



مركز الإحصاء
STATISTICS CENTRE



Waste Statistics in the Emirate of Abu Dhabi 2012

Issued in December 2013

Contents

| | |
|-----------------------------------|-----------|
| Introduction | 3 |
| Waste in Abu Dhabi Emirate | 4 |
| Non-hazardous waste | 4 |
| Solid waste generation | 4 |
| Solid Waste Disposal | 7 |
| Municipal solid waste | 8 |
| Hazardous Waste | 9 |
| Waste Management Plants | 10 |
| Explanatory Notes | 11 |
| Technical Terms | 11 |
| Data Sources | 12 |
| Technical Notes | 12 |
| Methodology | 12 |
| Notes on Tables | 12 |
| More information | 12 |

Introduction

This report presents statistics on waste generation in the Emirate of Abu Dhabi for the year 2012, comprising statistics on waste by source activity, composition and method of disposal, in addition to municipal and hazardous solid waste statistics. The Centre of Waste Management – Abu Dhabi and Abu Dhabi National Oil Company (ADNOC) are the main sources of the report statistics.

The “Explanatory Notes” section at the end of this report defines the key terms and technical concepts related to waste statistics. Readers are encouraged to refer to that section while reading the statistics and information outlined in the report.

Waste in Abu Dhabi Emirate

Waste known as the unwanted materials caused by the daily activities of human beings, whether domestic or municipal or industrial activities. Waste management and treatment are of particular interest to the government of Abu Dhabi Emirate in order to minimize the waste effects on health.

The amount of waste generated in the Emirate of Abu Dhabi totaled about 12.8 million tons in 2012; non-hazardous waste formed 99.4%, while hazardous waste accounted for a small proportion of about 0.6% as shown in Table (1).

Table (1): Total Non-hazardous and hazardous solid waste in Abu Dhabi Emirate

(Tons)

| Source | 2009 | 2010 | 2011 | 2012 |
|---------------------|------------------|-------------------|-------------------|-------------------|
| Total | 9,839,206 | 10,609,400 | 10,691,186 | 12,845,934 |
| Non-hazardous waste | 9,768,364 | 10,476,887 | 10,565,031 | 12,765,163 |
| Hazardous waste | 70,842 | 132,513 | 126,155 | 80,771 |

Source: The Centre of Waste Management - Abu Dhabi, ADNOC.

Non-hazardous waste

Non-hazardous waste refers to materials that cause no serious environmental problems and are easy to dispose in an environmentally safe manner. The economic growth witnessed by the Emirate in various fields such as construction and demolition activities, in addition to industrial, commercial and agricultural activities caused an increase in the amount of waste generated over the years. Over the years, waste treatment and management have been developed to cope with the increase of waste amount.

- **Solid waste generation**

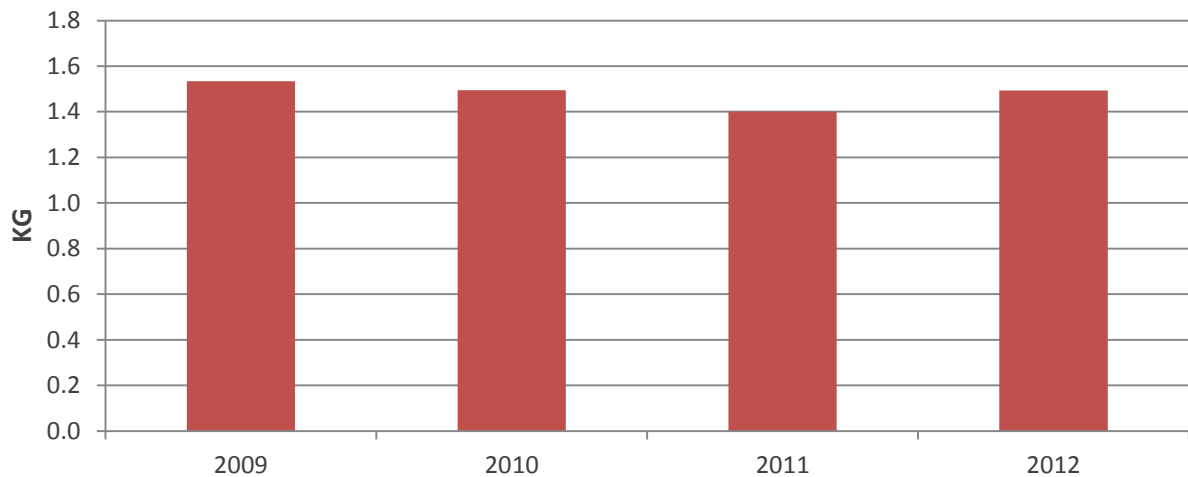
Table (2) refers to the amount of waste generated in the Emirate of Abu Dhabi by source, and economic activity. It also illustrates the change happened between 2009 and 2012. Data shows that the total amount of waste in 2012 increased by 30.6%; construction and demolition waste accounted for more than 75%. The daily per capita municipal waste was approximately 1.5 kg /day in the same year.

Table (2): Non-hazardous solid waste generation by source activity
(Tons)

| Source | 2009 | 2010 | 2011 | 2012 |
|---|------------------|-------------------|-------------------|-------------------|
| Total | 9,768,363 | 10,476,887 | 10,565,031 | 12,765,163 |
| Construction and demolition waste | 7,050,000 | 7,402,500 | 7,624,575 | 9,628,309 |
| C & D waste | 4,692,857 | 4,927,500 | 5,075,325 | 5,721,367 |
| C & D mixed waste | 2,357,143 | 2,475,000 | 2,549,250 | 3,906,942 |
| Industrial and commercial waste | 594,857 | 624,600 | 643,338 | 804,174 |
| Agriculture waste | 754,571 | 792,300 | 816,069 | 898,258 |
| General agriculture waste | 58,571 | 61,500 | 63,345 | 305,749 |
| Agriculture mixed waste | 551,714 | 579,300 | 596,679 | 449,114 |
| Animal waste | 144,286 | 151,500 | 156,045 | 143,395 |
| Municipal waste | 1,022,286 | 1,073,400 | 1,105,602 | 1,272,668 |
| Households, streets, and public gardens waste | 794,571 | 834,300 | 859,329 | 1,059,219 |
| Bulky waste | 227,714 | 239,100 | 246,273 | 213,449 |
| Sludge | 124,827 | 131,068 | 135,000 | 59,261 |
| Oil and Gas Waste | 210,679 | 441,319 | 228,396 | 87,968 |
| Other (Tires waste) | 11,143 | 11,700 | 12,051 | 14,525 |

Source: The Centre of Waste Management - Abu Dhabi, ADNOC.

Chart (1): Daily per capita of municipal waste



Source: Statistic Centre - Abu Dhabi.

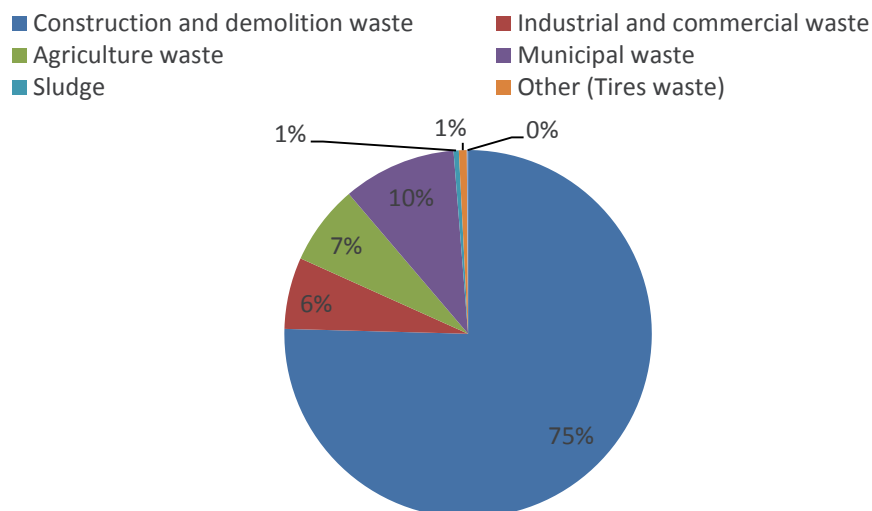
Table (3) shows the amount of non-hazardous solid waste by region; the average daily production of waste in the Emirate of Abu Dhabi in 2012 was about 35 thousand tons / day, while the total amount of waste was about 12.765 million tons / year. Abu Dhabi region generated about 67%. Figure (2) shows the percentage distribution of waste by source activity.

Table (3): Non-hazardous solid waste generation by region and source activity, 2012
(Tons)

| Source | Total | Abu Dhabi | Al Ain | Al Gharbia |
|---|-------------------|------------------|------------------|------------------|
| Total | 12,765,163 | 8,527,781 | 2,771,098 | 1,466,284 |
| Daily average | 34,973 | 23,364 | 7,592 | 4,017 |
| Construction and demolition waste | 9,628,309 | 6,694,919 | 1,881,040 | 1,052,350 |
| C & D waste | 5,721,367 | 4,374,810 | 895,755 | 450,802 |
| C & D mixed waste | 3,906,942 | 2,320,109 | 985,285 | 601,548 |
| Industrial and commercial waste | 804,174 | 450,210 | 201,523 | 152,441 |
| Agriculture waste | 898,258 | 345,305 | 383,236 | 169,717 |
| General agriculture waste | 305,749 | 102,564 | 126,500 | 76,685 |
| Agriculture mixed waste | 449,114 | 189,526 | 193,057 | 66,531 |
| Animal waste | 143,395 | 53,215 | 63,679 | 26,501 |
| Municipal waste | 1,272,668 | 892,895 | 293,042 | 86,731 |
| Households, streets, and public gardens waste | 1,059,219 | 802,433 | 199,035 | 57,751 |
| Bulky waste | 213,449 | 90,462 | 94,007 | 28,980 |
| Sludge | 59,261 | 48,234 | 8737 | 2290 |
| Oil and Gas | 87,968 | 87,968 | 0 | 0 |
| Other (Tires waste) | 14,525 | 8,250 | 3,520 | 2,755 |

Source: Statistic Centre - Abu Dhabi, ADNOC.

Chart (2): Percentage distribution of Non-hazardous solid waste by source activity - 2012



Source: Statistic Centre - Abu Dhabi.

• Solid Waste Disposal

Table (4) displays the quantity of solid waste by method of disposal, showing that waste recycling increased from 23.6% in 2009 to 29.8% in 2011. Solid waste composted increased as well from 1.7% to 2.9% during the same years.

Table (4): Solid waste generation by method of disposal
(Tons)

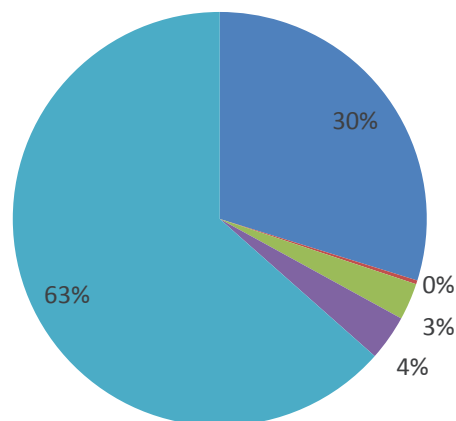
| Source | 2009 | 2010 | 2011 | 2012 |
|---------------------|------------------|-------------------|-------------------|-------------------|
| Total | 9,768,364 | 10,476,887 | 10,565,031 | 12,765,163 |
| Recycling | 2,308,000 | 2,423,400 | 3,802,848 | 3,805,411 |
| Incineration | - | 0 | 34,029 | 37,830 |
| Composting | 170,667 | 179,200 | 269,786 | 367,273 |
| Landfill | 137,429 | 144,300 | 367,263 | 452,704 |
| Dumpsite and Other* | 7,152,268 | 7,729,987 | 6,091,105 | 8,101,945 |

Source: The Centre of Waste Management - Abu Dhabi, ADNOC.

*Disposed through other specialized companies.

Chart (3): Percentage distribution of solid waste by source and method of disposal

■ Recycling ■ Incineration ■ Composting ■ Landfill ■ Dumpsite & Other*



Source: Statistic Centre - Abu Dhabi.

*Disposed through other specialized companies.

- **Municipal solid waste**

Municipal solid waste in the Emirate of Abu Dhabi totaled 1.272 million tons in 2012, of which 59% was disposed in dumpsite, while 17% was composted to be used in agricultural field as shown in Table (5). Figure (4) shows the relative distribution of municipal solid waste.

Table (5): Municipal solid waste by method of disposal - 2012

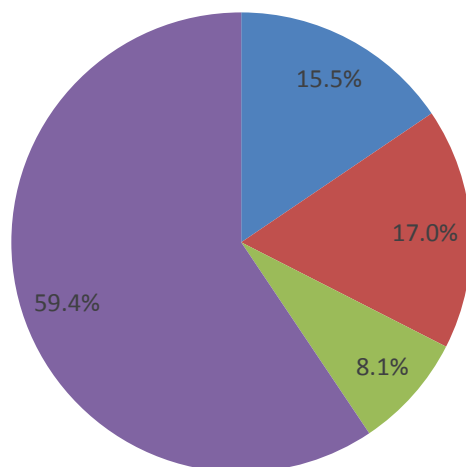
(Tons)

| Method of disposal | 2012 |
|--------------------|------------------|
| Total | 1,272,668 |
| Recycling | 197,590 |
| Composting | 216,000 |
| Landfill | 103,120 |
| Dumpsite and other | 755,958 |

Source: The Centre of Waste Management - Abu Dhabi.

Chart (4): Percentage distribution of municipal solid waste by method of disposal - 2012

■ Recycling ■ Composting ■ Landfill ■ Dumpsite and other



Source: The Centre of Waste Management - Abu Dhabi.

Hazardous Waste

Hazardous solid waste consists of medical waste in addition to waste generated by industrial and oil/ gas sectors. Hazardous solid waste totaled 80 thousand tons in 2012. Table (7) reveals that 27% of the hazardous solid waste received a special treatment, while 56% was sent to hazardous waste dump and 17% was incinerated.

Table (6): Hazardous solid waste generation by source activity

(Tons)

| Source | 2009 | 2010 | 2011 | 2012 |
|---------------------------|---------------|----------------|----------------|---------------|
| Industrial waste | 18,033 | 18,935 | 19,503 | 30,758 |
| Medical waste | 4,657 | 4,890 | 5,037 | 6,000 |
| Slaughterhouses waste | 24,857 | 26,100 | 26,883 | 31,931 |
| Other fallen stocks waste | 9,714 | 10,200 | 10,506 | na |
| Oil and Gas sector waste | 13,581 | 72,388 | 64,226 | 12,082 |
| Total | 70,842 | 132,513 | 126,155 | 80,771 |

Source: The Centre of Waste Management - Abu Dhabi, ADNOC.

Table (7): Hazardous waste generation by disposal method and source activity - 2012

(Tons)

| Source | Total | Hazardous Waste dump | Incineration and ash to hazardous waste dump | Special treatment in the general dump and other |
|--------------------------|-----------------|----------------------|--|---|
| Industrial waste | 30,758.2 | 20,584.0 | - | 10,174.2 |
| Medical waste | 6,000.0 | - | 6,000.0 | - |
| Slaughterhouses waste | 31,931.0 | 20,156.0 | - | 11,775.0 |
| Oil and Gas sector waste | 12,081.9 | 4,521.0 | 7,560.9 | - |
| Total | 80,771.1 | 45,261.0 | 13,560.9 | 21,949.2 |

Source: The Centre of Waste Management - Abu Dhabi, ADNOC.

Waste Management Plants

The Government of Abu Dhabi is keen to provide a healthy environment and it pays a special attention to advanced waste treatment methods. The total number of waste management projects in the Emirate of Abu Dhabi reached 35 projects in 2012, including 10 landfills, and 6 special treatment projects.

Table (8): Waste management plants in Emirate of Abu Dhabi - 2012

| Region | Landfill | Dumpsite | Incineration | Composting | Special Treatment | Other | Total |
|--------------|----------|-----------|--------------|------------|-------------------|-----------|-----------|
| Abu Dhabi | 0 | 1 | 0 | 2 | 4 | 6 | 13 |
| Al Ain | 1 | 1 | 2 | 1 | 2 | 6 | 13 |
| Al Gharbia | 0 | 8 | 0 | 1 | 0 | 0 | 9 |
| Total | 1 | 10 | 2 | 4 | 6 | 12 | 35 |

Source: The Centre of Waste Management - Abu Dhabi.

Explanatory Notes

Technical Terms

This report contains certain terms related to waste; these terms play an important role when analyzing waste statistics for the Emirate of Abu Dhabi. The report includes the following terms:

Municipal Solid Waste (MSW)

The waste that consists of organic materials and trash generated in the kitchen and other households uses. MSW is generated by households and buildings in the residential areas.

Commercial and Industrial Waste

It basically includes municipal waste generated by restaurants, hotels, shopping malls, labour camps and other public and private facilities.

Industrial Hazardous Waste

The waste generated from industrial activities, laboratories, workshops and other public and private facilities that deal with hazardous materials.

Medical Hazardous Waste

The waste generated from hospitals, clinics and medical laboratories. It consists of human parts, tissues, blood, and waste resulting from surgical operations.

Mixed Waste

The waste composed of household trash mixed with building materials and sand in storage locations and / or during the collection.

Safe Waste Landfill

The site, where waste is buried and processed in secure cells. Unlike medical waste landfill, safe waste landfill has no sewage system for contaminated water.

Waste Tires

Waste tires collected from factories and repair workshops.

Construction and Demolition Waste

The waste results from construction and demolition activities.

Slaughterhouse Waste

The waste that composed of animals remains and is generated from slaughterhouses and animal shelters.

Large-scale Waste

The waste composed of unwanted household items and packaging materials resulted from commercial activities.

Data Sources

The main sources of the statistics are the Centre of Waste Management – Abu Dhabi, and Abu Dhabi National Oil Company (ADNOC). Data was processed in the Statistics Centre – Abu Dhabi (SCAD) for more editing and research.

Technical Notes

Methodology

Waste generation data in Abu Dhabi, Al Ain and Al Gharbia regions was calculated based on truck scale reports. In case reports were not available, data was calculated based on reports collected from waste contractors and waste sites.

Medical waste data in Abu Dhabi and Al Gharbia regions was estimated based on Al Ain data (actual data derived from truck scale reports of medical waste incineration sites).

Notes on Tables

Changes (levels and per cent) in all tables are based on unrounded numbers.

More information

For more information about waste and other official statistics for Abu Dhabi Emirate, please visit the statistics link on the SCAD website at <http://www.scad.ae>

Next release is expected in December 2014 covering 2013 data.

w w w . s c a d . a e

Tel: +971 2 8100000 - Fax: +971 2 8100800

P.O. Box: 6036, Abu Dhabi, U.A.E.