Waste					
Paper & cartons	22.2	23.3	24.2	16.3	
Plastic & rubber	14.4	15.1	9.8	10.0	
Glass & metal	17.9	10.5	16.0	14.8	
Soil & stones	2.9	5.0	11.8	19.7	
Food Waste	13.6	18.2	13.1	22.4	
Medical Waste	21.7	24.0	20.5	14.9	
Chemical Waste	7.3	3.9	4.6	1.9	
Doer of transporting solid waste					
The establishment	22.5	9.3	14.5	19.4	
Local Authority	70.4	79.6	76.1	76.1	
Private contractor	1.5	0.8	1.9	0.9	
Others	*5.6	*10.3	7.5	3.6	

*: Others include UNRWA for years 2006 and 2008

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Table 2: Quantity of Consumed Water in the Economic Establishments in the Palestinian Territory by Economic Activity, 2008

Units in thousand cubic meter/month

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Economic activity	Quantity of Consumed Water	
Palestinian Territory	3,452,295.00	
Industrial activities	1,265,495.59	
Constructions	36,241.18	
Whole sale, retail & repairs	860,387.35	
Hotels & restaurants	392,540.94	
Transport, storage & communications	13,575.32	
Real estate, renting & business activities	77,270.53	
Education	119,587.51	
Health & social work	342,783.42	
Community, social & personal services	344,413.16	

2008

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Table 3: Quantity of Consumed Water in the Economic Establishments in the Palestinian Territory by Region, 2008

Units in thousand cubic meter/month

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Region	Quantity of consumed water	
Palestinian Territory	3,452,295.00	
West Bank	2,592,457.15	
North of West Bank	953,444.99	
Middle of West Bank	966,220.89	
South of West Bank	672,791.27	
Gaza Strip	859,837.85	

2008

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Table 4: Percentage Distribution of Economic Establishments in the Palestinian Territory by Means of Obtaining Water and Economic Activity, 2008

Economic activity	Total	Others	Collection rain water well	Water tanks	Water network
Palestinian Territory	100	3.9	6.1	2.5	87.5
Industrial activities	100	7.6	11.5	4.2	76.7
Constructions	100	0.5	2.2	0.5	96.8
Whole sale, retail & repairs	100	4.0	5.4	2.2	88.4
Hotels & restaurants	100	1.5	2.5	2.4	93.6
Transport, storage & communications	100	3.9	5.8	3.0	87.3
Real estate, renting & business activities	100	2.3	5.0	0.6	92.1
Education	100	1.0	4.2	2.0	92.8
Health & social work	100	0.0	3.5	3.5	93.0
Community, social & personal services	100	2.1	4.5	1.8	91.6

2008

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Table 5: Percentage Distribution of Economic Establishments in the Palestinian Territory by Means of Obtaining Water and Region, 2008

Region	Total	Others	Collection rain water well	Water tanks	Water network
Palestinian Territory	100	3.9	6.1	2.5	87.5
West Bank	100	4.3	6.2	2.9	86.6
North of West Bank	100	5.8	5.7	3.4	85.1
Middle of West Bank	100	0.6	0.1	0.6	98.7
South of West Bank	100	4.5	10.5	3.5	81.5
Gaza Strip	100	3.0	6.0	1.7	89.3

2008

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Table 6: Percentage Distribution of Economic Establishments in the Palestinian Territory by Wastewater Disposal Method and Economic Activity, 2008

Economic activity	Total	Others	Porous cesspit	Tight cesspit	Wastewater network	
Palestinian Territory	100	1.7	21.9	10.0	66.4	
Industrial activities	100	6.1	24.7	11.8	57.4	
Constructions	100	0.0	13.7	2.1	84.2	
Whole sale, retail & repairs	100	1.3	21.3	8.3	69.1	
Hotels & restaurants	100	0.9	24.7	16.9	57.5	
Transport, storage & communications	100	1.0	31.8	9.1	58.1	
Real estate, renting & business activities	100	0.5	9.0	10.8	79.7	
Education	100	0.0	17.7	17.3	65.0	
Health & social work	100	0.0	27.9	9.0	63.1	
Community, social & personal services	100	0.0	22.9	13.0	64.1	

2008

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Table 7: Percentage Distribution of Economic Establishments in the Palestinian Territory by Wastewater Disposal Method and Region, 2008

Region	Total	Others	Porous cesspit	Tight cesspit	Wastewater network	
Palestinian Territory	100	1.7	21.9	10.0	66.4	
West Bank	100	2.0	23.4	12.4	62.2	
North of West Bank	100	3.6	27.3	10.4	58.7	
Middle of West Bank	100	0.1	11.8	10.6	77.5	
South of West Bank	100	0.8	24.7	16.3	58.2	
Gaza Strip	100	1.1	18.6	4.9	75.4	

2008

Table 8: Percentage Distribution of Economic Establishments in the Palestinian Territory by Separation of Produced Solid Waste Before Disposal and Region, 2008

Region	Total	No separation	Type of Separation		
			Partial	Total	
Palestinian Territory	100	95.2	3.9	0.9	
West Bank	100	93.4	5.3	1.3	
North of West Bank	100	94.0	5.3	0.7	
Middle of West Bank	100	89.9	7.8	2.3	
South of West Bank	100	94.5	4.0	1.5	
Gaza Strip	100	98.7	1.0	0.3	

2008

Table 9: Estimated Monthly Separated Quantity of Solid Waste in the Economic Establishments in the Palestinian Territory by Economic Activity, 2008

Economic activity	(/) Estimated quantity (Ton/month)	
Palestinian Territory	32,384.8	
Industrial activities	32,015.6	
Constructions	3.8	
Whole sale, retail & repairs	201.4	
Hotels & restaurants	45.7	
Transport, storage & communications	0.0	
Real estate, renting & business activities	1.4	
Education	9.2	
Health & social work	101.8	
Community, social & personal services	5.9	

2008

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Table 10: Percentage Distribution of Economic Establishments in the Palestinian Territory Which Perform Solid Waste Separation by the Component of Separated Solid Waste and Economic Activity, 2008

Economic activity	Total	Chemical waste	* Medical waste*	Food waste	Soil & stones	Glass & metal	Plastic & rubber	Paper & cartons	
Palestinian Territory	100	7.3	21.7	13.6	2.9	17.9	14.4	22.2	
Industrial activities	100	2.9	11.9	15.8	12.4	21.5	13.1	22.4	
Constructions	100	0.2	20.2	19.9	0.0	19.9	19.9	19.9	
Whole sale, retail & repairs	100	10.5	13.5	7.7	0.0	23.2	14.4	30.7	
Hotels & restaurants	100	0.1	4.7	51.4	0.0	0.2	28.8	14.8	
Transport, storage & communications	100	0.0	0.0	0.0	0.0	0.0	0.0	100.0	
Real estate, renting & business activities	100	0.0	0.0	36.8	0.0	15.9	10.5	36.8	
Education	100	7.6	12.3	51.5	0.0	7.6	8.7	12.3	
Health & social work	100	8.4	43.9	9.4	0.0	12.5	13.9	11.9	
Community, social & personal services	100	8.8	27.1	12.9	4.1	16.6	8.8	21.7	

* Medical Waste include sharped, radioactive waste, and infected waste

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2008

Table 11: Percentage Distribution of Economic Establishments in the Palestinian Territory Which Perform Solid Waste Separation by Region and the Component of Separated Solid Waste, 2008

Solid Waste component	Gaza Strip	South of West Bank	Middle of West Bank	North of West Bank	West Bank	Palestinian Territory	
Paper & Cartons	16.5	22.9	37.0	9.5	23.0	22.2	*
Plastic & rubber	21.4	13.8	17.6	9.0	13.5	14.4	
Glass & Metal	11.9	11.2	14.3	30.8	18.8	17.9	
Soil & Stones	8.0	4.0	0.8	1.7	2.2	2.9	
Food Waste	29.6	10.4	16.0	7.6	11.3	13.6	
Medical Waste*	11.2	26.3	9.8	32.9	23.1	21.7	
Chemical Waste	1.4	11.4	4.5	8.5	8.1	7.3	
Total	100	100	100	100	100	100	

* Medical Waste include sharped, radioactive waste, and infected waste

2008

Table 12: Percentage Distribution of Economic Establishments in the Palestinian Territory Which Perform Solid Waste Separation by the Means Where Separated Solid Waste Put in and Economic Activity, 2008

Economic activity	Total	Others	Plastic boxes	Metal boxes	Carton boxes	Special bags	Nylon bags	
Palestinian Territory	100	4.1	16.7	4.2	11.2	10.4	53.4	
Industrial activities	100	15.3	12.6	7.7	11.9	7.9	44.6	
Constructions	100	0.0	19.9	0.0	0.0	0.0	80.1	
Whole sale, retail & repairs	100	0.0	18.8	6.2	4.2	6.7	64.1	
Hotels & restaurants	100	0.0	9.6	0.1	0.2	9.4	80.7	
Transport, storage & communications	100	0.0	50.0	0.0	0.0	0.0	50.0	
Real estate, renting & business activities	100	0.0	0.0	0.0	0.0	10.5	89.5	
Education	100	0.0	2.3	0.0	0.0	7.6	90.1	
Health & social work	100	2.3	22.0	0.6	19.4	17.1	38.6	
Community, social & personal services	100	0.0	0.0	0.0	35.8	8.8	55.4	

2008

Table 13: Percentage Distribution of Economic Establishments in the Palestinian Territory Which Perform Solid Waste Separation by the Means Where Separated Solid Waste Put in and Region, 2008

Region	Total	Others	Plastic boxes	Metal boxes	Carton boxes	Special bags	Nylon bags
Palestinian Territory	100	4.1	16.7	4.2	11.2	10.4	53.4
West Bank	100	3.9	17.4	4.5	12.6	9.7	51.9
North of West Bank	100	6.9	16.6	7.6	14.0	6.2	48.7
Middle of West Bank	100	0.9	17.4	3.9	8.5	13.6	55.7
South of West Bank	100	4.0	18.2	2.5	15.2	9.1	51.0
Gaza Strip	100	6.9	11.7	1.4	1.4	14.6	64.0

2008

Table 14: Percentage Distribution of Economic Establishments in the Palestinian Territory Which Perform Solid Waste Separation by the Periodicity of Separated Solid Waste Collection and Economic Activity, 2008

Periodicity (weekly)

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Economic activity	Total	7 7 times and more	6 -4	3 1 From 1 to 3 times
Palestinian Territory	100	8.2	34.8	57.0
Industrial activities	100	13.1	34.0	52.9
Constructions	100	0.0	100.0	0.0
Whole sale, retail & repairs	100	6.6	35.2	58.2
Hotels & restaurants	100	5.2	74.2	20.6
Transport, storage & communications	100	0.0	0.0	100.0
Real estate, renting & business activities	100	10.5	0.0	89.5
Education	100	0.0	75.4	24.6
Health & social work	100	8.2	29.9	61.9
Community, social & personal services	100	0.0	12.4	87.6

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2008

Table 15: Percentage Distribution of Economic Establishments in the Palestinian Territory Which Perform Solid Waste Separation by the Periodicity of Separated Solid Waste Collection and Region, 2008

Periodicity (weekly)

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Region	Total	7 7 times and more	6 -4	3 1 From 1 to 3 times	
Palestinian Territory	100	8.2	34.8	57.0	
West Bank	100	7.6	32.9	59.5	
North of West Bank	100	7.0	43.2	49.8	
Middle of West Bank	100	12.2	29.7	58.1	
South of West Bank	100	3.8	26.9	69.3	
Gaza Strip	100	12.7	47.9	39.4	

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2008

Table 16: Percentage Distribution of Economic Establishments in the Palestinian Territory Which Perform Solid Waste Separation by the Transportation Method of Separated Solid Waste Inside the Establishment and Economic Activity, 2008

Economic activity	Total	Both methods	Special tools	Manually	
Palestinian Territory	100	3.5	8.9	87.6	
Industrial activities	100	7.6	19.4	73.0	
Constructions	100	20.2	0.0	79.8	
Whole sale, retail & repairs	100	4.3	4.4	91.3	
Hotels & restaurants	100	0.0	0.0	100.0	
Transport, storage & communications	100	0.0	0.0	100.0	
Real estate, renting & business activities	100	0.0	0.0	100.0	
Education	100	0.0	0.0	100.0	
Health & social work	100	0.6	8.4	91.0	
Community, social & personal services	100	0.0	8.3	91.7	

2008

Table 17: Percentage Distribution of Economic Establishments in the Palestinian Territory Which Perform Solid Waste Separation by the Transportation Method of Separated Solid Waste Inside the Establishment and Region, 2008

Region	Total	Both methods	Special tools	Manually
Palestinian Territory	100	3.5	8.9	87.6
West Bank	100	3.3	8.2	88.5
North of West Bank	100	0.3	11.1	88.6
Middle of West Bank	100	8.0	1.7	90.3
South of West Bank	100	1.2	12.0	86.8
Gaza Strip	100	5.2	13.3	81.5

2008

Table 18: Percentage Distribution of Economic Establishments in the Palestinian Territory by the Means Where Non-Separated Solid Waste Put in and Economic Activity, 2008.

Economic activity	Total	Special Plastic boxes	Plastic boxes	Metal boxes	Carton boxes	Special bags	Nylon bags
Palestinian Territory	100	1.8	5.6	3.0	4.6	2.5	82.5
Industrial activities	100	6.3	6.6	9.1	4.6	4.9	68.5
Constructions	100	1.6	1.8	2.0	1.1	2.1	91.4
Whole sale, retail & repairs	100	1.4	6.2	2.6	5.4	2.1	82.3
Hotels & restaurants	100	0.0	1.2	0.0	8.2	4.1	86.5
Transport, storage & communications	100	0.1	11.9	0.0	0.9	2.0	85.1
Real estate, renting & business activities	100	1.8	2.7	0.0	1.9	0.4	93.2
Education	100	0.0	4.1	0.6	1.7	3.3	90.3
Health & social work	100	0.0	8.3	0.0	1.2	3.5	87.0
Community, social & personal services	100	0.0	1.7	0.5	1.4	1.4	95.0

2008

Table 19: Percentage Distribution of Economic Establishments in the Palestinian Territory by the Means Where Non-Separated Solid Waste Put in and Region, 2008

Region	Total	Others	Plastic boxes	Metal boxes	Carton boxes	Special bags	Nylon bags
Palestinian Territory	100	1.8	5.6	3.0	4.6	2.5	82.5
West Bank	100	1.7	3.2	2.0	4.8	2.9	85.4
North of West Bank	100	0.6	0.4	1.9	6.1	3.6	87.4
Middle of West Bank	100	0.2	3.1	0.9	3.2	4.7	87.9
South of West Bank	100	3.7	7.6	2.5	3.6	1.1	81.5
Gaza Strip	100	2.1	10.1	4.9	4.2	1.9	76.8

2008

Table 20: Percentage Distribution of Economic Establishments in the Palestinian Territory by the Transportation Method of Non-Separated Solid Waste Inside the Establishment and Economic Activity, 2008

Economic activity	Total	Both methods	Special tools	Manually
Palestinian Territory	100	2.1	2.2	95.7
Industrial activities	100	4.6	7.4	88.0
Constructions	100	0.5	1.6	97.9
Whole sale, retail & repairs	100	2.3	1.4	96.3
Hotels & restaurants	100	2.1	0.0	97.9
Transport, storage & communications	100	0.0	0.3	99.7
Real estate, renting & business activities	100	0.0	1.3	98.7
Education	100	0.1	1.1	98.8
Health & social work	100	0.2	0.9	98.9
Community, social & personal services	100	0.0	1.3	98.7

2008

Table 21: Percentage Distribution of Economic Establishments in the Palestinian Territory by the Transportation Method of Non-Separated Solid Waste Inside the establishment and Region, 2008

Region	Total	Both methods	Special tools	Manually	
Palestinian Territory	100	2.1	2.2	95.7	
West Bank	100	2.0	2.7	95.3	
North of West Bank	100	1.5	2.9	95.6	
Middle of West Bank	100	0.2	0.3	99.5	
South of West Bank	100	3.3	3.6	93.1	
Gaza Strip	100	2.6	1.1	96.3	

2008

Table 22: Percentage Distribution of Economic Establishments in the Palestinian Territory by the Periodicity of Non-Separated Solid Waste Collection and Economic Activity, 2008

Periodicity (weekly)

()

Economic activity	Total	7 7 times and more	6 - 4	3 1 From 1 to 3 times	
Palestinian Territory	100	7.9	35.2	56.9	
Industrial activities	100	8.1	27.9	64.0	
Constructions	100	3.0	22.6	74.4	
Whole sale, retail & repairs	100	6.9	39.1	54.0	
Hotels & restaurants	100	22.5	28.4	49.1	
Transport, storage & communications	100	4.1	19.4	76.5	
Real estate, renting & business activities	100	5.1	27.7	67.2	
Education	100	8.1	42.8	49.1	
Health & social work	100	10.5	43.1	46.4	
Community, social & personal services	100	7.4	25.4	67.2	

2008

:23

Table 23: Percentage Distribution of Economic Establishments in the Palestinian Territory by the Periodicity of Non-Separated Solid Waste Collection and Region, 2008

Periodicity (weekly)

()

Region	Total	7 7 times and more	6 -4	3 1 From 1 to 3 times	
Palestinian Territory	100	7.9	35.2	56.9	
West Bank	100	9.5	33.1	57.4	
North of West Bank	100	8.4	30.8	60.8	
Middle of West Bank	100	9.5	26.7	63.8	
South of West Bank	100	11.1	40.4	48.5	
Gaza Strip	100	4.4	39.7	55.9	

2008

:24

Table 24: Selected Indicators for the Solid Waste Treatment in the Economic Establishments in the Palestinian Territory, 2008

Indicator	value	
Percentage of Economic Establishments by Presence of Solid Waste Treatment	0.1	
Percentage Distribution of Economic Establishments that Perform Treatment by Type of Treatment		:
Open burning	43.9	
Buried	16.9	
Chemical treatment	18.0	
Mechanical treatment	19.2	
Others	2.0	
Total	100	
Percentage Distribution of Economic Establishments that Perform Treatment by Doer of Treatment		
The establishment	75.8	
Other establishment	18.8	
Both	5.4	
Total	100	

2008

:25

Table 25: Percentage Distribution of Economic Establishments in the Palestinian Territory by the Solid Waste Collection Mean Inside the Establishment and Economic Activity, 2008

Economic activity	Total	Without container	Establishment closed container	Establishment open container	Municipality closed container	Municipality open container	
Palestinian Territory	100	10.2	3.7	8.6	6.0	71.5	
Industrial activities	100	26.3	2.5	7.2	8.1	55.9	
Constructions	100	7.1	3.3	7.2	6.8	75.6	
Whole sale, retail & repairs	100	7.7	1.5	7.7	4.3	78.8	
Hotels & restaurants	100	8.2	6.9	13.8	10.5	60.6	
Transport, storage & communications	100	2.6	5.2	11.4	5.0	75.8	
Real estate, renting & business activities	100	5.1	10.1	5.6	4.5	74.7	
Education	100	3.3	6.9	16.1	10.8	62.9	
Health & social work	100	5.8	7.7	8.0	11.9	66.6	
Community, social & personal services	100	8.8	12.5	13.6	8.1	57.0	

2008

:26

Table 26: Percentage Distribution of Economic Establishments in the Palestinian Territory by the Solid Waste Collection Mean Inside the Establishment and Region, 2008

Region	Total	Without container	Establishment closed container	Establishment open container	Municipality closed container	Municipality open container	
Palestinian Territory	100	10.2	3.7	8.6	6.0	71.5	
West Bank	100	12.6	2.3	7.6	7.8	69.7	
North of West Bank	100	17.3	1.6	10.5	6.9	63.7	
Middle of West Bank	100	9.0	4.8	7.5	12.4	66.3	
South of West Bank	100	7.6	1.8	3.4	6.3	80.9	
Gaza Strip	100	5.6	6.6	10.5	2.2	75.1	

2008

Table 27: Percentage Distribution of Economic Establishments in the Palestinian Territory by the Used Container Material Construction and Economic Activity, 2008

Economic activity	Total	Others	Plastic	Metal	
Palestinian Territory	100	0.5	11.7	87.8	
Industrial activities	100	1.3	9.2	89.5	
Constructions	100	0.0	6.9	93.1	
Whole sale, retail & repairs	100	0.4	9.2	90.4	
Hotels & restaurants	100	0.0	14.5	85.5	
Transport, storage & communications	100	0.0	19.9	80.1	
Real estate, renting & business activities	100	0.0	19.8	80.2	
Education	100	0.0	16.1	83.9	
Health & social work	100	0.0	13.6	86.4	
Community, social & personal services	100	0.5	24.7	74.8	

2008

Table 28: Percentage Distribution of Economic Establishments in the Palestinian Territory by the Used Container Material Construction and Region, 2008

Region	Total	Others	Plastic	Metal	
Palestinian Territory	100	0.5	11.7	87.8	
West Bank	100	0.7	11.4	87.9	
North of West Bank	100	1.4	15.6	83.0	
Middle of West Bank	100	0.0	12.3	87.7	
South of West Bank	100	0.2	5.1	94.7	
Gaza Strip	100	0.0	12.5	87.5	

2008

:29

Table 29: Percentage Distribution of Economic Establishments in the Palestinian Territory by the Used Container Volume and Economic Activity, 2008

Economic activity	Total	() Container volume (m ³)			
		7 7 and more	6 -4	3-1	
Palestinian Territory	100	6.6	31.3	62.1	
Industrial activities	100	9.0	38.4	52.6	
Constructions	100	2.8	16.6	80.6	
Whole sale, retail & repairs	100	6.2	29.5	64.3	
Hotels & restaurants	100	9.4	36.6	54.0	
Transport, storage & communications	100	6.6	37.5	55.9	
Real estate, renting & business activities	100	4.0	34.6	61.4	
Education	100	4.1	39.2	56.7	
Health & social work	100	6.2	36.2	57.6	
Community, social & personal services	100	6.6	25.5	67.9	

2008

:30

Table 30: Percentage Distribution of Economic Establishments in the Palestinian Territory by the Used Container Volume and Region, 2008

Region	Total	() Container volume (m ³)			
		7 7 and more	6 -4	3 -1	
Palestinian Territory	100	6.6	31.3	62.1	
West Bank	100	8.3	31.1	60.6	
North of West Bank	100	3.8	21.8	74.4	
Middle of West Bank	100	13.9	34.8	51.3	
South of West Bank	100	11.1	41.3	47.6	
Gaza Strip	100	3.2	31.9	64.9	

2008

:31

Table 31: Percentage Distribution of Economic Establishments in the Palestinian Territory by the Solid Waste Collection Place, Distance Between Establishment and Waste Collection Place and Economic Activity, 2008

Economic activity	Total	() Distance between establishment and the solid waste collection place (m)			Total	Outside establishment	Inside establishment square	Inside establishment building	
		151 151 and more	150 - 51	50 50 and Less					
Palestinian Territory	100	11.5	22.3	66.2	100	35.0	20.4	44.6	
Industrial activities	100	15.2	29.8	55.0	100	33.0	20.3	46.7	
Constructions	100	0.0	20.3	79.7	100	24.6	31.8	43.6	
Whole sale, retail & repairs	100	10.4	21.0	68.6	100	37.8	21.7	40.5	
Hotels & restaurants	100	0.0	46.2	53.8	100	29.1	19.8	51.1	
Transport, storage & communications	100	54.1	9.7	36.2	100	44.6	5.8	49.6	
Real estate, renting & business activities	100	0.0	20.1	79.9	100	33.3	9.8	56.9	
Education	100	15.1	25.3	59.6	100	23.0	31.9	45.1	
Health & social work	100	30.1	8.1	61.8	100	32.4	18.3	49.3	
Community, social & personal services	100	9.0	15.2	75.8	100	27.0	15.8	57.2	

2008

:32

Table 32: Percentage Distribution of Economic Establishments in the Palestinian Territory by the Waste Collection Place, Distance Between Establishment and Waste Collection Place and Region, 2008

Region	Total	() Distance between establishment and the solid waste collection place (m)			Total	Outside establishment	Inside establishment square	Inside establishment building	
		151 151 and more	150 - 51	50 50 and Less					
Palestinian Territory	100	11.5	22.3	66.2	100	35.0	20.4	44.6	
West Bank	100	2.0	19.9	78.1	100	31.4	18.6	50.0	
North of West Bank	100	2.5	19.4	78.1	100	38.9	17.7	43.4	
Middle of West Bank	100	1.0	19.0	80.0	100	48.7	18.6	32.7	
South of West Bank	100	2.4	25.1	72.5	100	9.7	20.1	70.2	
Gaza Strip	100	26.3	26.0	47.7	100	42.6	24.0	33.4	

2008

Table 33: Percentage Distribution of Economic Establishments in the Palestinian Territory by the Doer of Solid Waste Disposal and Economic Activity, 2008

Economic activity	Total	Others	UNRWA	Private contractor	Local Authority	The establishment	
Palestinian Territory	100	3.1	2.5	1.5	70.4	22.5	
Industrial activities	100	5.8	1.4	2.1	54.8	35.9	
Constructions	100	0.0	1.8	0.5	82.3	15.4	
Whole sale, retail & repairs	100	2.5	1.9	0.9	75.0	19.7	
Hotels & restaurants	100	4.1	7.3	2.8	62.6	23.2	
Transport, storage & communications	100	3.0	3.4	1.3	77.6	14.7	
Real estate, renting & business activities	100	3.4	2.5	3.8	68.6	21.7	
Education	100	4.4	3.4	2.8	67.2	22.2	
Health & social work	100	2.9	2.6	2.6	73.8	18.1	
Community, social & personal services	100	1.6	5.9	1.6	69.2	21.7	

2008

:34

Table 34: Percentage Distribution of Economic Establishments in the Palestinian Territory by the Doer of Solid Waste Disposal and Region, 2008

Region	Total	Others	UNRWA	Private contractor	Local Authority	The establishment	
Palestinian Territory	100	3.1	2.5	1.5	70.4	22.5	
West Bank	100	4.3	2.1	2.1	64.0	27.5	
North of West Bank	100	2.3	2.1	0.6	69.4	25.6	
Middle of West Bank	100	*16.3	1.5	7.4	54.5	20.3	
South of West Bank	100	0.2	2.4	1.1	61.6	34.7	
Gaza Strip	100	0.6	3.4	0.2	83.9	11.9	

*: the high percent of others refer to Jerusalem municipality

:*

2008

Table 35: Percentage Distribution of Economic Establishments in the Palestinian Territory by the Solid Waste Final Disposal Place and Economic Activity, 2008

Economic activity	Total	Others	Disposed randomly	Private dumping site	Local Authority dumping site	
Palestinian Territory	100	3.1	2.0	10.4	84.5	
Industrial activities	100	8.1	7.4	16.5	68.0	
Constructions	100	0.0	0.0	5.5	94.5	
Whole sale, retail & repairs	100	2.3	1.0	8.2	88.5	
Hotels & restaurants	100	2.6	1.4	12.6	83.4	
Transport, storage & communications	100	1.4	0.0	9.0	89.6	
Real estate, renting & business activities	100	1.4	0.9	8.4	89.3	
Education	100	3.6	0.3	11.1	85.0	
Health & social work	100	2.4	0.3	8.3	89.0	
Community, social & personal services	100	1.4	2.0	15.9	80.7	

2008

:36

Table 36: Percentage Distribution of Economical Establishment in the Palestinian Territory by the Solid Waste Final Disposal Place and Region, 2008

Region	Total	Others	Disposed randomly	Private dumping site	Local Authority dumping site	
Palestinian Territory	100	3.1	2.0	10.4	84.5	
West Bank	100	4.3	2.5	12.8	80.4	
North of West Bank	100	4.0	2.6	12.2	81.2	
Middle of West Bank	100	10.8	2.8	19.2	67.2	
South of West Bank	100	0.6	2.2	9.9	87.3	
Gaza Strip	100	0.8	1.0	5.3	92.9	

2008

Table 37: Percentage Distribution of Economic Establishments in the Palestinian Territory by the Periodicity of Non-Separated Solid Waste Collection and Economic Activity, 2008

Periodicity (weekly)

()

Economic activity	Total	7 7 times and more	6 - 4	3 1 From 1 to 3 times	
Palestinian Territory	100	15.4	40.3	44.3	
Industrial activities	100	13.5	37.7	48.8	
Constructions	100	17.7	24.2	58.1	
Whole sale, retail & repairs	100	15.4	40.0	44.6	
Hotels & restaurants	100	27.1	47.6	25.3	
Transport, storage & communications	100	15.8	45.4	38.8	
Real estate, renting & business activities	100	14.0	42.1	43.9	
Education	100	12.8	45.6	41.6	
Health & social work	100	20.6	37.7	41.7	
Community, social & personal services	100	11.6	42.1	46.3	

2008

:38

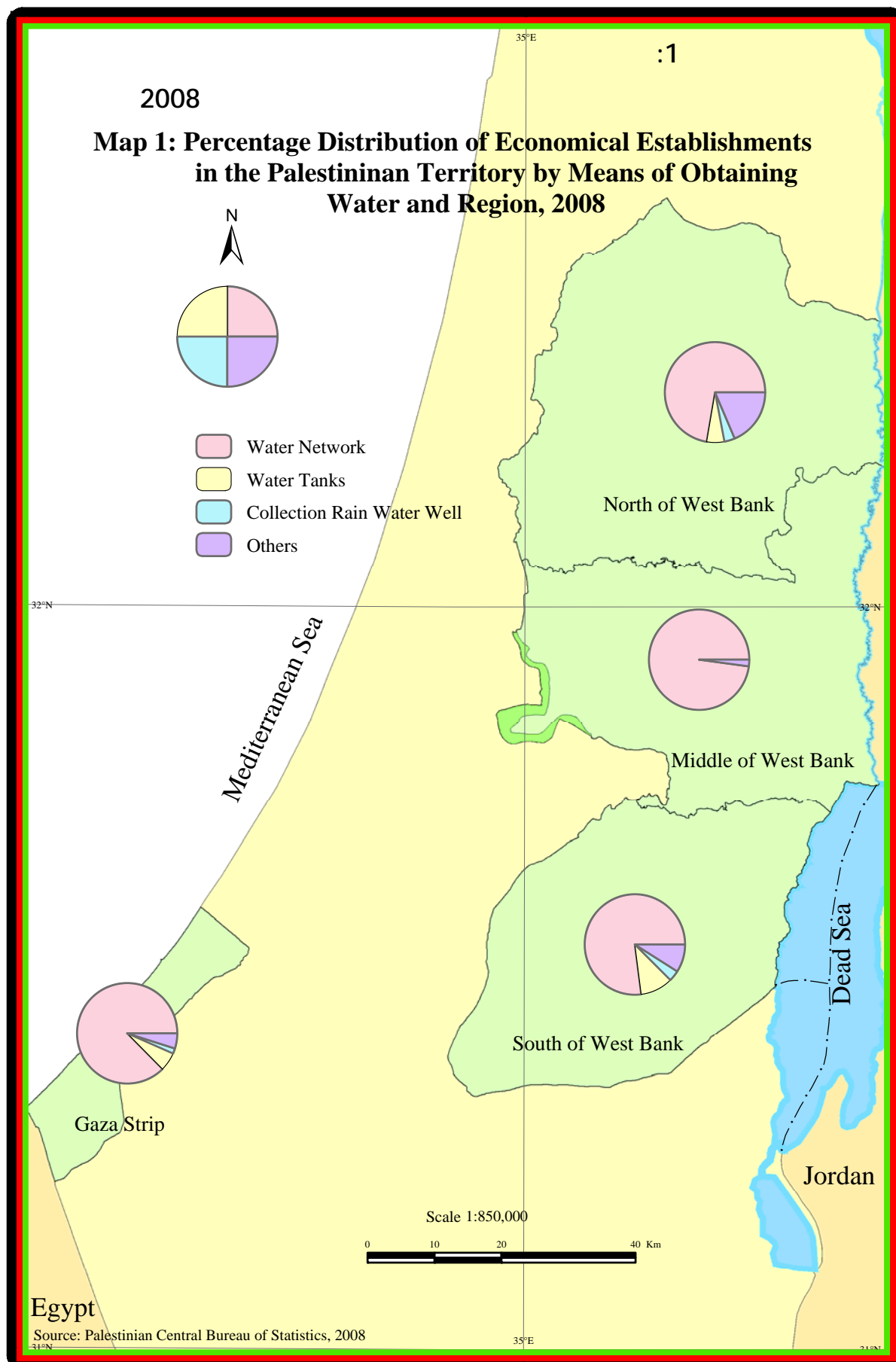
Table 38: Percentage Distribution of Economic Establishments in the Palestinian Territory by the Periodicity of Non-Separated Solid Waste Collection and Region, 2008

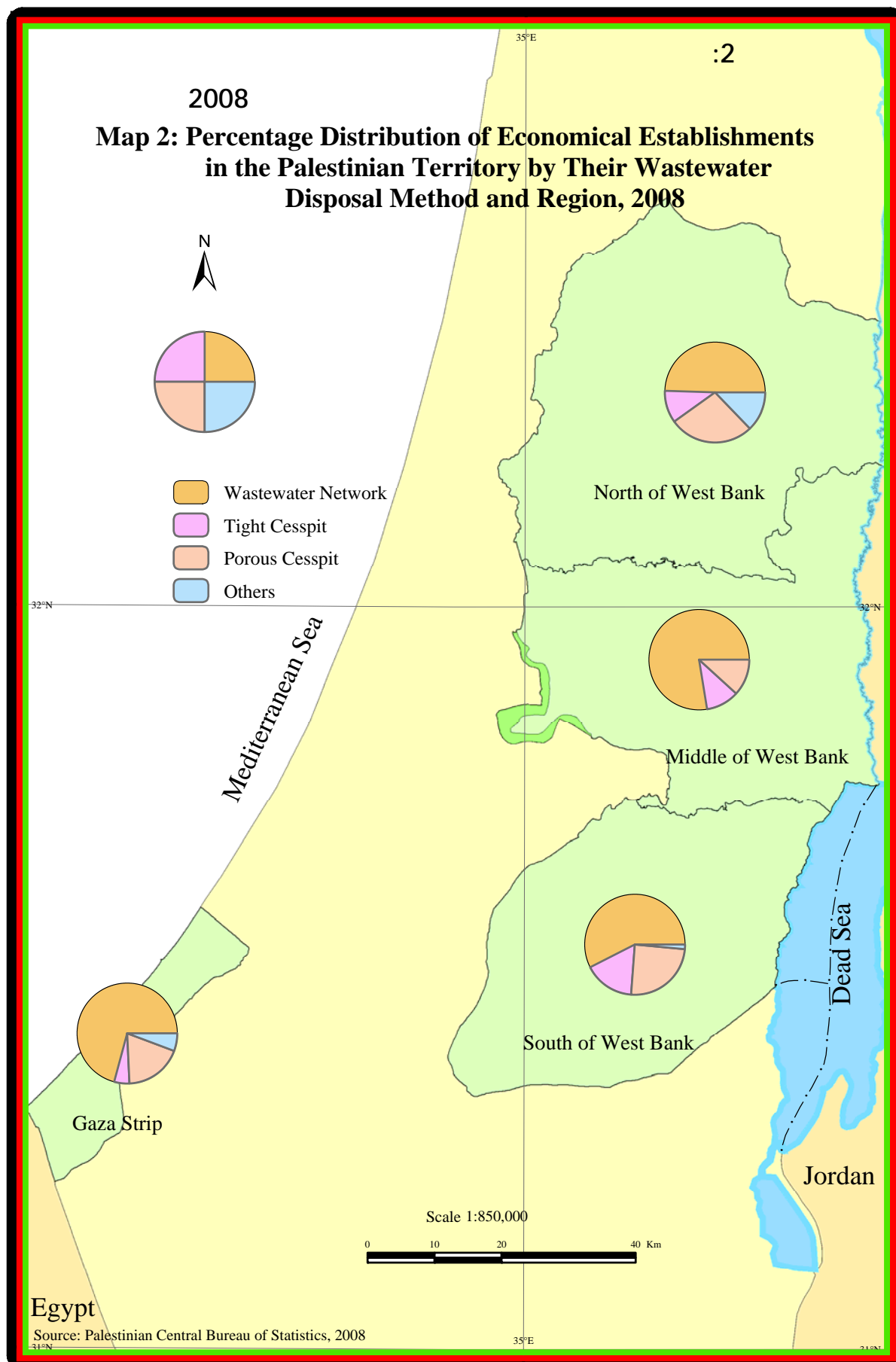
Periodicity (weekly)

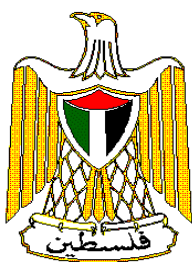
()

Region	Total	7 7 times and more	6 - 4	3 1 From 1 to 3 times	
Palestinian Territory	100	15.4	40.3	44.3	
West Bank	100	18.7	40.3	41.0	
North of West Bank	100	19.2	38.4	42.4	
Middle of West Bank	100	17.4	45.8	36.8	
South of West Bank	100	18.8	39.8	41.4	
Gaza Strip	100	8.6	40.1	51.3	

Maps







Palestinian National Authority Palestinian Central Bureau of Statistics

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November, 2008

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Preface

The world attention has increased to provide environmental statistics in the economic sector. Providing such data participates in policy making and legislation that reduces the pressure on the environment. As in the rest of the world, the attention has greatly been increased in the Palestinian Territory to provide such data after many years of environment negligence and the absence of standards and rules during the period of the Israeli occupation.

We are pleased to publish this specialized statistical report about environment situation in the economic establishments in the Palestinian Territory. This report presents the main findings of the Environmental Economic Survey 2008. This survey is part of our official effort for creating and establishing the National Statistical System, and providing the necessary statistics to Palestinian policy-planners and decision-makers in environment and natural resources sector.

PCBS conducted the Environmental Economic Survey during the period 20/04/2008 to 03/08/2008, the main objective of the survey is to provide reliable data of environmental reality on the economic establishments in the Palestinian Territory, including the methods used to handle the solid waste and wastewater. It includes also the role of the local authority in providing the suitable environment that will reduce the negative effect of the different types of pollution on the economic sector.

This report presents the main findings of the Environmental Economic Survey. It is one of a series of expected reports to be published by PCBS on the environment and natural resources in Palestine according to the plan for the Environment Statistical Department, as a tool for describing the status of environment in the Palestinian Territory.

This report presents statistical data of water consumption in the economic establishments by water source, the methods of solid waste disposal and their main components, and the disposal of wastewater.

PCBS hopes that the main findings of this survey will contribute in improving the environmental status and minimizing the random depletion of natural resources, in addition to providing reliable and useful statistics for Palestinian planners and decision-makers.

November, 2008

Luay Shabaneh, Ph.D
President

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Executive Summary

The Palestinian Central Bureau of Statistics implemented the Environmental Economic Survey during the period 20/04/2008 to 03/08/2008. The survey aimed at covering the whole economic sectors. It provides data on the main indicators of environment in the economic establishments, including water, management of solid waste and wastewater.

Results show that the average quantity of water consumed by establishments in the Palestinian Territory in 2008 was 3,452.3 thousand cubic meters per month. The average quantity of water consumed by the industrial sector (mining and quarrying, manufacturing, and water, electricity and gas supplies) establishments was 1,265.5 thousand cubic meters per month compared with 13.6 thousand cubic meters per month for transport, storage and communication establishments.

The main source for obtaining water for the establishments in the Palestinian Territory was the public water network; 87.5% used this source compared with 86.7% in 2006. The percentage of economic establishments in industrial activities of the total establishments that used the water network to obtain water was 76.7%, compared with 93.0% in the health and social work.

The percentage of establishments in the Palestinian Territory in 2008 that used the wastewater network to dispose wastewater was 66.4%, compared with 21.9% using porous cesspits. The percentage of establishments that used the wastewater network according to economic activities was 84.2% for construction establishments and 57.4% for industrial activities establishments. The percentage of economic establishments in the Palestinian Territory that used wastewater network to dispose their wastewater in the previous years; were 66.8% in 2006 and 67.9% in 2004.

The percentage of establishments that separate solid waste in the Palestinian Territory in 2008 was 4.8% compared with 6.0% in 2006. On the regional level, there is 6.6% of the establishments in the West Bank and 1.3% in Gaza Strip that separate its solid waste.

Data reveal that the paper and cartons ranked first among the separated solid waste components, with 22.2% of the economic establishments in the Palestinian Territory in 2008, followed by medical waste, including sharps, radioactive waste, and infected waste, (21.7%) and Glass & Metal (17.9%). Geographically, separation of medical waste ranks first among the separated solid waste components of the total establishments in the West Bank (23.1%), whereas food waste ranks first in the Gaza Strip (29.6%). These percentages differ slightly from the 2006 data.

The percentage of the establishments in the Palestinian Territory in 2008 that dispose its solid waste by itself was 22.5%, whereas the percentage of the establishments which is served by local authority disposal services was 70.4%. Also, data show that, 27.5% of the total establishments in the West Bank dispose its solid waste by itself compared with 11.9% of the total establishments in Gaza Strip. These figures indicate that the percentage of economic establishments in the Palestinian Territory that dispose its solid waste by itself increased in 2008 (22.5%) compared with 9.3% in 2006.

Chapter One

Introduction

1.1 Introduction

This report provides statistical data on the main environmental indicators for the economic establishments in the Palestinian Territory, based on the Environmental Economic survey which was implemented during the period 20/04/2008 to 03/08/2008.

1.2 Survey Objectives

The main objective of the survey is to provide reliable data of environmental reality on the economic establishments in the Palestinian Territory, including the methods used to handle water, solid waste and wastewater. It includes also the role of the local authority in providing the suitable environment that will reduce the negative effect of the different types of pollution on the economic sector.

1.3 Report Structure

This report is divided into five chapters; the first chapter contains the introduction, aims and report structure. The second chapter contains the concepts and definitions in this report. The third chapter defines the main findings of the report. The fourth chapter explains the methodology of collecting and tabulated. The fifth chapter handles data quality through spreading the main notes on the data and estimations of the data sources of this report.

Chapter Two

Concepts and Definitions

Wastewater Network

System of collectors, pipelines, conduits and pumps to evacuate wastewater (rainwater, domestic and other wastewater) from any of the location paces generation either to municipal sewage treatment plant or to a location place where wastewater is discharged.

Solid Waste Disposal

Ultimate deposition or placement of refuse that is not salvaged or recycled.

Wastewater

Used water, typically discharged into the sewage system. It contains matter and bacteria in solution or suspension.

Dumping Site

Site used to dispose of solid wastes without environmental control.

Solid Waste

Useless and sometimes hazardous material with low liquid content, solid wastes include municipal garbage, industrial and commercial waste, sewage sludge, wastes resulting from agricultural and animal husbandry operations and other connected activities, demolition wastes and mining residues.

Pharmaceutical Waste

This includes pharmaceutical products, drugs and chemicals, which have been returned from wards, have been spilled or soiled, are out of date or contaminated, or are to be discarded for any reason.

Waste Collection

Collection or transport of waste to the place of treatment or discharge by municipal services or similar institutions, or by public or governmental and non-governmental corporations, specialized enterprises or general government. Collection of municipal waste may be selective, that's to say carried out for a specific type of product, or undifferentiated, in other words, covering all kinds of waste at the same time.

Open Burning

Out door burning of wastes such as lumber, scrapped cars, textiles, sawdust and so forth.

Cesspit

A well or a pit in which night soil and other refuse is stored, constructed with either tight or porous walls.

Establishment

An enterprise or part of an enterprise in which one group of goods and services is produced (with the possibility of having secondary activities).

Public Water Network

Is a network of main sub-assembly pipes expanded in the locality for the purpose of population distribution and delivery of potable water.

Wastewater Treatment

Process to render wastewater fit to meet environmental standards or other quality norms. Three broad types of treatment may be distinguished: mechanical, biological, and advanced.

A set of special symbols was used in the tables of this report

(-): Nil

(0): The value is less than (0.05)

Chapter Three

Main Findings

This chapter presents the main findings of the report, including the main environmental indicators for economic establishments in the Palestinian Territory in 2008.

3.1 Water

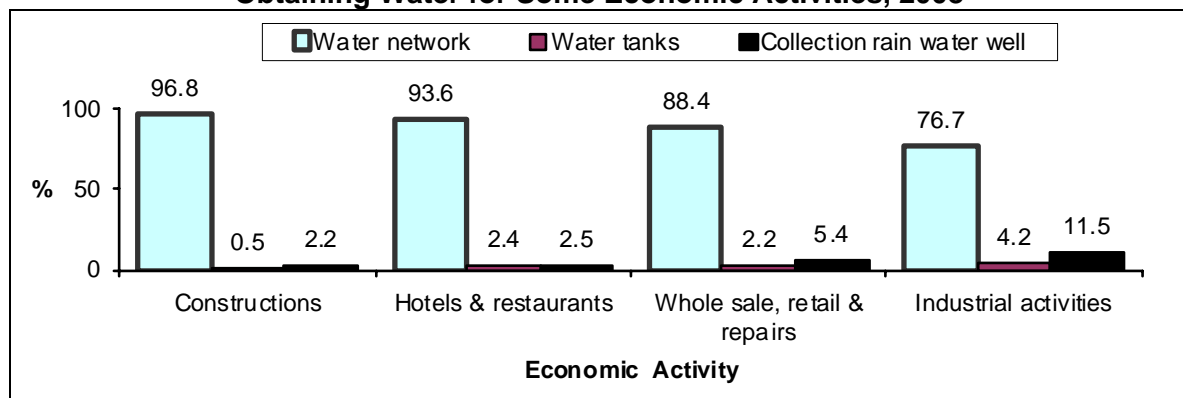
Economic establishments consumed around 3,400 thousands m³/month of water

Survey results show that the average quantity of water consumed by establishments in the Palestinian Territory in 2008 was 3,452.3 thousand cubic meters per month. The average quantity of water consumed by the industrial sector (mining and quarrying, manufacturing, and water, electricity and gas supplies) establishments was 1,265.5 thousand cubic meters per month compared with 13.6 thousand cubic meters per month for transport, storage and communication establishments. Geographically, the average quantity of water consumed by the establishments in the West Bank was 2,592.5 thousand cubic meters per month, and 859.8 thousand cubic meters per month in Gaza Strip.

Water network is the main sources of water

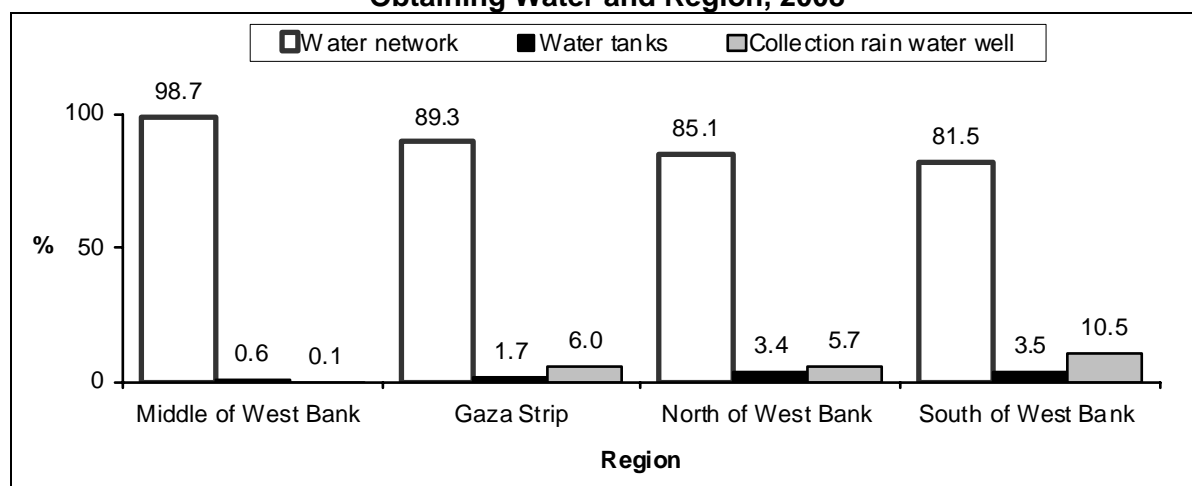
Results show that the main source for obtaining water for the establishments in the Palestinian Territory in 2008 was the public water network; 87.5% used this source compared with 86.7% in 2006. The percentage of economic establishments in industrial activities of the total establishments that used the water network to obtain water was 76.7%, compared with 93.0% in the health and social work.

Figure 1: Percentage of Establishments in the Palestinian Territory by Means of Obtaining Water for Some Economic Activities, 2008



Geographically, the percent of establishments that obtain water from the public water network in the West Bank was 86.6% of establishments, compared with 89.3% in Gaza Strip. The Middle of the West Bank ranked as the highest region that obtains water from the public water network, amounting to 98.7%, compared with 81.5% of establishments in the South of the West Bank.

Figure 2: Percentage of Establishments in the Palestinian Territory by Means of Obtaining Water and Region, 2008

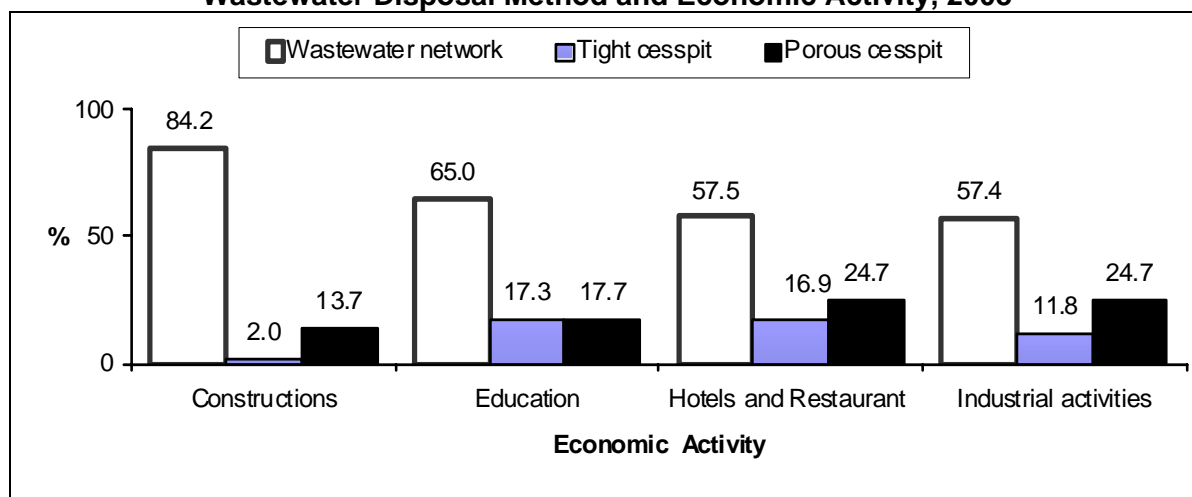


3.2 Wastewater

Wastewater network is the main method of disposing of wastewater

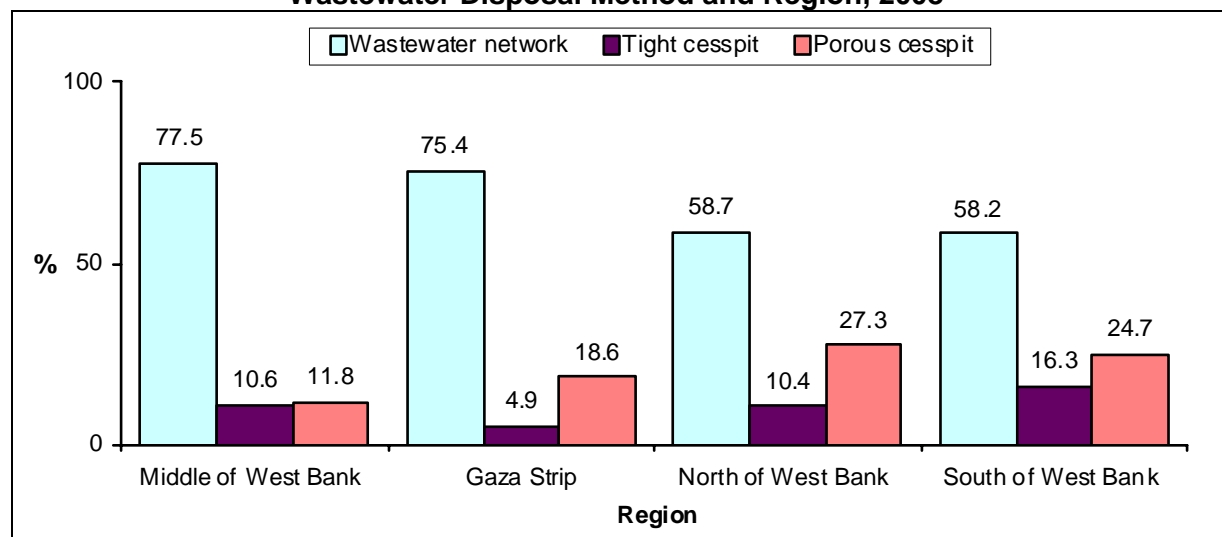
Data indicate that the percentage of establishments in the Palestinian Territory in 2008 that used the wastewater network to dispose wastewater was 66.4%, compared with 21.9% using porous cesspits. The percentage of establishments that used the wastewater network according to economic activities was 84.2% for construction establishments and 57.4% for industrial activities establishments. The percentage of economic establishments in the Palestinian Territory that used wastewater network to dispose their wastewater in the previous years; were 66.8% in 2006 and 67.9% in 2004.

Figure 3: Percentage of Establishments in the Palestinian Territory by Their Wastewater Disposal Method and Economic Activity, 2008



Geographically, the percentage of establishments that used the wastewater network to dispose of wastewater was 62.2% of the total establishments in the West Bank and 75.4% of the total establishments in Gaza Strip.

Figure 4: Percentage of Establishments in the Palestinian Territory by Activity Wastewater Disposal Method and Region, 2008



Less than 0.34% of establishments treat wastewater

The results show that 0.34% of the establishments treat the wastewater produced by their activity in the Palestinian Territory in 2008: 0.32% of the total establishments in the West Bank and 0.37% of the total establishments in Gaza Strip. The highest percentage of establishments that treat wastewater was in the North of the West Bank and represent 0.54% of the total establishments.

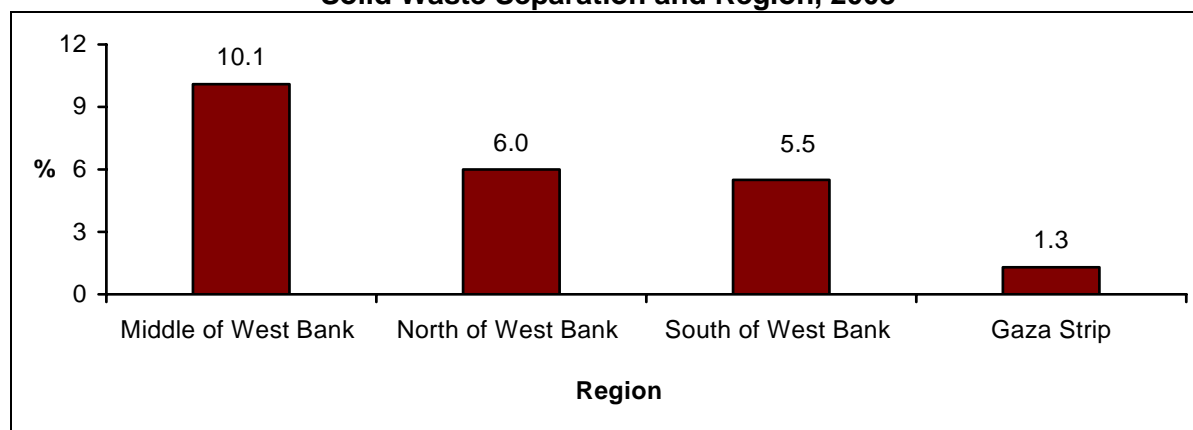
3.3 Solid Waste

Solid Waste Separation

More than 95% of the establishments do not separate solid waste

The percentage of establishments that separate solid waste in the Palestinian Territory in 2008 was 4.8% compared with 6.0% in 2006. On the regional level, there is 6.6% of the establishments in the West Bank and 1.3% in Gaza Strip that separate its solid waste

Figure 5: Percentage of Establishments in the Palestinian Territory by Presence of Solid Waste Separation and Region, 2008



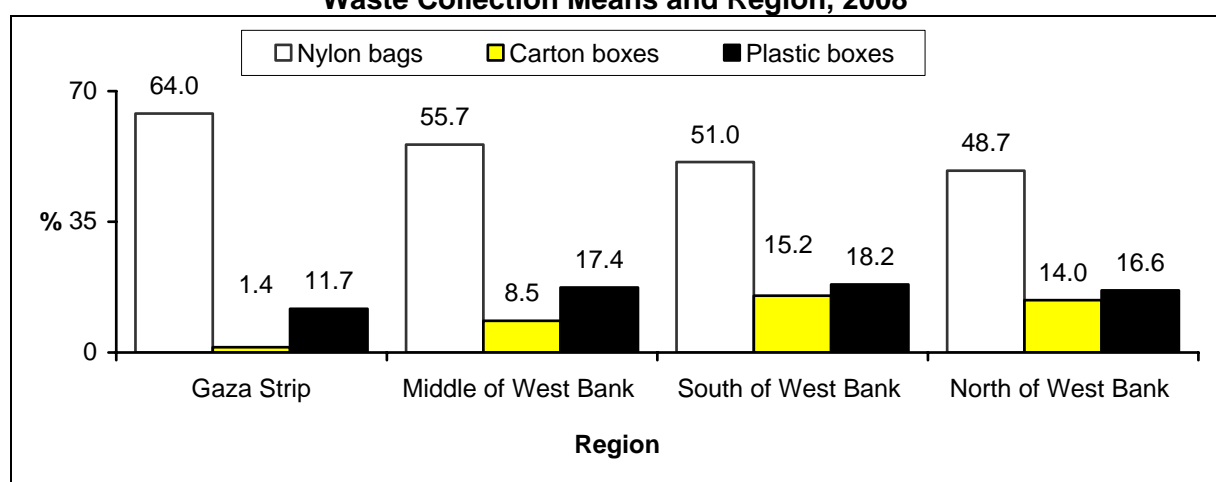
Paper and Cartons are the most common separated components

Data reveal that the paper and cartons ranked first among the separated solid waste components, with 22.2% of the economic establishments in the Palestinian Territory in 2008, followed by medical waste, including sharps, radioactive waste, and infected waste, (21.7%) and Glass & Metal (17.9%). Geographically, separation of medical waste ranks first among the separated solid waste components of the total establishments in the West Bank (23.1%), whereas food waste ranks first in the Gaza Strip (29.6%). These percentages differ slightly from the 2006 data.

Plastic bags are widely used in solid waste collection

The percentage of establishments in the Palestinian Territory in 2008 that used plastic bags to contain the collected separated solid waste was 53.4%, compared with 4.2% of the establishments that used metal boxes. Concerning the non-separated solid waste, the percentage of establishments that used plastic bags to contain these wastes was 82.5%, compared with 5.6% of the establishments that used plastic boxes.

Figure 6: Percentage of Establishments in the Palestinian Territory by Separated Solid Waste Collection Means and Region, 2008



More than half of the economic establishments dispose of their solid waste 1 to 3 times a week.

Data show that 57.0% of establishments in the Palestinian Territory in 2008 disposed of separated solid waste 1 to 3 times a week, compared with 8.2% of establishments that disposed of solid waste more than 7 times a week. Concerning the non-separated solid waste, the percent of establishments that disposed of these wastes 1 to 3 times a week was 56.9%, compared with 7.9% of the establishments that disposed of solid waste more than 7 times a week.

The manual transportation of the solid waste is the common method

Data show that 87.6% of establishments in the Palestinian Territory in 2008 transport separated solid waste manually, compared with 8.9% of the establishments that transport separated solid waste by special equipment. Also, 95.7% of establishments transport the non-separated solid waste manually, compared with 2.2% of the establishments that transport solid waste by special equipment.

Solid Waste Treatment

Less than 0.1% of the establishments treated solid waste

The results show that the percentage of establishments that treat solid waste in the Palestinian Territory in 2008 was 0.1%, 43.9% of these establishments in the Palestinian Territory in 2008 use the open burning method in treating the solid waste, and 19.2% of the establishments used mechanical treatment.

The majority of establishments treat their solid waste by themselves

Data show that 75.8% of the establishments that treat solid waste in the Palestinian Territory in 2008 carry out the treatment by themselves, compared with 18.8% of the establishments that report that the treatment process is carried out by another establishment.

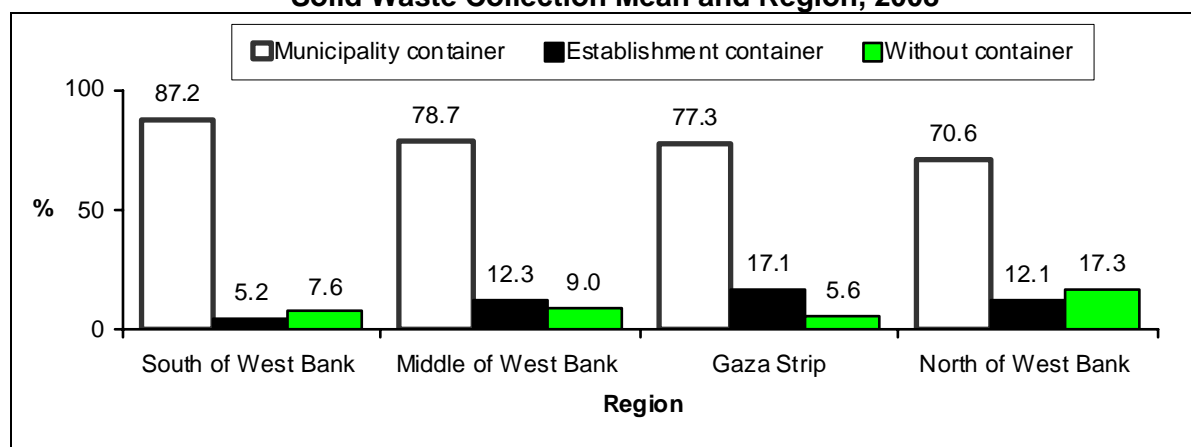
Solid Waste Disposal

More than 70% of the establishments used municipality open containers

Data show that 71.5% of the establishments in the Palestinian Territory in 2008 used municipality open containers for solid waste collection compared with 10.2% of the establishments that do not used containers. The percentage of the establishments that used municipality open containers for solid waste collection was 78.8% of the total establishments in the wholesale, retail and repairs and 55.9% in the industrial activities.

The percent of the establishments that used municipality open container for solid waste collection was 69.7% of the total establishments in the West Bank comparing with 75.1% of the total establishments in Gaza Strip.

Figure 7: Percentage Distribution of Establishments in the Palestinian Territory by the Solid Waste Collection Mean and Region, 2008



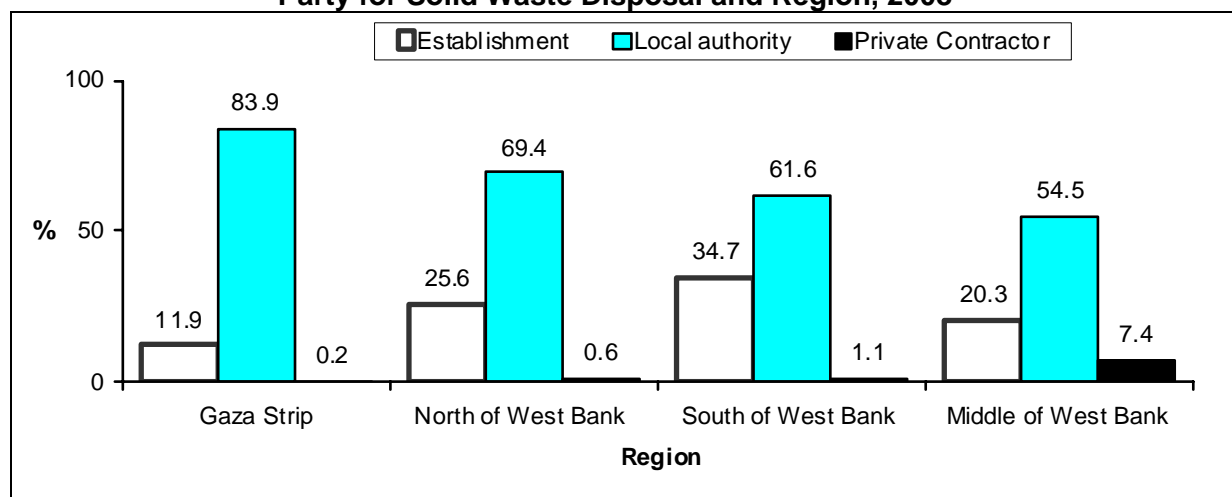
Metal containers are the common type in solid waste collection

Data show that 87.8% of the establishments in the Palestinian Territory in 2008 used metal containers for solid waste collection, representing 87.9% of the total establishments in the West Bank and 87.5% of the total establishments in Gaza Strip.

More than 70% of the establishments served by local authority solid waste disposal services

Data reveal that the percentage of the establishments in the Palestinian Territory in 2008 that dispose its solid waste by itself was 22.5%, whereas the percentage of the establishments which is served by local authority disposal services was 70.4%. Also, data show that, 27.5% of the total establishments in the West Bank dispose its solid waste by itself compared with 11.9% of the total establishments in Gaza Strip. These figures indicate that the percentage of economic establishments in the Palestinian Territory that dispose its solid waste by itself increased in 2008 (22.5%) compared with 9.3% in 2006.

Figure 8: Percentage of Establishments in the Palestinian Territory by the Responsible Party for Solid Waste Disposal and Region, 2008



Common solid waste disposal places are the local authority dumping sites

Data show that 84.5% of establishments in the Palestinian Territory in 2008 disposed of their solid waste in local authority dumping sites, including 94.5% of construction establishments. Also, 80.4% of establishments in the West Bank in 2008 dispose of their solid waste in local authority dumping sites, compared with 92.9% in Gaza Strip.

Chapter Four

Methodology

This chapter presents the scientific methodology used in the planning and implementation of the environmental economic survey, including the design of the survey tools and methods of collecting, processing and analyzing data.

4.1 Questionnaire

The environmental questionnaire was designed according to international standards and recommendations for the most important indicators, taking into account the special situation of Palestine. Many visits for economic establishments were made in order to improve the survey tools and to test the questionnaire before implementing the survey; consequently some modifications were made on the questionnaire and on the instructions following the visits.

4.2 Sample Design

The sample was a single-stage stratified cluster random sample using 3,458 Palestinian economic establishments distributed according to economic activities and governorates.

Target Population

All of the Palestinian economic establishments were included in the Economic Series Survey sample in the Palestinian Territory.

Sample Frame

The sampling frame was based on the Establishments' Census-2007 conducted by PCBS.

Stratification

Three levels of stratification were followed in designing the sample of the economic survey including:

1. Stratification by region: West Bank and Gaza Strip and classification according to governorates.
2. Stratification by economic activity according to ISIC3.
3. Stratification by employers group.

4.3 Fieldwork

Training Fieldworkers

The field workers were trained on the main skills before the start of data collection. The interviewers were trained on the environmental survey in training courses in three locations in the West Bank and one location in Gaza Strip. The trainers provided the participants with aims and definitions of the different indicators of the survey and how to fill in the questionnaire.

Data Collection

Field operations started on 20/04/2008 and lasted until 03/08/2008. The fieldwork team consisted of a coordinator and the directors of the fieldwork offices and field workers, and each team consisted of supervisors and five field workers.

During fieldwork 3,458 economic establishments were visited in the Palestinian Territory, the end results for the interview become as following:

Completed questionnaires	2,891
Completely closed	125
Temporarily closed	24
Not found unit	25
Did not practice any activity during the reference period	57
Refusal	167
Repeated	12
Israeli ownership	2
Others	155
Total	3,458

4.4 Data Processing

The data processing stage contained the following operations:

1. Editing before data entry: all questionnaires were edited again in the office using the same instructions adopted for editing in the fields.
2. Data entry: In this stage data were entered into the computer, using Access database.
3. The data entry program was prepared to satisfy a number of requirements such as:
 - Duplication of the questionnaire on the computer screen.
 - Check for logic and consistency of data entered.
 - Possibility for internal editing of questions answers.
 - Maintaining a minimum of digital data entry and fieldwork errors.
 - User-friendly handling.
 - Possibility of transferring data into another format to be used and analyzed using other statistical analytical systems such as SAS and SPSS.

Chapter Five

Data Quality

The concept of data quality consists of many aspects starting from the planning to the survey and on to the publishing method and data analysis. The main principles of statistical quality are accuracy, comparability, and data quality assurance procedures.

5.1 Accuracy

It includes many aspects of the survey, mainly statistical errors due to the sample, and also non statistical errors refers to the workers and survey tools, and includes also the response rates in this survey and their effect on the assumptions. This section includes:

Sampling Errors

These types of errors evolved as a result of studying a part of the society and not all of it, and because this survey is sample based, the data of this survey will be affected by sampling errors due to using a sample and not the whole frame of the society, and therefore differences appear compared with the actual values that could be obtained through a census. For this survey, variance calculations were made for amounts of water consumed in the economic establishments by region and activity, and the main source of obtaining water in the economic establishments by region and activity.

Table of Variance for Environmental Economic Survey 2008

Variable	Estimate		Standard Error	C.V %	%95Confidence Interval	
	Unit	Value				
Main source of water in the north of West Bank– Public Water Network	%	72.3	2.3	0.031	67.7	76.5
Consumed water - in the north of West Bank	M ³	1,498,406	354,077	0.236	804,130	2,192,683
Main source of water in the Industrial activities – Public Water Network	%	72.1	1.87	0.026	68.2	75.6
Consumed water in the industrial activities	M ³	1,183,009	234,335	0.198	723,523	1,642,497

Non Sampling Errors

Several measures were adopted to minimize the effects of these errors. The interviewers, editors and coders underwent intensive training and were provided with fieldwork manuals to consult when facing any problem.

The data entry program was designed in a way that allows error detection and correction. This applies particularly to logical errors that might not be discovered before data entry operations. A consistency check was also performed to assure accuracy after data entry.

These errors are due to non-response cases as well as the implementation of surveys. In this survey, these errors emerged because of (a) the special situation of the questionnaire itself which depends on type of estimation; (b) diversity of sources (e.g. the interviewers, respondent, editors, coders, data entry operator, etc).

It is important to mention that 5% from the sample of this survey was re-interviewed, and the results of this re-interview were reported by the supervisors. The re-interview shows the variance in estimation by interviewers for quantities of water consumed and solid waste produced, when the interviewer who answers for the main survey questionnaire is different from the one who answers the re-interview questionnaire.

$$\begin{aligned}\text{None response rate} &= \frac{\text{Sum of none response cases}}{\text{Net sample}} \times 100\% \\ &= \frac{567}{3,458} \times 100\% = 16.4\%\end{aligned}$$

$$\begin{aligned}\text{Response rate} &= 100\% - \text{none response rate} \\ &= 100\% - 16.4\% = 83.6\%\end{aligned}$$

The none response cases were treated using adjustment groups (strata) and the following equation shows this

$$fg = \frac{\sum_{ng} wi - \sum_{o.c} wi}{\sum_{rg} wi}$$

Where

$$\begin{aligned}\sum_{ng} wi &\text{ Total weights in g group} \\ \sum_{o.c} wi &\text{ Total weights over coverage} \\ \sum_{rg} wi &\text{ Total weights responding in the survey}\end{aligned}$$

Each unit is given fg value for the interval lies in and finally we get $w'i$ using the following equation

$$w'gi = wi * fgi$$

5.2 Comparability

The data of the environmental economic survey is comparable geographically and against time; the results when comparing the data between different geographical areas and when comparing the data of this survey with the data of previous rounds were typical and there were no significant differences.

5.3 Data Quality Assurance Procedures

Several measures were made to ensure quality control in the survey, such as the training of the fieldworkers on main skills before the start of data collection, and conducting field visits to field researchers to ensure the integrity of data collection, in addition to conducting a re-interview for 5% of the establishments. Audit of questionnaires was carried out before data entry, and then a program was used that does not allow any mistakes during the process of data entry. Data was examined to ensure that they were free from errors not previously discovered. After the receipt of the raw data file, cleaning and inspection of the anomalous values was made, and also inspection of the consistency between the different questions on the questionnaire.

5.4 Special Technical Notes

This part presents the important technical notes on the indicators presented in the results of the survey:

- Data from the Gaza Strip should be handled carefully because of the economic situation which was dominant there during the implementation of the survey.
- Tables of water quantities (tables 1 and 2), and tables of solid waste quantities (tables 8, 9 and 11) were based on the estimations by respondents.
- The table of solid waste treatment (table 26) was published on the level of the Palestinian Territory because the number of observations was not sufficient for publishing on a level less than the Palestinian Territory level.
- Tables of container volumes (tables 31 and 32), and tables of distance between the establishment and solid waste disposal place (tables 33 and 34) were also based on the respondent estimation.
- In table 36, the category “other” in the Middle of West Bank is slightly high, because the Jerusalem municipality is involved in serving economic establishments in disposing of solid waste in the governorate.

References

1. United Nations, 1997. *Glossary of Environment Statistics. Series F, NO.67*. New York- USA.
2. Palestinian Central Bureau of Statistics. Environmental Economic Survey, 2001, 2003, 2004 and 2006. Ramallah- Palestine
3. Palestinian Central Bureau of Statistics. Environmental Economic Survey, 2008, Fieldwork Training Manual. Ramallah- Palestine
4. Palestinian Central Bureau of Statistics. Statistical Reports Publishing Manual, 8th Edition. Ramallah- Palestine