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: (970/972) 2 242 6340

: (970/972) 2 242 6343

: [diwan@pcbs.gov.ps](mailto:diwan@pcbs.gov.ps)

: <http://www.pcbs.gov.ps>





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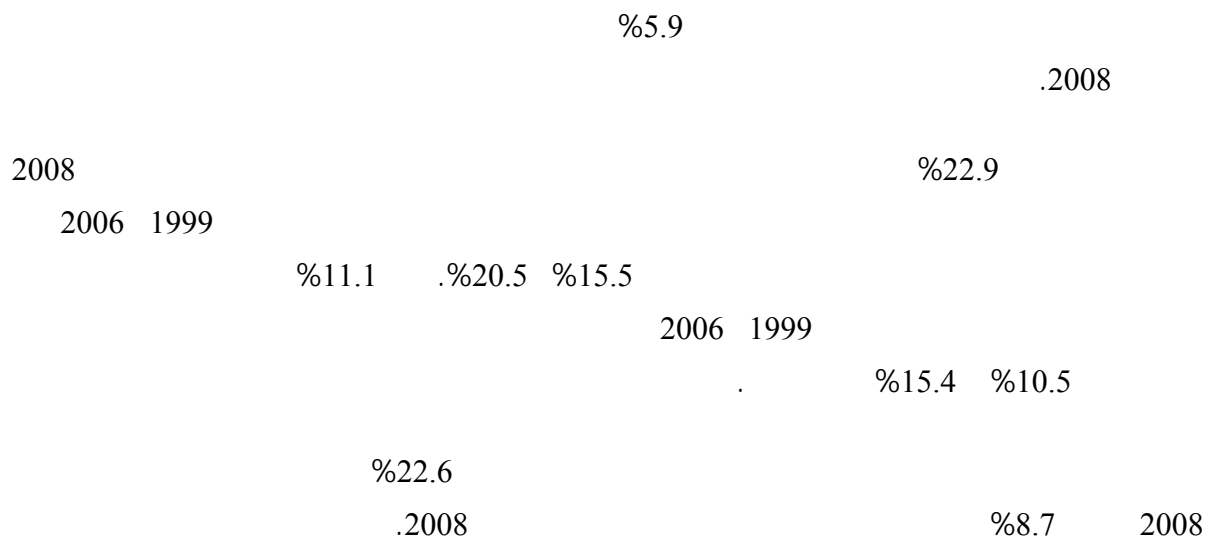
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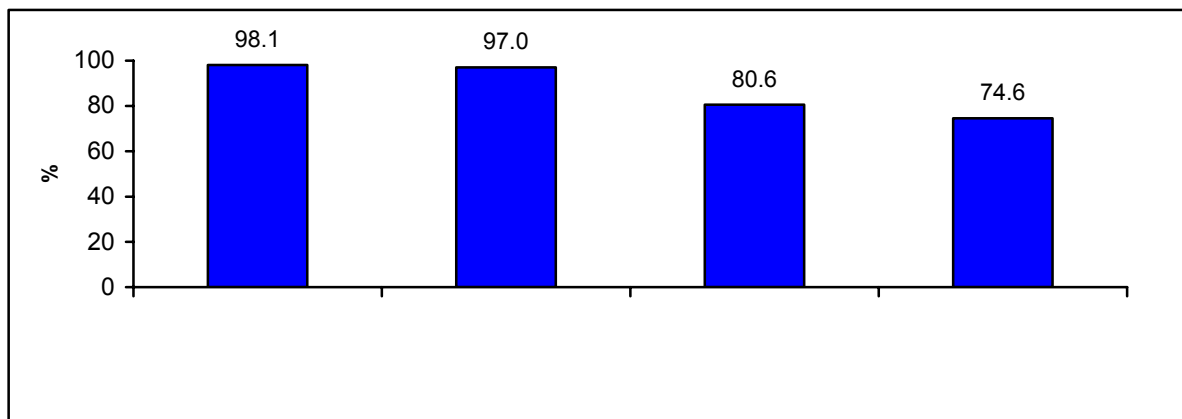
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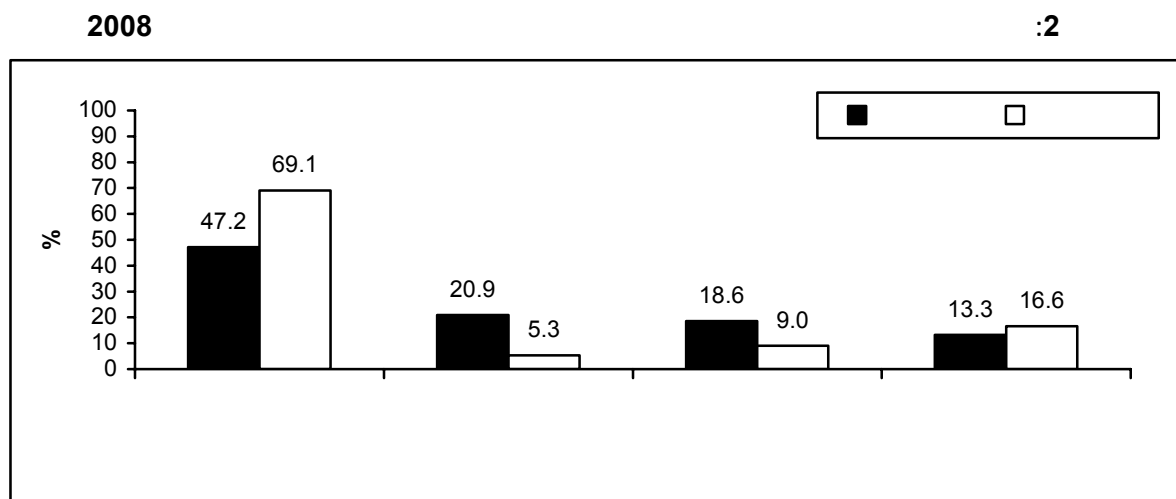


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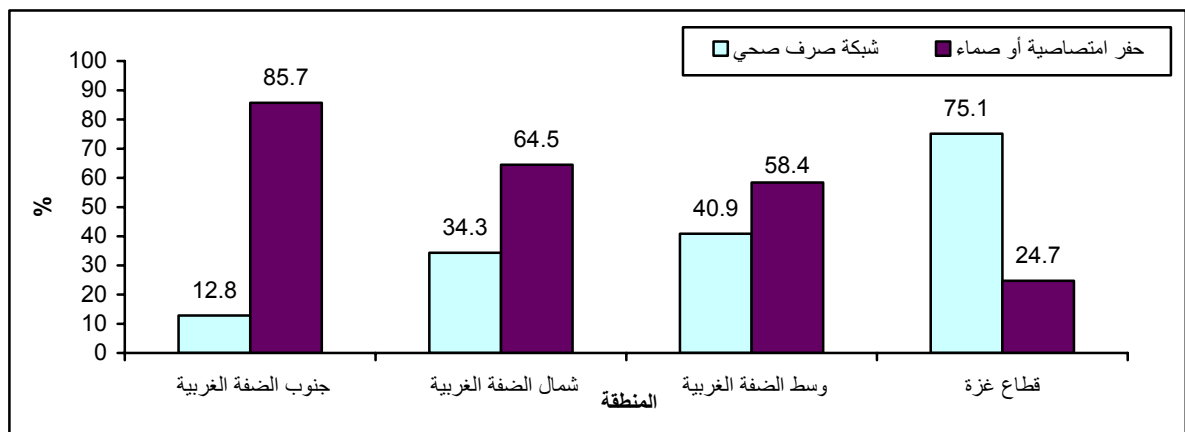
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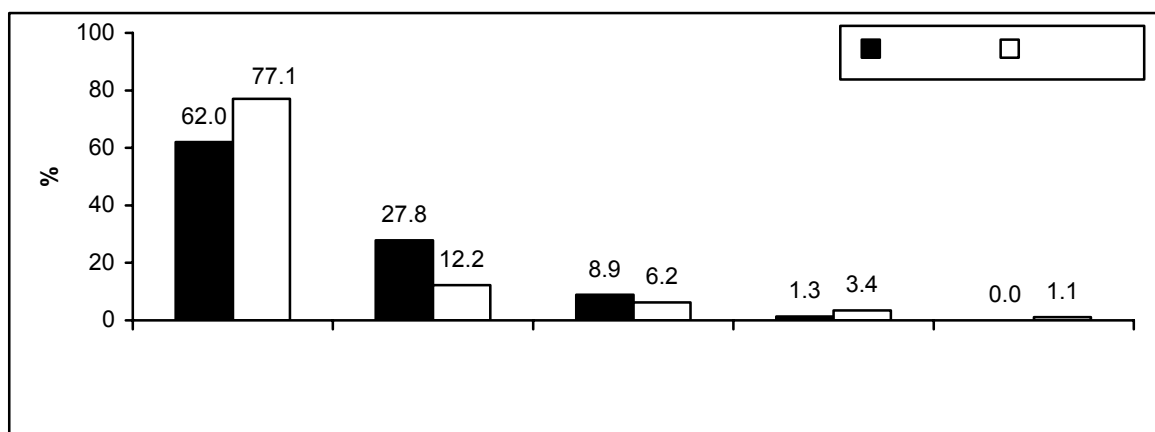


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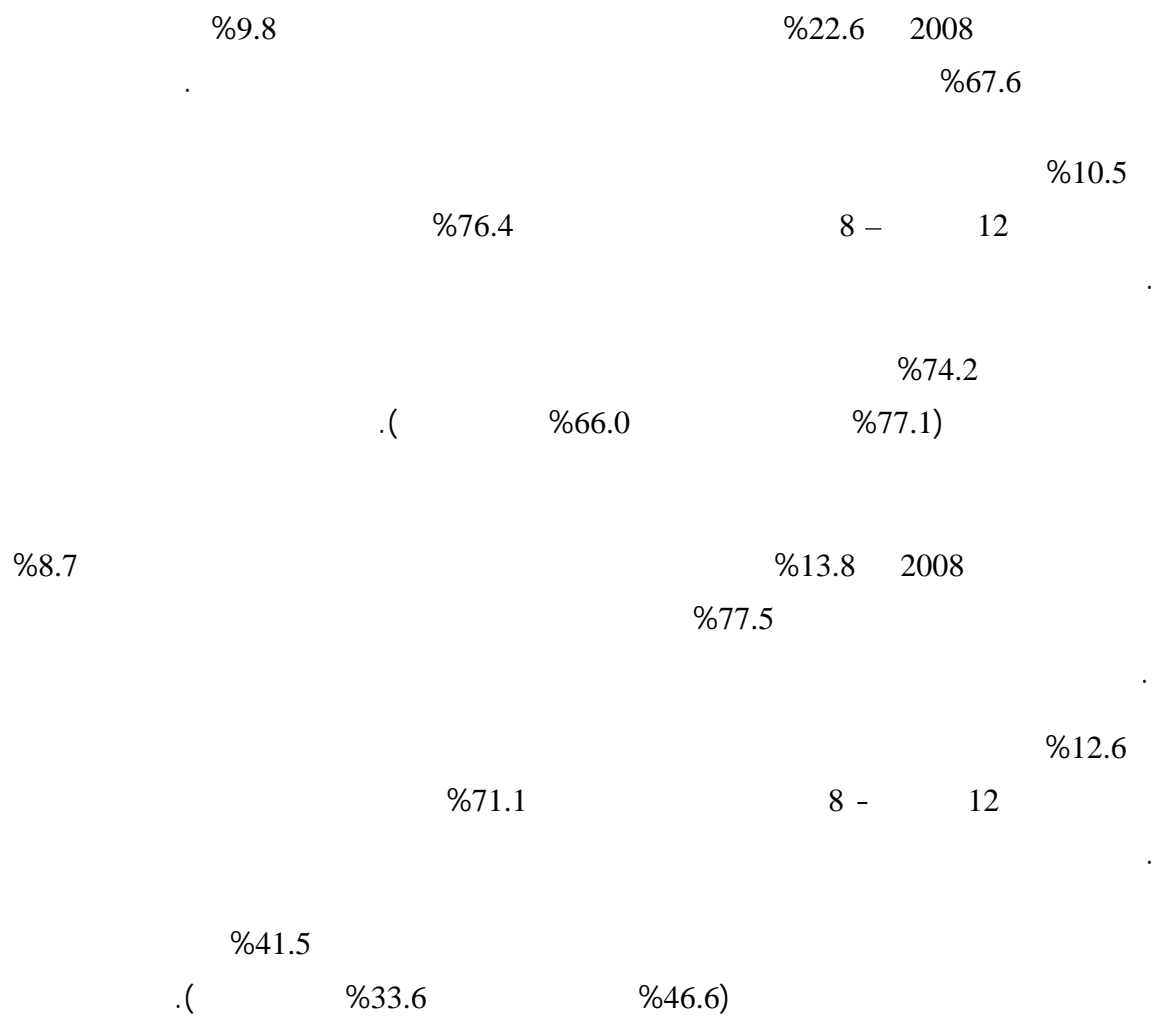
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# Tables



**Table 1: Selected Indicators of the Environmental Household in the Palestinian Territory, 1999, 2003- 2006, 2008**

Indicator	2008	2006	2005	2004	2003	1999	
<b>Percentage distribution of households by:</b>							:
<b>Availability of public network water</b>	88.2	88.6	90.5	89.2	86.5	84.8	
<b>Quality of households water</b>							
Good	45.6	50.6	54.0	63.0	56.7	67.5	
Fairly good	30.3	26.3	32.8	27.5	32.3	29.0	
Bad	24.1	23.1	13.2	9.5	11.0	3.5	
<b>Solid waste components (household)</b>							( )
Baby's nabs	19.5	10.8	16.5	13.3	11.4	15.9	
Food wastes	75.1	86.0	81.3	82.6	84.0	78.2	
Paper and cartoon	4.6	2.7	1.8	2.6	0.1	3.1	
Agricultural waste	0.5	0.4	0.0	1.5	1.5	1.5	
Others	0.3	0.1	0.4	0.0	3.0	1.3	
<b>Wastewater disposal method</b>							
Sewage network	45.5	45.3	44.7	42.9	43.6	39.3	
Tight or Porous Cesspit	53.7	54.0	51.9	56.1	55.2	59.5	
Others	0.8	0.7	3.4	1.0	1.2	1.2	
<b>Exposure to noise</b>							
Seldom or n o noise	67.7	71.5	67.9	79.6	72.5	72.8	
Sometimes	9.3	8.0	8.3	5.2	10.0	11.7	
Very often	22.9	20.5	23.8	15.2	17.5	15.5	
<b>Exposure to smell</b>							
Seldom or no smell	76.9	73.6	74.6	79.6	69.3	75.2	
Sometimes	12.3	11.0	9.6	10.3	14.8	14.3	
Very often	11.1	15.4	15.8	10.1	15.9	10.5	

- Data concerning the water quality were according the respondent's evaluation of the used water in the household activities (according to the household opinion).
- Data concerning noise, smell, dust and smoke indicators were according the respondent's evaluation, and depend on the season when the survey implemented.

2008

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**Table 2: Percentage Distribution of Households in the Palestinian Territory by the Main Mean of Obtaining Water and Region, 2008**

Region	Mean of obtaining water					
	Total	Other	Domestic well	Water tanks	Public water network	
<b>Palestinian Territory</b>	<b>100</b>	<b>2.8</b>	<b>5.9</b>	<b>3.1</b>	<b>88.2</b>	
<b>West Bank</b>	<b>100</b>	<b>1.6</b>	<b>9.9</b>	<b>4.3</b>	<b>84.2</b>	
North of West Bank	100	0.4	11.4	7.6	80.6	
Middle of West Bank	100	0.5	1.3	0.1	98.1	
South of West Bank	100	1.7	15.7	8.0	74.6	
<b>Gaza Strip</b>	<b>100</b>	<b>2.3</b>	<b>0.0</b>	<b>0.7</b>	<b>97.0</b>	

2008

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**Table 3: Percentage Distribution of Households in the Palestinian Territory by the Main Mean of Obtaining Water, Region and Type of Locality, 2008**

Region/ Type of Locality	Mean of obtaining water					/
	Total	Other	Domestic well	Water tanks	Public water network	
<b>Palestinian Territory</b>	<b>100</b>	<b>2.8</b>	<b>5.9</b>	<b>3.1</b>	<b>88.2</b>	
Urban	100	2.4	3.2	1.5	92.9	
Rural	100	1.3	16.0	8.4	74.3	
Camp	100	0.4	0.0	0.1	99.5	
<b>West Bank</b>	<b>100</b>	<b>1.6</b>	<b>9.9</b>	<b>4.3</b>	<b>84.2</b>	
Urban	100	1.6	5.9	1.9	90.6	
Rural	100	0.9	16.9	8.6	73.6	
Camp	100	0.0	0.0	0.0	100.0	
<b>Gaza Strip</b>	<b>100</b>	<b>2.3</b>	<b>0.0</b>	<b>0.7</b>	<b>97.0</b>	
Urban	100	2.2	0.0	0.8	97.0	
Rural	100	9.6	0.0	5.7	84.7	
Camp	100	0.6	0.0	0.1	99.3	



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**Table 4: Percentage Distribution of Households in the Palestinian Territory by Household Evaluation of Water Quality and Region, 2008**

Region	Household evaluation of water quality				
	Total	Bad	Fairly good	Good	
<b>Palestinian Territory</b>	<b>100</b>	<b>24.1</b>	<b>30.3</b>	<b>45.6</b>	
<b>West Bank</b>	<b>100</b>	<b>9.0</b>	<b>26.7</b>	<b>64.3</b>	
North of West Bank	100	11.4	17.8	70.8	
Middle of West Bank	100	7.2	31.7	61.1	
South of West Bank	100	7.6	33.5	58.9	
<b>Gaza Strip</b>	<b>100</b>	<b>49.8</b>	<b>36.4</b>	<b>13.8</b>	

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**Table 5: Percentage Distribution of Households in the Palestinian Territory by the Solid Waste Disposal Doer and Region, 2008**

Region	Solid waste disposal part					
	Total	Others	UNRWA	Local authority	Household member	
<b>Palestinian Territory</b>	<b>100</b>	<b>15.5</b>	<b>10.6</b>	<b>61.6</b>	<b>12.3</b>	
<b>West Bank</b>	<b>100</b>	<b>16.6</b>	<b>5.3</b>	<b>69.1</b>	<b>9.0</b>	
North of West Bank	100	1.0	7.0	83.6	8.4	
Middle of West Bank	100	33.6*	5.1	57.8	3.5	
South of West Bank	100	21.8	2.2	60.1	15.9	
<b>Gaza Strip</b>	<b>100</b>	<b>13.3</b>	<b>20.9</b>	<b>47.2</b>	<b>18.6</b>	

\* The high percent is because solid waste is collected by the Israeli Jerusalem municipality for the majority of the households in Jerusalem governorate.

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**Table 6: Percentage Distribution of not Served Households in the Palestinian Territory by the Most Important Disposal Method of Solid Wastes and Region, 2008**

Region	Most important disposal method of solid waste						
	Total	Others	Thrown randomly	Thrown into a dumping site	Burned	Thrown in the nearest container	
<b>Palestinian Territory</b>	<b>100</b>	<b>3.4</b>	<b>3.1</b>	<b>5.2</b>	<b>17.4</b>	<b>70.9</b>	
<b>West Bank</b>	<b>100</b>	<b>0.0</b>	<b>1.2</b>	<b>5.2</b>	<b>24.7</b>	<b>68.9</b>	
North of West Bank	100	0.0	7.8	4.4	45.0	42.8	
Middle of West Bank	100	0.0	0.0	4.8	5.0	90.2	
South of West Bank	100	0.0	0.4	5.9	37.7	56.0	
<b>Gaza Strip</b>	<b>100</b>	<b>9.1</b>	<b>6.1</b>	<b>5.2</b>	<b>5.3</b>	<b>74.3</b>	

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**Table 7: Percentage Distribution of not Served Households in the Palestinian Territory by the Second Most Important Disposal Method of Solid Wastes and Region, 2008**

Region	Second important disposal method of solid waste						
	Total	Not uses	Thrown randomly	Thrown into a dumping site	Burned	Thrown in the nearest container	
<b>Palestinian Territory</b>	<b>100</b>	<b>38.5</b>	<b>2.1</b>	<b>40.4</b>	<b>7.9</b>	<b>11.1</b>	
<b>West Bank</b>	<b>100</b>	<b>45.6</b>	<b>2.1</b>	<b>39.3</b>	<b>8.8</b>	<b>4.2</b>	
North of West Bank	100	59.6	11.9	3.0	22.5	3.0	
Middle of West Bank	100	10.1	0.0	84.4	0.5	5.0	
South of West Bank	100	78.2	1.9	2.4	13.8	3.7	
<b>Gaza Strip</b>	<b>100</b>	<b>12.0</b>	<b>1.9</b>	<b>44.7</b>	<b>4.4</b>	<b>37.0</b>	

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**Table 8: Percentage Distribution of Households Served by Local Authority in the Palestinian Territory by Periodicity of Solid Waste Collection and Region, 2008**

Region	Number of collection times per week				
	Total	7	6 - 4	3 3 times or less	
<b>Palestinian Territory</b>	<b>100</b>	<b>33.6</b>	<b>21.0</b>	<b>45.4</b>	
<b>West Bank</b>	<b>100</b>	<b>23.2</b>	<b>23.5</b>	<b>53.3</b>	
North of West Bank	100	36.2	22.1	41.7	
Middle of West Bank	100	9.1	25.0	65.9	
South of West Bank	100	11.5	24.9	63.6	
<b>Gaza Strip</b>	<b>100</b>	<b>63.1</b>	<b>13.8</b>	<b>23.1</b>	

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2008

**Table 9: Percentage Distribution of Households Served by UNRWA in the Palestinian Territory by Periodicity of Solid Waste Collection and Region, 2008**

Region	Number of collection times per week				
	Total	7	6 - 4	3 3 times or less	
<b>Palestinian Territory</b>	<b>100</b>	<b>64.8</b>	<b>30.5</b>	<b>4.7</b>	
<b>West Bank</b>	<b>100</b>	<b>11.2</b>	<b>80.6</b>	<b>8.2</b>	
North of West Bank	100	19.0	74.6	6.4	
Middle of West Bank	100	0.0	87.7	12.3	
South of West Bank	100	0.0	93.3	6.7	
<b>Gaza Strip</b>	<b>100</b>	<b>91.0</b>	<b>6.0</b>	<b>3.0</b>	

2008

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**Table 10: Percentage Distribution of Households that not Receive Solid Waste Collection Service in the Palestinian Territory by Periodicity of Disposal and Region, 2008**

Region	Number of disposal times per week				
	Total	7	6 - 4	3 3 times or less	
<b>Palestinian Territory</b>	<b>100</b>	<b>43.8</b>	<b>15.1</b>	<b>41.1</b>	
<b>West Bank</b>	<b>100</b>	<b>16.9</b>	<b>16.3</b>	<b>66.8</b>	
North of West Bank	100	39.2	19.6	41.2	
Middle of West Bank	100	1.8	43.1	55.1	
South of West Bank	100	11.2	12.1	76.7	
<b>Gaza Strip</b>	<b>100</b>	<b>72.1</b>	<b>13.8</b>	<b>14.1</b>	

2008

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**Table 11: Percentage Distribution of Household in the Palestinian Territory by Approximate Quantity of Solid Waste Produced Daily and Region, 2008**

Region	( ) Approximate quantity of household waste produced daily (kg)				
	Total	7 More than 7	7 - 4	4 Less than 4	
<b>Palestinian Territory</b>	<b>100</b>	<b>10.2</b>	<b>21.5</b>	<b>68.3</b>	
<b>West Bank</b>	<b>100</b>	<b>12.5</b>	<b>21.0</b>	<b>66.5</b>	
North of West Bank	100	9.2	23.9	66.9	
Middle of West Bank	100	5.8	13.5	80.7	
South of West Bank	100	24.5	25.0	50.5	
<b>Gaza Strip</b>	<b>100</b>	<b>5.6</b>	<b>22.4</b>	<b>72.0</b>	

2008

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**Table 12: Quantity of Solid Waste Produced Daily, the Average Daily Household Production and the Average Per Capita Daily Production of Solid Waste in the Palestinian Territory by Region, 2008**

Region	( ) Average daily production per capita (Kg)	( ) Average household daily production (Kg)	( ) Total daily produced quantity (Ton)	
<b>Palestinian Territory</b>	<b>0.7</b>	<b>4.6</b>	<b>2,861.5</b>	
<b>West Bank</b>	<b>0.7</b>	<b>4.1</b>	<b>1,752.2</b>	
North of West Bank	0.7	4.0	709.7	
Middle of West Bank	0.8	3.3	436.3	
South of West Bank	0.7	5.0	606.2	
<b>Gaza Strip</b>	<b>0.9</b>	<b>5.7</b>	<b>1,109.3</b>	

2008

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**Table 13: Percentage Distribution of Households in the Palestinian Territory by Distance of the Nearest Dumping Site or Big Container from the House and Region, 2008**

Region	Distance from the house (m) ( )			
	Total	500 More than 500	500 Less than or equals 500	
<b>Palestinian Territory</b>	<b>100</b>	<b>79.6</b>	<b>20.4</b>	
<b>West Bank</b>	<b>100</b>	<b>77.1</b>	<b>22.9</b>	
North of West Bank	100	54.1	45.9	
Middle of West Bank	100	92.1	7.9	
South of West Bank	100	94.4	5.6	
<b>Gaza Strip</b>	<b>100</b>	<b>84.2</b>	<b>15.8</b>	

2008

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**Table 14: Percentage Distribution of Households in the Palestinian Territory by the Most Important Component of Solid Wastes and Region, 2008**

Region	Solid waste components						
	Total	أخرى Others	Agricultural waste	Paper and cartoon	Food wastes	Baby's nabs	
<b>Palestinian Territory</b>	<b>100</b>	<b>0.3</b>	<b>0.5</b>	<b>4.6</b>	<b>75.1</b>	<b>19.5</b>	
<b>West Bank</b>	<b>100</b>	<b>0.6</b>	<b>0.6</b>	<b>6.8</b>	<b>72.4</b>	<b>19.6</b>	
North of West Bank	100	0.3	0.7	5.8	72.8	20.4	
Middle of West Bank	100	0.2	0.8	8.3	74.0	16.7	
South of West Bank	100	1.2	0.4	6.7	70.1	21.6	
<b>Gaza Strip</b>	<b>100</b>	<b>0.0</b>	<b>0.2</b>	<b>0.4</b>	<b>80.3</b>	<b>19.1</b>	

2008

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**Table 15: Percentage Distribution of Households in the Palestinian Territory by the Second Important Component of Solid Wastes and Region, 2008**

Region	Solid waste components							
	Total	Others	Plastic	Agricultural waste	Paper and cartoon	Food wastes	Baby's nabs	
<b>Palestinian Territory</b>	<b>100</b>	<b>0.6</b>	<b>3.8</b>	<b>1.5</b>	<b>63.2</b>	<b>23.0</b>	<b>7.9</b>	
<b>West Bank</b>	<b>100</b>	<b>0.2</b>	<b>2.3</b>	<b>2.2</b>	<b>64.9</b>	<b>25.0</b>	<b>5.4</b>	
North of West Bank	100	0.2	2.9	3.2	63.7	24.4	5.6	
Middle of West Bank	100	0.4	1.9	1.3	69.8	24.1	2.5	
South of West Bank	100	0.4	2.0	1.5	61.1	27.0	8.0	
<b>Gaza Strip</b>	<b>100</b>	<b>1.3</b>	<b>6.7</b>	<b>0.2</b>	<b>59.9</b>	<b>19.1</b>	<b>12.8</b>	

2008

:16

**Table 16: Percentage Distribution of Households in the Palestinian Territory by Wastewater Disposal Method and Region, 2008**

Region	Disposal method of wastewater					
	Total	Other	Tight cesspit	Porous cesspit	Sewage network	
<b>Palestinian Territory</b>	<b>100</b>	<b>0.8</b>	<b>5.9</b>	<b>47.8</b>	<b>45.5</b>	
<b>West Bank</b>	<b>100</b>	<b>1.2</b>	<b>8.2</b>	<b>60.4</b>	<b>30.2</b>	
North of West Bank	100	1.2	3.9	60.6	34.3	
Middle of West Bank	100	0.7	16.4	42.0	40.9	
South of West Bank	100	1.5	5.8	79.9	12.8	
<b>Gaza Strip</b>	<b>100</b>	<b>0.2</b>	<b>1.3</b>	<b>23.4</b>	<b>75.1</b>	

2008

:17

**Table 17: Percentage Distribution of Households in the Palestinian Territory by Wastewater Disposal Method, Region and Type of Locality, 2008**

Region/ Type of Locality	Disposal method of wastewater					/
	Total	Other	Tight cesspit	Porous cesspit	Sewage network	
<b>Palestinian Territory</b>	<b>100</b>	<b>0.8</b>	<b>5.9</b>	<b>47.8</b>	<b>45.5</b>	
Urban	100	0.4	2.6	41.4	55.6	
Rural	100	1.6	13.2	80.4	4.8	
Camp	100	0.6	3.9	8.0	87.5	
<b>West Bank</b>	<b>100</b>	<b>1.2</b>	<b>8.2</b>	<b>60.4</b>	<b>30.2</b>	
Urban	100	0.8	4.0	50.8	44.4	
Rural	100	1.8	14.3	79.7	4.2	
Camp	100	0.6	4.5	13.8	81.1	
<b>Gaza Strip</b>	<b>100</b>	<b>0.2</b>	<b>1.3</b>	<b>23.4</b>	<b>75.1</b>	
Urban	100	0.0	0.2	25.6	74.2	
Rural	100	0.0	0.0	88.6	11.4	
Camp	100	0.7	3.7	5.9	89.7	

2008

:18

**Table 18: Percentage Distribution of Households in the Palestinian Territory by Using a Cesspit and Domestic Water Well and Region, 2008**

Region	Using a cesspit and domestic water well					
	Total	Not having both	Having a well only	Having a cesspit only	Having a cesspit and a well	
<b>Palestinian Territory</b>	<b>100</b>	<b>46.6</b>	<b>4.6</b>	<b>33.6</b>	<b>15.2</b>	
<b>West Bank</b>	<b>100</b>	<b>32.8</b>	<b>6.7</b>	<b>38.3</b>	<b>22.2</b>	
North of West Bank	100	34.9	4.5	39.2	21.4	
Middle of West Bank	100	47.8	10.2	24.6	17.4	
South of West Bank	100	14.1	6.0	51.5	28.4	
<b>Gaza Strip</b>	<b>100</b>	<b>76.7</b>	<b>0.0</b>	<b>23.3</b>	<b>0.0</b>	

2008

**Table 19: Percentage Distribution of Households Using a Cesspit and Domestic Water Well in the Palestinian Territory by Location of the Cesspit to the Well and Region, 2008**

Region	Location of the cesspit and well				
	Total	On the same level	Well below cesspit	Well above cesspit	
<b>Palestinian Territory</b>	<b>100</b>	<b>12.5</b>	<b>76.4</b>	<b>11.1</b>	
<b>West Bank</b>	<b>100</b>	<b>12.5</b>	<b>76.4</b>	<b>11.1</b>	
North of West Bank	100	19.5	67.8	12.7	
Middle of West Bank	100	8.4	76.4	15.2	
South of West Bank	100	6.9	85.7	7.4	
<b>Gaza Strip</b>	-	-	-	-	

(-): Nil

: (-)

( )

:20

2008

**Table 20: Percentage Distribution of Households that Use a Cesspit and Domestic Water Well in the Palestinian Territory by Distance (m) Between Cesspit and Well and Region, 2008**

Region	Distance between cesspit and well (m) ( )					
	Total	أكثر من 40 More than 40	من 26 - 40 From 26 - 40	من 15 - 25 From 15-25	أقل من 15 Less than 15	
<b>Palestinian Territory</b>	<b>100</b>	<b>12.1</b>	<b>15.5</b>	<b>40.5</b>	<b>31.9</b>	
<b>West Bank</b>	<b>100</b>	<b>18.1</b>	<b>13.3</b>	<b>37.7</b>	<b>30.9</b>	
North of West Bank	100	15.5	14.2	43.9	26.4	
Middle of West Bank	100	16.3	12.5	40.6	30.6	
South of West Bank	100	21.7	12.7	29.8	35.8	
<b>Gaza Strip</b>	-	-	-	-	-	

(-): Nil

: (-)

2008

**Table 21: Percentage Distribution of Households that Use a Cesspit in the Palestinian Territory by the Approximate Volume of the Cesspit and Region, 2008**

Region	Volume of the cesspit (m <sup>3</sup> ) (° )				
	Total	50 More than 50	50 - 20 From 20 - 50	20 Less than 20	
<b>Palestinian Territory</b>	<b>100</b>	<b>18.5</b>	<b>34.9</b>	<b>46.6</b>	
<b>West Bank</b>	<b>100</b>	<b>20.8</b>	<b>34.3</b>	<b>44.9</b>	
North of West Bank	100	10.6	24.4	65.0	
Middle of West Bank	100	36.0	43.6	20.4	
South of West Bank	100	21.1	38.2	40.7	
<b>Gaza Strip</b>	<b>100</b>	<b>5.5</b>	<b>38.6</b>	<b>55.9</b>	

2008

**Table 22: Percentage Distribution of Households in the Palestinian Territory by Number of Households Using the Same Cesspit and Region, 2008**

Region	Number of households using the same cesspit				
	Total	+5	4 - 2	1	
<b>Palestinian Territory</b>	<b>100</b>	<b>5.4</b>	<b>43.9</b>	<b>50.7</b>	
<b>West Bank</b>	<b>100</b>	<b>4.7</b>	<b>45.3</b>	<b>50.0</b>	
North of West Bank	100	2.7	42.2	55.1	
Middle of West Bank	100	5.4	51.1	43.5	
South of West Bank	100	6.2	44.5	49.3	
<b>Gaza Strip</b>	<b>100</b>	<b>9.6</b>	<b>35.8</b>	<b>54.6</b>	



2007

**Table 23: Percentage Distribution of Households that Use a Cesspit in the Palestinian Territory by Number of Times of Evacuation the Cesspit and Region, 2007**

Region	2007 Number of times evacuation the cesspit during 2007							المنطقة
	Total	+11	10 - 6	5 -3	2	1	0	
<b>Palestinian Territory</b>	<b>100</b>	<b>20.6</b>	<b>12.2</b>	<b>14.2</b>	<b>31.4</b>	<b>19.9</b>	<b>1.7</b>	
<b>West Bank</b>	<b>100</b>	<b>30.0</b>	<b>17.6</b>	<b>20.5</b>	<b>18.4</b>	<b>11.1</b>	<b>2.4</b>	
North of West Bank	100	29.8	14.7	19.8	23.0	12.1	0.6	
Middle of West Bank	100	33.9	28.1	19.1	11.1	5.3	2.5	
South of West Bank	100	24.8	7.2	23.4	22.3	17.6	4.7	
<b>Gaza Strip</b>	<b>100</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>60.5</b>	<b>39.5</b>	<b>0.0</b>	

2008

:24

**Table 24: Percentage Distribution of Households in the Palestinian Territory by Exposure to Noise and Region, 2008**

Region	Exposure to noise					
	Total	Very often	Sometimes	Seldom	No	
<b>Palestinian Territory</b>	<b>100</b>	<b>22.9</b>	<b>9.4</b>	<b>13.4</b>	<b>54.3</b>	
<b>West Bank</b>	<b>100</b>	<b>20.1</b>	<b>9.1</b>	<b>17.2</b>	<b>53.6</b>	
North of West Bank	100	19.6	6.5	25.3	48.6	
Middle of West Bank	100	17.6	14.0	18.3	50.1	
South of West Bank	100	23.4	7.6	4.3	64.7	
<b>Gaza Strip</b>	<b>100</b>	<b>28.5</b>	<b>9.7</b>	<b>6.1</b>	<b>55.7</b>	

2008

:25

**Table 25: Percentage Distribution of Households Exposed to Noise Sometimes or Very Often in the Palestinian Territory by Time of Exposure and Region, 2008**

Region	Time of exposure					
	Total	No specific time	6 - 8 8 PM - 6 AM	8 - 12 12 PM - 8 PM	12 - 6 6 AM - 12 PM	
<b>Palestinian Territory</b>	<b>100</b>	<b>69.6</b>	<b>7.0</b>	<b>12.3</b>	<b>11.1</b>	
<b>West Bank</b>	<b>100</b>	<b>64.2</b>	<b>9.1</b>	<b>13.4</b>	<b>13.3</b>	
North of West Bank	100	57.1	6.3	14.4	22.2	
Middle of West Bank	100	52.2	17.9	19.2	10.7	
South of West Bank	100	86.1	2.9	5.8	5.2	
<b>Gaza Strip</b>	<b>100</b>	<b>77.6</b>	<b>3.8</b>	<b>10.7</b>	<b>7.9</b>	

2008

:26

**Table 26: Percentage Distribution of Households Exposed to Noise Sometimes or Very Often in the Palestinian Territory by the Most Important Source of Noise and Region, 2008**

Region	Sources of noise						
	Total	Other	Industrial activities	Construction	Queries and stone cutting	Traffic	
<b>Palestinian Territory</b>	<b>100</b>	<b>18.4</b>	<b>7.3</b>	<b>2.5</b>	<b>0.7</b>	<b>71.1</b>	
<b>West Bank</b>	<b>100</b>	<b>12.2</b>	<b>6.2</b>	<b>3.4</b>	<b>1.1</b>	<b>77.1</b>	
North of West Bank	100	7.3	10.8	2.6	1.6	77.7	
Middle of West Bank	100	28.2	4.0	6.8	0.0	61.0	
South of West Bank	100	0.7	2.9	0.5	1.8	94.1	
<b>Gaza Strip</b>	<b>100</b>	<b>27.8</b>	<b>8.9</b>	<b>1.3</b>	<b>0.0</b>	<b>62.0</b>	

2008

:27

**Table 27: Percentage Distribution of Households in the Palestinian Territory by Exposure to Smell and Region, 2008**

Region	Exposure to smell					
	Total	Very often	Sometimes	Seldom	No	
<b>Palestinian Territory</b>	<b>100</b>	<b>11.1</b>	<b>12.3</b>	<b>7.0</b>	<b>69.6</b>	
<b>West Bank</b>	<b>100</b>	<b>13.3</b>	<b>13.4</b>	<b>9.1</b>	<b>64.2</b>	
North of West Bank	100	22.2	14.4	6.3	57.1	
Middle of West Bank	100	10.7	19.2	17.9	52.2	
South of West Bank	100	5.2	5.8	2.9	86.1	
<b>Gaza Strip</b>	<b>100</b>	<b>7.9</b>	<b>10.7</b>	<b>3.8</b>	<b>77.6</b>	

2008

:28

**Table 28: Percentage Distribution of Households Exposed to Smell Sometimes or Very Often in the Palestinian Territory by Time of Exposure and Region, 2008**

Region	Time of exposure					
	Total	No specific time	6 - 8 8 PM - 6 AM	8 - 12 12 PM - 8 PM	12 - 6 6 AM - 12 PM	
<b>Palestinian Territory</b>	<b>100</b>	<b>71.3</b>	<b>11.8</b>	<b>11.5</b>	<b>5.4</b>	
<b>West Bank</b>	<b>100</b>	<b>70.1</b>	<b>9.0</b>	<b>14.3</b>	<b>6.6</b>	
North of West Bank	100	67.4	9.7	11.9	11.0	
Middle of West Bank	100	52.4	14.8	26.4	6.4	
South of West Bank	100	86.8	3.7	7.0	2.5	
<b>Gaza Strip</b>	<b>100</b>	<b>72.9</b>	<b>15.9</b>	<b>7.6</b>	<b>3.6</b>	

2008

:29

**Table 29: Percentage Distribution of Households Exposed to Smell Sometimes or Very Often in the Palestinian Territory by the Most Important Source of Smell and Region, 2008**

Region	Sources of smell						
	Total	Other	مواصلات Transportation	Agricultural waste	Dumping site	Wastewater	
<b>Palestinian Territory</b>	<b>100</b>	<b>6.2</b>	<b>10.0</b>	<b>28.4</b>	<b>19.2</b>	<b>36.2</b>	
<b>West Bank</b>	<b>100</b>	<b>6.4</b>	<b>4.9</b>	<b>37.9</b>	<b>17.1</b>	<b>33.7</b>	
North of West Bank	100	2.6	1.7	48.1	25.5	22.1	
Middle of West Bank	100	12.6	14.1	19.5	13.6	40.2	
South of West Bank	100	5.7	0.7	42.4	11.5	39.7	
<b>Gaza Strip</b>	<b>100</b>	<b>5.8</b>	<b>17.4</b>	<b>14.8</b>	<b>22.3</b>	<b>39.7</b>	

2008

:30

**Table 30: Percentage Distribution of Households in the Palestinian Territory by Exposure to Dust and Region, 2008**

Region	Exposure to dust					
	Total	Very often	Sometimes	Seldom	No	
<b>Palestinian Territory</b>	<b>100</b>	<b>22.6</b>	<b>9.8</b>	<b>17.0</b>	<b>50.6</b>	
<b>West Bank</b>	<b>100</b>	<b>25.1</b>	<b>10.8</b>	<b>20.6</b>	<b>43.5</b>	
North of West Bank	100	21.1	7.0	26.9	45.0	
Middle of West Bank	100	24.6	13.6	20.2	41.6	
South of West Bank	100	31.5	13.3	11.8	43.4	
<b>Gaza Strip</b>	<b>100</b>	<b>17.7</b>	<b>7.9</b>	<b>10.1</b>	<b>64.3</b>	

2008

:31

**Table 31: Percentage Distribution of Households Exposed to Dust Sometimes or Very Often in the Palestinian Territory by Time of Exposure and Region, 2008**

Region	Time of exposure					
	Total	No specific time	6 - 8 8 PM - 6 AM	8 - 12 12 PM - 8 PM	12 - 6 6 AM - 12 PM	
<b>Palestinian Territory</b>	<b>100</b>	<b>76.4</b>	<b>4.5</b>	<b>10.5</b>	<b>8.6</b>	
<b>West Bank</b>	<b>100</b>	<b>71.8</b>	<b>5.7</b>	<b>12.5</b>	<b>10.0</b>	
North of West Bank	100	69.4	2.1	8.1	20.4	
Middle of West Bank	100	60.8	14.2	20.5	4.5	
South of West Bank	100	84.0	1.0	9.4	5.6	
<b>Gaza Strip</b>	<b>100</b>	<b>89.0</b>	<b>1.3</b>	<b>5.0</b>	<b>4.7</b>	

2008

:32

**Table 32: Percentage Distribution of Households Exposed to Dust Sometimes or Very Often in the Palestinian Territory by the Most Important Source of Dust and Region, 2008**

Region	Sources of dust						
	Total	Other	Industrial activities	Construction	Queries and stone cutting	Unpaved roads	
<b>Palestinian Territory</b>	<b>100</b>	<b>13.6</b>	<b>1.6</b>	<b>9.4</b>	<b>1.2</b>	<b>74.2</b>	
<b>West Bank</b>	<b>100</b>	<b>8.7</b>	<b>1.2</b>	<b>11.5</b>	<b>1.5</b>	<b>77.1</b>	
North of West Bank	100	16.6	3.1	6.7	0.8	72.8	
Middle of West Bank	100	5.8	0.0	26.5	0.0	67.7	
South of West Bank	100	4.2	0.6	2.0	3.5	89.7	
<b>Gaza Strip</b>	<b>100</b>	<b>27.4</b>	<b>2.8</b>	<b>3.8</b>	<b>0.0</b>	<b>66.0</b>	

2008

:33

**Table 33: Percentage Distribution of Households in the Palestinian Territory by Exposure to Smoke and Region, 2008**

Region	Exposure to smoke					
	Total	Very often	Sometimes	Seldom	No	
<b>Palestinian Territory</b>	<b>100</b>	<b>13.8</b>	<b>8.7</b>	<b>15.9</b>	<b>61.6</b>	
<b>West Bank</b>	<b>100</b>	<b>12.2</b>	<b>8.1</b>	<b>19.4</b>	<b>60.3</b>	
North of West Bank	100	10.8	5.5	28.2	55.5	
Middle of West Bank	100	8.4	9.5	20.2	61.9	
South of West Bank	100	18.2	10.4	5.9	65.5	
<b>Gaza Strip</b>	<b>100</b>	<b>17.0</b>	<b>10.0</b>	<b>9.0</b>	<b>64.0</b>	

2008

:34

**Table 34: Percentage Distribution of Households Exposed to Smoke Sometimes or Very Often in the Palestinian Territory by Time of Exposure and Region, 2008**

Region	Time of exposure					
	Total	No specific time	6 - 8 8 PM - 6 AM	8 - 12 12 PM - 8 PM	12 - 6 6 AM - 12 PM	
<b>Palestinian Territory</b>	<b>100</b>	<b>71.1</b>	<b>8.7</b>	<b>12.6</b>	<b>7.6</b>	
<b>West Bank</b>	<b>100</b>	<b>61.9</b>	<b>11.2</b>	<b>17.5</b>	<b>9.4</b>	
North of West Bank	100	65.9	8.4	15.3	10.4	
Middle of West Bank	100	41.4	17.4	31.7	9.5	
South of West Bank	100	72.6	9.1	9.8	8.5	
<b>Gaza Strip</b>	<b>100</b>	<b>84.3</b>	<b>5.2</b>	<b>5.5</b>	<b>5.0</b>	

2008

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**Table 35: Percentage Distribution of Households Exposed to Smoke Sometimes or Very Often in the Palestinian Territory by the Most Important Source of Smoke and Region, 2008**

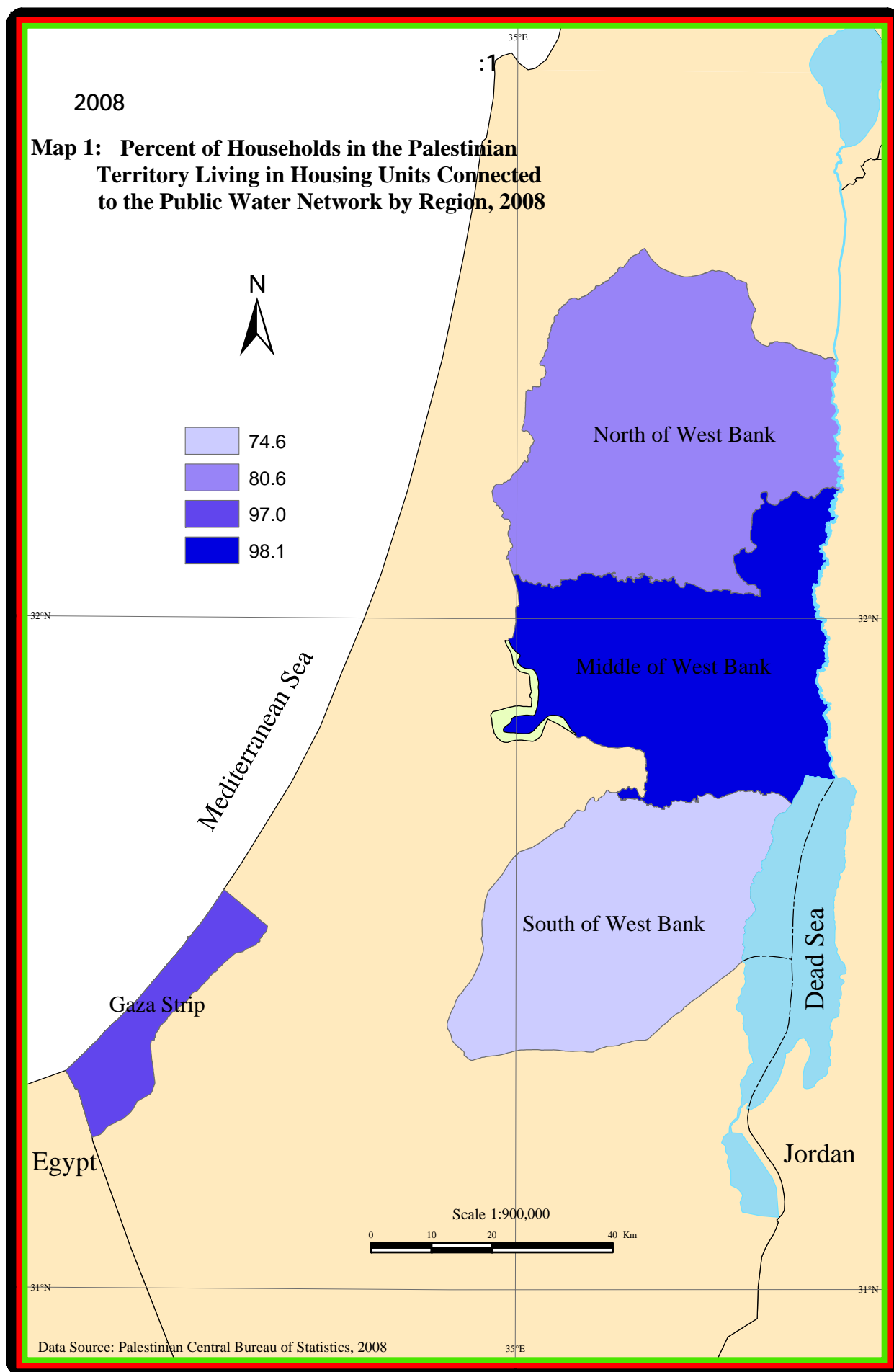
Region	Source of smoke						
	Total	Others	Construction	Transportation	Waste burning	Industrial activities	
<b>Palestinian Territory</b>	<b>100</b>	<b>21.1</b>	<b>3.9</b>	<b>30.4</b>	<b>41.5</b>	<b>3.1</b>	
<b>West Bank</b>	<b>100</b>	<b>22.8</b>	<b>5.9</b>	<b>20.4</b>	<b>46.6</b>	<b>4.3</b>	
North of West Bank	100	9.7	3.1	10.8	67.6	8.8	
Middle of West Bank	100	11.6	16.9	29.8	40.7	1.0	
South of West Bank	100	41.3	0.7	22.0	33.3	2.7	
<b>Gaza Strip</b>	<b>100</b>	<b>18.5</b>	<b>0.9</b>	<b>45.6</b>	<b>33.6</b>	<b>1.4</b>	



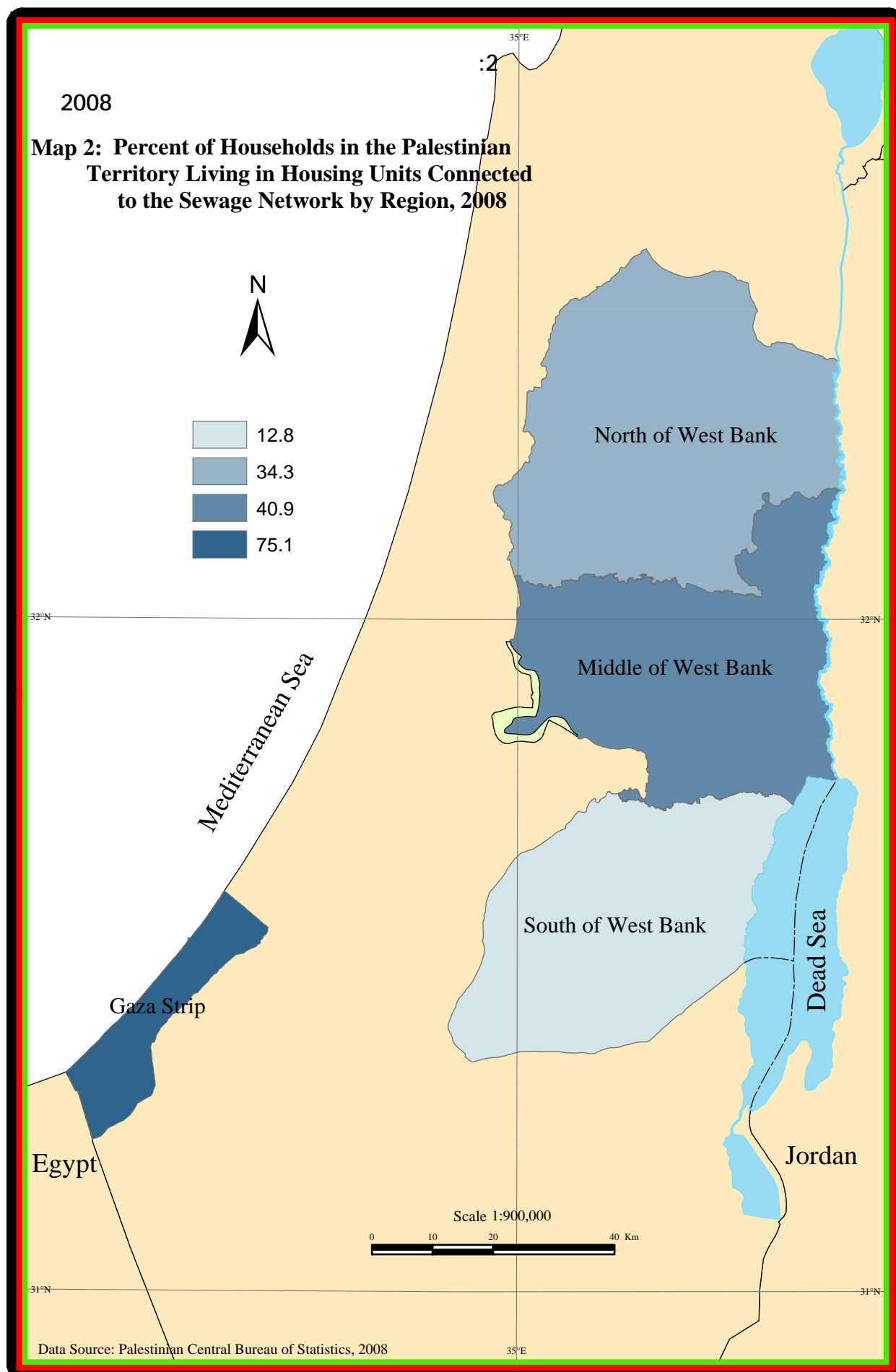
# Maps

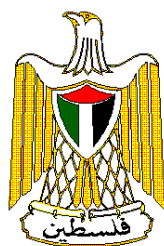












# **Palestinian National Authority Palestinian Central Bureau of Statistics**

## **Household Environmental Survey 2008 Main Findings**

**October, 2008**

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## **Preface**

We are pleased to publish this specialized statistical report on the environmental household sector in the Palestinian Territory. The report presents the main finding of the households environment survey 2008. This survey is part of our official effort for creating and establishing the National Statistical System and providing the necessary statistics to the Palestinian policy-planners and decision-makers in water, environment and natural resources sectors.

The world attention has increased to provide environmental statistical data on the household 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 Palestine to provide such data after many years of environment negligence and the absence of standards and rules during the period of the Israeli occupation.

This report is one of a series of expected reports to be published by the PCBS on the environment according to the plan for the Environment Statistical Department, as a tool for describing the status of environment in the Palestinian Territory.

This report handles the main results of the environmental household survey that has been conducted as an attached module with the Labour Force Survey (LFS) during the period from 25/05/2008 to 03/07/2008.

The main objective of this survey is to provide reliable data on environmental reality about the household sector 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 household sector.

This report presents statistical data on water consumption for the household sector by the water source, the methods of solid waste disposal and their main components, the disposal of wastewater, existence of cesspits and water wells. In addition to exposure to noise and air pollution by the source and time.

PCBS hopes that the main findings of this survey will contribute to 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.

**October, 2008**

**Luay Shabaneh, Ph.D  
President**



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## **Executive Summary**

This survey is a household sample survey, which was conducted during the period from 25/05/2008 to 03/07/2008. The main objective of this survey is to provide reliable data on environmental reality about the household sector in the Palestinian Territory, including the methods used to handle the solid waste and wastewater. This report presents statistical data on water consumption for the household sector by the water source, the methods of solid waste disposal and their main components, the disposal of wastewater, existence of cesspits and water wells. In addition to exposure to noise and air pollution by the source and time.

The 2008 survey results showed that 88.2% of the households in the Palestinian Territory live in housing units connected to water network, this indicate that the percentage of the households in the Palestinian Territory live in housing units connected to water network are increased comparing with 84.8% in 1999.

Data of the 2008 survey revealed that 45.6% of the households in the Palestinian Territory consider the water quality as good, and this percentage increase in the West Bank to reach 64.3% while in Gaza Strip 13.8%. comparing with the year 1999 the results indicates that the percentage of the households in the Palestinian Territory consider the water quality as good are decreased with 67.5% in 1999.

12.3% of households in the Palestinian Territory reported to dispose their waste by a household member. The Percentage of households that dispose their waste by a household member decreased to 9.7%, compared with the year 2006. Local Authorities collected solid waste for 61.6% of the households in 2008, while the percentage decreased to 69.4% in 2006. Data of 2008 revealed that throwing waste in the nearest container is the most important disposal method for 70.9% of households in the Palestinian Territory.

The average household daily production of household waste in the Palestinian Territory was estimated to be 4.6 kg, and the average per capita daily production of household waste is estimated to be 0.7 kg during 2008, while the total daily produced quantity of household waste is estimated to be 2,861.5 tons in the Palestinian Territory in 2008 comparing with 2,844 tons in 2006.

During 2008 data indicated that cesspits were used by 53.7% of households in the Palestinian Territory to disposal their wastewater. Wastewater network is used by 45.5% of households in the Palestinian Territory in 2008. When comparing the results of the year 2008 with the year 1999, we note that the percentage of households in the Palestinian Territory that used wastewater network increased comparing with to 39.3% in 1999.

Concerning exposure to noise, results of 2008 marked that 22.9% of households in the Palestinian Territory are exposed to noise very often, the percentage of households that are exposed to noise very often increased to 15.5% in compared with the year 2006. During 2008, 11.1% of households are exposed very often to smell, where as 22.6% of households are very often exposed to dust, and 8.7% only are sometimes exposed to smoke.



## Chapter One

### Introduction

#### 1.1 Introduction

Environmental statistics in the households sector are very interested and these statistics are an important instrument to make decisions, planning, and draw the outlines for environment. And relating to infrequency of data about this subject in the Palestinian Territory, the Palestinian Central Bureau of Statistics (PCBS) builds up and develop a database about the environment in the household sector.

This survey is based on a household sample survey, which was conducted during the period from 25/05/2008 until 03/07/2008. It provides basic statistics on various aspects of environment, including water, solid waste, wastewater, noise, and air pollution. A special questionnaire was designed in accordance with United Nation standards and recommendations in the field of environment statistics adapted to the Palestinian conditions. The questionnaire covered the following items:

1. Sources of water supply in houses.
2. Household solid waste disposal, its components, and its approximate quantity.
3. Wastewater disposal and the existence and use of cesspits in houses.
4. Air pollution in the area of the house by smell, dust and smoke.
5. Exposure to noise.

#### 1.2 Survey Aims

This survey presents data on various environmental households indicators in the Palestinian Territory, and presents statistical data on water consumption for the household sector by the water source, the methods of solid waste disposal and their main components, the disposal of wastewater, existence of cesspits and water wells. In addition to exposure to noise and air pollution by the source and time.

#### 1.3 Report Structure

This report consists of five chapters: the first chapter presents the survey objectives and the report structure, the second chapter describes the definitions and explanations, the third chapter briefly describes the main findings, while the fourth chapter presents the methodology used in the survey, consisting the questionnaire design, sampling design, fieldwork operations and data processing, and the last chapter includes an assessment of data quality and technical notes





## Chapter Two

### Concepts and Definitions

**Household**

One person or a group of persons with or without a household relationship, who live in the same housing unit, share meals and make joint provision of food and other essentials of living.

**Households Without Solid Waste Collection Service**

The households that are not receiving the solid waste collection service from any of the parts, the local authority or UNRW or the private contractor and dispose of waste by themselves, or by themselves beside another part, these households are considered non-served households.

**Environment**

The totality of all the external conditions affecting the life, development and survival of an organism.

**Cesspit**

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

**Dump**

Site used to dispose solid waste without environmental control.

**Dust**

Particles light enough to be suspended in the air.

**Air Pollution**

The presence of contaminants or pollutant substances in the air that do not disperse properly and that interfere with human health or welfare.

**Exposure To Noise And Air Pollution**

The respondent is considered to be exposed to noise, dust, smell or smoke if he considers it a real problem.

**Household Waste**

Waste material usually generated in the residential environment. Waste with similar characteristics may be generated in other economic activities and can thus be treated and disposed together with household waste.

**Agriculture Waste**

Waste produced as a result of various agricultural operations. It includes manure and other waste from farms, poultry houses and slaughterhouses; harvest waste; fertilizer run-off from fields; pesticides that enter into water, air or soil; and salt and silt drained from fields.

**Local Authority**

It is a government authorized by one of the ministries to have competence for providing public services, and handling the community affairs.

**Noise**

Audible sound from traffic, construction, and so on that may generate unpleasant and harmful effects ( hearing loss). It is measured in decibels.

**Open Burning**

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

**Public Water Network**

A net of pipes for the purpose of providing clean water to households. It normally belongs to a municipality, the council or to a private company.

**Sewage Network**

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

**Smoke**

Particles suspended in air after incomplete combustion of materials.

**Solid Waste**

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

**Waste Collection**

Collection or transport of waste to the place of treatment or discharge by municipal services or similar institutions, or by public or private 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.

**Wastewater**

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

**Water Quality**

The water without color, taste, smell or precipitates is considered as good water, the water with some color or taste or smell or precipitates but still acceptable from the respondent's point of view is considered to be fairly good water, and the water with some color or taste or smell or precipitates to an extent that is not acceptable from the respondent's point of view is considered to be bad water.

## Main Findings

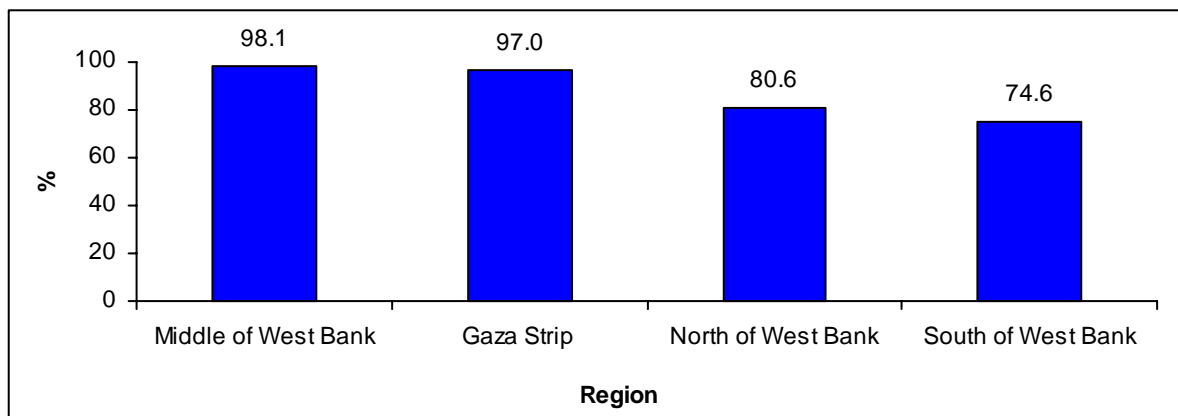
This section presents the main findings of the household environmental survey, 2008. Statistical results are classified according to the main components of environmental elements, including water, solid waste, wastewater, exposures to noise and air pollution.

### 3.1 Water

#### Water Sources

The 2008 survey results showed that 88.2% of the households in the Palestinian Territory live in housing units connected to water network, this indicate that the percentage of the households in the Palestinian Territory live in housing units connected to water network are increased comparing with 84.8% in 1999, this percentage distributed into 84.2% of households in the West Bank, against 97.0% of households in Gaza Strip. During 2008 there were 5.9% of the households in the Palestinian Territory depending on the household water wells as a main water source.

**Figure 1: Percentage of Households in the Palestinian Territory whom Living in Housing Units Connected to the Public Water Network and Region, 2008**



#### Household Water Quality

Data of the 2008 survey revealed that 45.6% of the households in the Palestinian Territory consider the water quality as good, and this percentage increase in the West Bank to reach 64.3% while in Gaza Strip 13.8%. comparing with the year 1999 the results indicates that the percentage of the households in the Palestinian Territory consider the water quality as good are decreased with 67.5% in 1999.

#### Availability of Domestic Wells

Results of 2008 showed that domestic rainwater wells are available and being used for 19.8% of households in the Palestinian Territory, while there is no domestic wells in Gaza Strip (it was 27.3% for the Palestinian Territory in 2006).

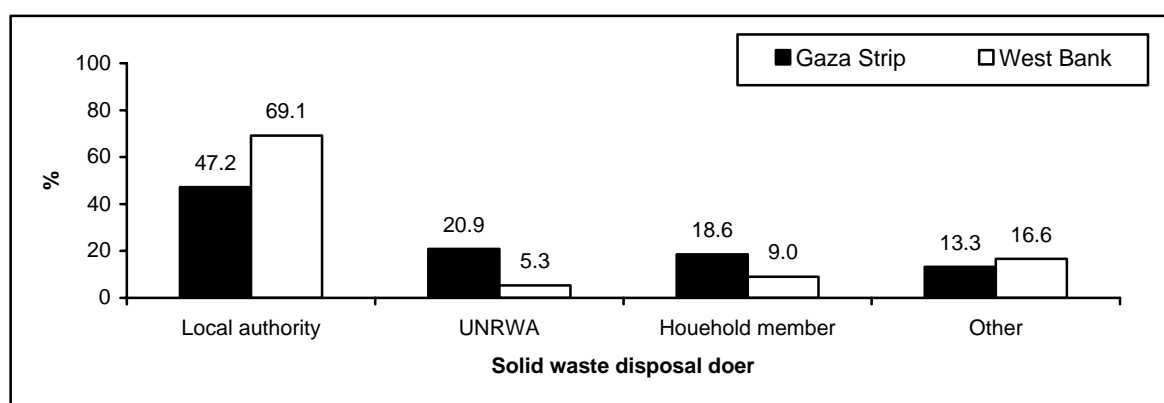
### 3.2 Solid Waste

#### Disposal of Solid Waste

The local authorities collected solid waste for 61.6% of households in the Palestinian Territory in 2008, while the percentage decreased to 69.4% in 2006, and UNRWA collected for 10.6% of households in Palestinian Territory in 2008, while it was 12.1% in 2006.

12.3% of households in the Palestinian Territory reported to dispose their waste by a household member. The Percentage of households that dispose their waste by a household member decreased to 9.7%, compared with the year 2006. Data of 2008 revealed that throwing waste in the nearest container and burned are the most important disposal method for 70.9% and 17.4% of households in the Palestinian Territory respectively.

**Figure 2: Percentage Distribution of Households in the Palestinian Territory by the Solid Waste Disposal Doer and Region, 2008**



#### Quantity of Solid Waste Produced Daily

Results showed that the approximate quantity of household waste produced daily is less than 4.0 kg for 68.3% of households in Palestinian Territory in 2008, while it is estimated more than 7.0 kg for 10.2% of them. The average of household daily production of household waste in Palestinian Territory in 2008 was estimated to be 4.6 kg, where it approaches 4.1 kg in the West Bank and 5.7 kg in Gaza Strip, while the quantity of solid waste produced daily reached 2,861.5 (ton) in the Palestinian Territory in 2008, (and these quantity distributed 1,752.2 (ton) in the West Bank, and 1,109.3 (ton) in Gaza Strip), comparing with 2,844 tons in 2006 .

#### Components of Solid Waste

Food waste is considered the most important component of household waste for 75.1% of households in the Palestinian Territory in 2008. About 19.5% of households in 2008 reported that baby's nabs waste is the most important component, paper and cartoon is considered the second most important component of solid waste for 63.2% of households.

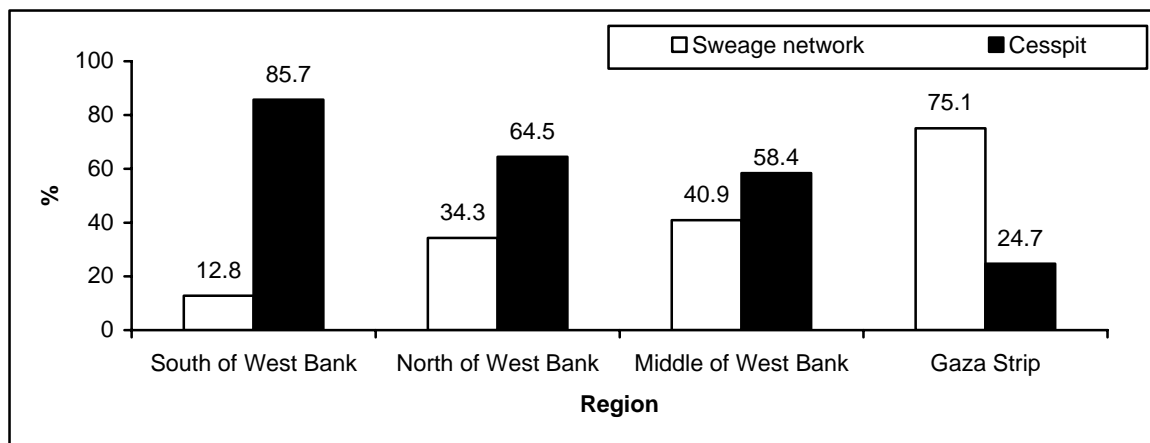
### 3.3 Wastewater

#### Wastewater Disposal Methods

During 2008 data indicated that cesspits were used by 53.7% of households in the Palestinian Territory to disposal their wastewater. Wastewater network is used by 45.5% of households in

the Palestinian Territory in 2008. When comparing the results of the year 2008 with the year 1999, we note that the percentage of households in the Palestinian Territory that used wastewater network increased comparing with to 39.3% in 1999.

**Figure 3: Percentage of Households in the Palestinian Territory by Wastewater Disposal Method and Region, 2008**



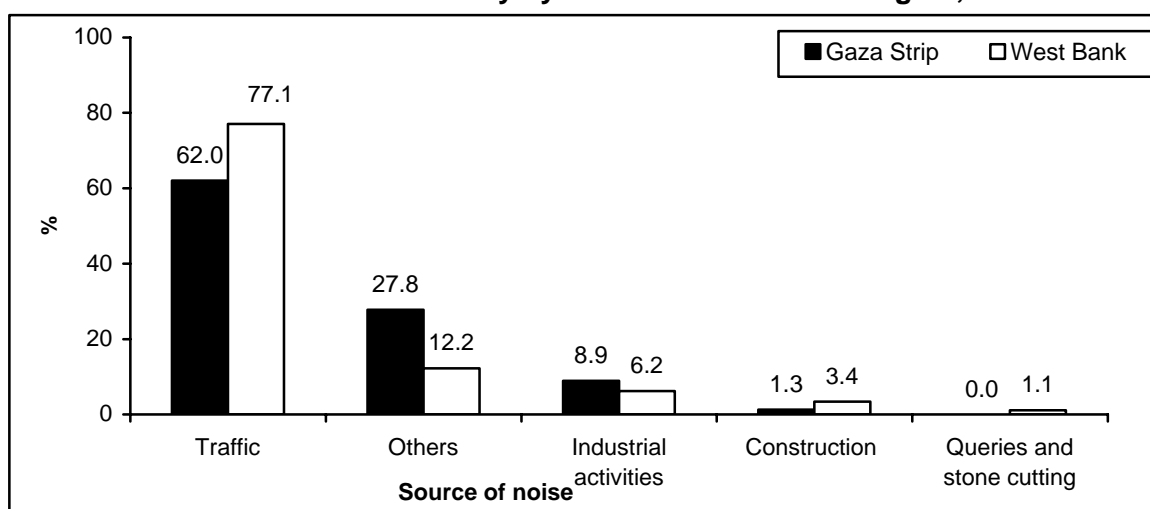
### 3.4 Exposure to Noise

Results indicated that 22.9% of households in the Palestinian Territory in 2008 are exposed to noise very often, the percentage of households that are exposed to noise very often increased to 15.5% in compared with the year 2006. where as 67.7% of households in the Palestinian Territory reported that they are seldomly or not exposed to noise.

69.6% of the households that exposed to noise sometimes or very often in the Palestinian Territory in 2008 reported that there is no specific time for exposure to the problem, while 12.3% expose to noise from 12 p.m-8 p.m.

Results showed that traffic is the most important source of noise for 71.1% of households exposed to noise sometimes or very often in the Palestinian Territory, while industrial activity is the most important source of noise for 7.3% of households.

**Figure 4: Percentage of Households Exposed to Noise Sometimes or very Often in the Palestinian Territory by Source of Noise and Region, 2008**



### **3.5 Air pollution**

#### **Exposure to Smells**

Results appeared that 11.1% of households in the Palestinian Territory are exposed very often to smell, where as 76.6% of households reported that they are seldomly or not exposed to smell.

The results appeared that 71.3% of households that exposed to smell sometimes or very often in the Palestinian Territory reported that there is no specific time for exposition to smell where as 11.8% expose to smell from 8 p.m–6 a.m.

Results showed that waste water is the most important source of smell for 36.2% of households exposed to smell sometimes or very often in the Palestinian Territory, while agricultural waste is the most important source of smell for 28.4% of households.

#### **Exposure to Dust**

Results indicated that 22.6% of households in the Palestinian Territory are very often exposed to noise, and 67.6% of households reported that they are seldomly or not exposed to dust.

Results showed that 76.4% of households that exposed to dust sometimes or very often in the Palestinian Territory reported that there's no specific time of exposition, whereas 10.5% expose to the problem from 12 p.m. - 8 p.m.

The unpaved roads considered the most important source of dust for 74.2% of households that are exposed to dust sometimes or very often in the Palestinian Territory.

#### **Exposure to Smoke**

Results showed that 13.8% of households in the Palestinian Territory only are sometimes exposed to smoke, and 77.5% of households in the Palestinian Territory are seldomly or not exposed to smoke.

Results appeared that 71.1% of households in the Palestinian Territory that exposed to smoke sometimes or very often reported that there is no specific time for exposal to smoke problem, whereas 12.6% expose to the problem from 12 p.m.–8 p.m.

The waste-burning considered the most important source of smoke for 41.5% of households that exposed to smoke sometimes or very often in the Palestinian Territory, while transport is the most important source of smoke for 30.4% of households that exposed to smoke sometimes or very often.

## Chapter Four

### Methodology

This section presents a documentation of the methodology used in preparing this report.

#### 4.1 Questionnaire

The environmental questionnaire was designed in accordance with the similar country experiments and with international standards and recommendations for the most important indicators, taking into account the special situation of the Palestinian Territory.

#### 4.2 Sample and Frame

The sample is a two-stage stratified cluster random sample.

##### Target Population

All Palestinians households living in the Palestinian Territory.

##### Sample Frame

Sampling frame consists of master sample chosen from census 1997, which update in 2003 and this master sample comprises geographical areas closed in size (number of households) which is the enumeration areas used in census, such frame has been used as the Primary Sampling Units (PSUs) in the first stage of selection.

##### Sample Size

The sample size is 3,094 Palestinian households in the Palestinian Territory, where this sample has been distributed according to the Labor Force Sample Survey.

##### Sample Design

The sample is a two-stage stratified cluster random sample, which is a sub-sample of Labor Force Survey (LFS) sample, that is conducted every 13 weeks. The total sample of Household Energy Survey is about 3,094 households occupies six weeks of the second quarter 2008 of LFS.

##### Stratification

In designing the sample of LFS three levels of stratification have been made:

1. Stratification by District.
2. Stratification by the locality type which comprises:  
(a) Urban                      (b) Rural                      (c) Camps
3. Stratification by locality size (no of households in the locality).

##### Sampling Unit

First stage sampling units are the enumeration in the master sample. The second stage sampling units are households.

##### Target Cluster Size

The “target cluster size” or “sample-take” is around 16 households per PSU.

##### Weighting and Variance Calculation

Because the sampling weight counteractive with the percentage sample from the frame, and as this ratio different from the percentage sample for the society in reference period, therefore the weight was adjusted to show number of population in the middle of 2008. And the weight



was adjusted to make the distribution of people in the sample by region, sort, and structure age become identical to this distribution on census 2007. Finally, weight were adjusted to compensate for incomplete cases that occur during data collecting.

### **4.3 Fieldwork**

#### **Training Fieldworkers**

Fieldworkers were trained on the main skills before the start of data collection. The interviewers were trained on the Household Environment Survey by implementing the training course in Ramallah and Nablus for the West Bank trainees and in Gaza for Gaza Strip trainees. Instructions for filling the questionnaire were made available for the interviewers. The training provides the participant with aims and definitions of the different indicators and expressions of the survey and how to fill in the questionnaire.

#### **Data Collection**

Field work started on 25/05/2008 and lasted until 03/07/2008. Field work teams were distributed to all districts proportional to the sample size of each governorate. The field work team consisted of 24 members including one field work coordinator, 4 supervisors, 4 editors and 15 interviewers.

During fieldwork 3,094 Households were visited in the Palestinian Territory, the end results for the interview become as following:

(2,613)	Completed
(34)	Traveled Household
(26)	Not Available Unit
(149)	No Body in the House
(148)	Not Populated Unit
(42)	No Data Available
(35)	Others
(47)	Refusal

#### **4.4 Reference Period**

field operations started on 25/05/2008 and lasted until 03/07/2008. The reference period was April 2008.

### **4.5 Data Processing**

The data processing stage consisted of the following operations:

#### **Preparation of data entry program**

In this stage data were entered into the computer, using Access Program. This program was prepared to satisfy a number of requirements such as:

- Duplication of the questionnaire on the computer screen.
- Logical and consistency check of data entered.
- Possibility for internal editing of questions answers.
- Maintaining a minimum of digital data entry and field work errors.
- User-Friendly handling.
- Possibility of transferring data into another format to be used and analyzed using other statistical analytical systems such as SPSS.

## Chapter Five

### Data Quality

The concept of data quality constructs of many aspects starting from the planning to the survey up to publishing method and understand the data. The main principles of the statistical quality are Accuracy, Comparability, and Data Quality Assurance Procedures.

#### 5.1 Accuracy

It includes many aspects of the survey mainly the statistical errors due to the sample, and also not 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:

##### 1. 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 a 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 so differences appear compared with the actual values that could be obtained through census. For this survey, variance calculations were made for average of household waste production, and disposal method of wastewater, and mean of obtaining water in the Palestinian Territory.

Variable	Estimate		Standard Error	C.V %	Confidence %95 Interval	
	Unit	Value			Lower	Upper
<b>Disposal method of wastewater</b>						
Sewage network	%	45.5	2.2	0.048	41.2	49.9
Porous cesspit	%	47.8	2.1	0.044	43.7	52.0
Tight cesspit	%	5.9	0.9	0.150	4.3	7.9
Others	%	0.8	0.2	0.245	0.5	1.3
<b>Public water network</b>	%	88.2	1.8	0.020	84.6	91.7
<b>Average household daily production</b>	Ton	289	0.09	264	237	342

##### 2. Non Sampling Errors

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).

The sources of these errors can be summarized in:

1. Some of the households were not in their houses and the interviewers couldn't meet them.
2. Some of the households didn't show attention toward the questionnaire.
3. Some errors occurred due to the way the questions were asked by interviewers.
4. Misunderstood of the questions by the respondents.
5. Answering the questions related to consumption by making estimations.

It is important to mention that a 5% from the sample of this survey was re-interviewed, the results of this re-interview were reported by the supervisors, the re-interview shows the variance in estimation By interviewers for wood, charcoal and olive cake consumed when the interviewer is different between the one who answers for the main survey questionnaire and the one who answers the re-interview questionnaire.

$$\begin{aligned}\text{None response rate} &= \frac{\text{Sum of none response cases}}{\text{Net sample}} \times 100\% \\ &= \frac{455}{3,068} \times 100\% = 15\%\end{aligned}$$

$$\begin{aligned}\text{Response rate} &= 100\% - \text{none response rate} \\ &= 100\% - 15\% = 85\%\end{aligned}$$

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

$$w'gi = wi * fgi$$

## 2.5 Comparability

The data of the Environmental household survey is comparable geographically and among time, the results when comparing the data between different geographical areas and when comparing the data of this survey with the data of previous surveys and with the Population, Housing and Establishment Census 2007 were close.

## 3.5 Data Quality Assurance Procedures

Several measures have been made to ensure quality control in the survey, such as the training of the fieldworkers on the 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 households, and then Audit questionnaire have been carried over before data entry, and then using a program that does not allow any mistakes during the process of data entry, and then examine the data were made to ensure that they are free from errors not been discovered earlier, after the receipt of the raw data file, cleaning and

inspection of the anomalous values have been made, and also inspection of the harmony 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 presented in tables (4,11,12,19,20 and 21) are reported data.
- The definition of water network includes private contractor in which the owner of an artisan well is selling the water to some of the community inhabitant in correspondence to certain fee.
- The cesspit was considered to be evacuated if this was happened at least once during the residential period. The periodicity of evacuation the cesspit was determined by the length of the last period during which the cesspit was not evacuated.
- Data concerning noise, smell, dust and smoke indicators were according the respondent's evaluation, and depend on the season when the survey implemented.



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