

BOTSWANA ENVIRONMENT STATISTICS

WATER & CLIMATE DIGEST 2014

STATISTICS BOTSWANA

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BOTSWANA ENVIRONMENT STATISTICS:
WATER & CLIMATE DIGEST 2014

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PREFACE

This is the first edition of the Botswana Environment: Water and Climate Digest, which eventually will be produced on a quarterly basis. The purpose of the Digest is to provide data for use by decision-makers in water management as well as for monitoring trends related to climate.

The indicators in this report cover data on dam levels, water production, rainfall and temperature. The indicators will however be gradually expanded in subsequent editions as more data become available.

In compiling this report, international standards and guidelines were followed, particularly the United Nations Framework for the Development of Environment Statistics (UNFDES) and the United Nations International Recommendations for Water Statistics. Eventually, the data collected through these methodologies would feed into the UN System of Environmental Economic Accounting (SEEA) for water and hence facilitate an informed management of water resources.

The sustained production of the Water and Climate Digest would depend on the cooperation of relevant data providers to provide the necessary data. I therefore would like to extend by gratitude and appreciation to all stakeholders who assisted in the production of this digest, in particular the Water Utilities Corporation and the Department of Meteorological Services for availing the water and climate data as required.

For more information and further enquiries, contact the Directorate of Stakeholder Relations at 3671300. All Statistics Botswana outputs/publications are available on the website at www.cso.gov.bw and at the Statistics Botswana Library (Head-Office, Gaborone).



A. N. Majelantle
Statistician General

May 2015

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EXECUTIVE SUMMARY

Botswana is a semi-arid country with erratic rainfall and limited surface water resources. "The country's proximity to the subtropical high-pressure belt of the southern hemisphere accounts for its largely arid or semi-arid climatic regime." (Statistics Botswana: 2001). The aridity of the country and the scarcity of water resources necessitate prudent management of the resource. This in turn necessitates conscientious monitoring of water resource use and availability. Climatic conditions largely determine the availability of water through rainfall and evaporation trends.

This report looks at water and climate statistics, based on the indicators of dam levels, water production, rainfall, and temperatures.

Botswana has nine dams from which surface water is sourced. They are the Gaborone, Nnywane, Bokaa, Letsibogo, Shashe, Ntimbale, Thune, Lotsane and the Dikgathong dams. Dikgathong dam is the country's largest dam by capacity at 400 million cubic metres (Mm³) while Nnywane is the smallest at 2.3 million cubic meters.

While dam levels typically fall and rise seasonally, Gaborone dam has demonstrated a general continual drop over the years, at a higher rate than the other dams. During the year 2014, Gaborone and Bokaa dams had the lowest percentage levels. The two dams supply water to a populous area.

Gaborone dam had the fastest decline in levels over the period 1990 to 2010 while Bokaa and Shashe dams experienced a moderate decline during the same period. On the contrary, Nnywane and Letsibogo dam levels increased during the reference period, the latter experiencing a steep incline.

Potable water production is carried out through fifteen (15) management centres throughout the country by Water Utilities Corporation (WUC).

Gaborone City recorded the highest water production, used to meet the demand of its population, which is the highest among all the cities and towns. Between 2006 and 2011, Lobatse experienced a remarkable rise in water production. Water production is higher in the southern regions than in the northern regions of the country.

Rainfall is measured by the Department of Meteorological Services (DMS) at 15 rainfall stations and 17 synoptic stations around the country. Only those stations with available data have been considered in this report. The year 2010/11 was the wettest, followed by the years 2012/13 and 2011/12 respectively. Lobatse recorded the highest single month rainfall in January 2010/11, while Kasane, Shakawe and Maun have the highest rainfall over the period under study.

Data used for temperature in this report is from 8 stations across the country. The lowest mean monthly minimum temperature recorded during the period under study was for Tsabong airport at -0.2 oC, in July 2002/03. The highest mean monthly minimum temperature recorded was for Maun airport, at 22.2 oC in December 2003/04. The highest mean monthly maximum temperature for the period is of Maun at 37.6 oC in October 2005/06. The lowest mean monthly maximum temperature for the period is of Tsabong at 19.2 oC in July 2009/10.

Maun airport had the highest mean annual maximum temperatures over the period, while Sir Seretse Khama airport (SSKA) had the lowest mean annual maximum temperatures.

1. WATER

1.1. Dam Levels

Botswana has nine dams from which surface water is sourced. They are the Gaborone, Nnywane, Bokaa, Letsibogo, Shashe, Ntimbale, Thune, Lotsane and the Dikgathong dams. Botswana also imports water from Molatedi dam in the Republic of South Africa. The dam capacities are indicated in Table 1.1. Dikgathong dam is the country's largest dam by capacity at 400 million cubic metres (Mm³) while Nnywane is the smallest at 2.3 million cubic meters.

Table 1.1: Dam Capacities

Dam	Capacity (Mm ³)
Gaborone Dam	141.4
Bokaa Dam	18.5
Letsibogo	100
Nnywane	2.3
Shashe	85
Ntimbale	26.6
Lotsane	40
Thune	90
Dikgathong	400
Molatedi (Republic of South Africa)	201

Source: Statistics Botswana

Note: Molatedi dam is in South Africa and provides imported water to Botswana

Dam levels are determined by rainfall in the catchment areas as well as inflows and outflows of water into and out of the dams. As shown in Table 1.2, there was a decline in the level of dams during 2014 as a result of the dry season. In September 2014, Gaborone dam compared to the other dams registered the lowest level at 8.5 percent while Dikgathong dam maintained a relatively high level at 92.3 percent. Some dams also kept reasonable levels such as Ntimbale at 88.7 percent, Lotsane (80.7 percent), Shashe (80.6 percent) and Letsibogo at 78.7 percent.

Table 1.2: Percentage dam levels in 2014

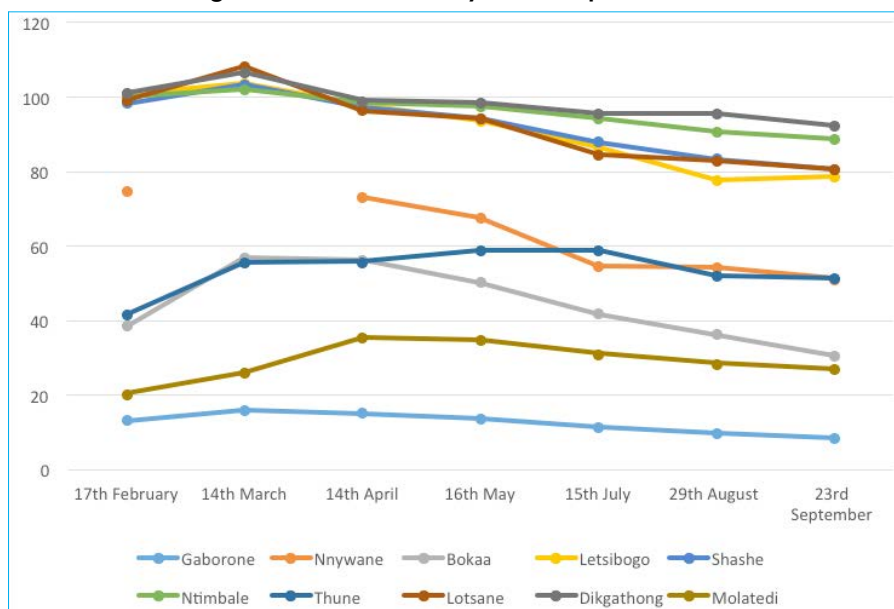
Dam	Date							23 rd
	17 th February	14 th March	14 th April	16 th May	15 th July	29 th August	September	
Gaborone	13.2	16	15.1	13.7	11.3	9.8	8.5	
Nnywane	74.7	-	73	67.6	54.6	54.1	51.1	
Bokaa	38.5	57	56.2	50.2	41.8	36.3	30.5	
Letsibogo	100.9	103.7	97.7	93.6	86.6	77.5	78.7	
Shashe	98.3	103.4	97.3	94.3	87.9	83.4	80.6	
Ntimbale	100	102	98.4	97.5	94.1	90.5	88.7	
Thune	41.6	55.5	55.7	58.7	*58.7	52	51.2	
Lotsane	99.1	108.3	96.4	94.2	84.5	82.9	80.7	
Dikgathong	101	106.5	98.9	98.3	95.6	95.4	92.3	
Molatedi	20.2	26	35.3	34.6	31	28.4	26.8	

*Thune dam July figure is for 27 June 2014

Dash (-) = no data

Source: Water Utilities Corporation publications

Figure 1.1: Dam levels by dates of publication



Indications are that the decline of dam levels began around mid-month in March 2014. Prior to that, there was a slight rise in the reserves remaining in the dams, probably due to late rains and flow in from the dams catchments. After the month of March the general trend is that of declining dam levels as the dry season progresses.

Tables 1.3 and 1.4 show the long term data of dam levels from 1990 to 2011. However, some of the dams had not been constructed and commissioned in the earlier years and hence the data gaps. Table 1.5 shows the monthly dam levels for the year 2014. Figure 1.2 illustrates that of the selected dams, Gaborone dam had the fastest decline in levels over the period 1990 to 2010 while Bokaa and Shashe dams experienced a moderate decline during the same period. On the contrary, Nnywane and Letsibogo dam levels increased during the reference period, the latter experiencing a steep incline.

Table 1.3: Dam levels in million cubic metres (1990-2011)

Year	Gaborone	Nnywane	Bokaa	Letsibogo	Shashe
1990	113.1	0.4	n/a	n/a	84.8
1991	85.6	0.1	n/a	n/a	71.7
1992	108.5	1.3	7.2	n/a	63.4
1993	102.3	1.7	10.4	n/a	71.4
1994	90.1	2	10.5	n/a	66.6
1995	109.1	2	13.6	n/a	77.3
1996	130	2	12.4	n/a	67.5
1997	126.6	2	11.3	7.5	67.4
1998	97.2	1.1	3.3	10.6	66.9
1999	95.8	1.4	9.6	37.2	72.4
2000	121.8	2.1	17	85.1	72.5
2001	135.6	1.9	18.5	68	76.6
2002	99.1	1	9	38	39.2
2003	65	0.6	3.5	49	23.5
2004	36.8	1.6	10.4	93	63.5
2005	24	2.2	3.7	95	88.7
2006	91.9	1.1	10.4	76	45.2
2007	80.6	2.2	18.4	70	86.1
2008	73.5	1.3	9.3	66	53.1
2009	83.4	1.6	12.7	83	63.5
2010	52.3	1.1	11	82	68.7
2011	96.2	1.4	4.8	60	87

Source: Water Utilities Corporation

Table 1:4: Dam levels by percentage of full capacity (1990-2011)

Year	Gaborone	Nnywane	Bokaa	Letsibogo	Shashe	Ntimbale	Thune	Lotsane	Dikgathong	Molatedi
1990	80.0	17.4	-	-	99.8					-
1991	60.5	4.3	-	-	84.4					-
1992	76.7	56.5	38.9	-	74.6					-
1993	72.3	73.9	56.2	-	84.0					-
1994	63.7	87.0	56.8	-	78.4					-
1995	77.2	87.0	73.5	-	90.9					-
1996	91.9	87.0	67.0	-	79.4					-
1997	89.5	87.0	61.1	7.5	79.3					-
1998	68.7	47.8	17.8	10.6	78.7					-
1999	67.8	60.9	51.9	37.2	85.2					-
2000	86.1	91.3	91.9	85.1	85.3					-
2001	95.9	82.6	100.0	68.0	90.1					-
2002	70.1	43.5	48.6	38.0	46.1					-
2003	46.0	26.1	18.9	49.0	27.6					-
2004	26.0	69.6	56.2	93.0	74.7					-
2005	17.0	95.7	20.0	95.0	104.4					-
2006	65.0	47.8	56.2	76.0	53.2					-
2007	57.0	95.7	99.5	70.0	101.3					-
2008	52.0	56.5	50.3	66.0	62.5					-
2009	59.0	69.6	68.6	83.0	74.7	-				-
2010	37.0	47.8	59.5	82.0	80.8	-				-
2011	68.0	60.9	25.9	60.0	102.4	-				-

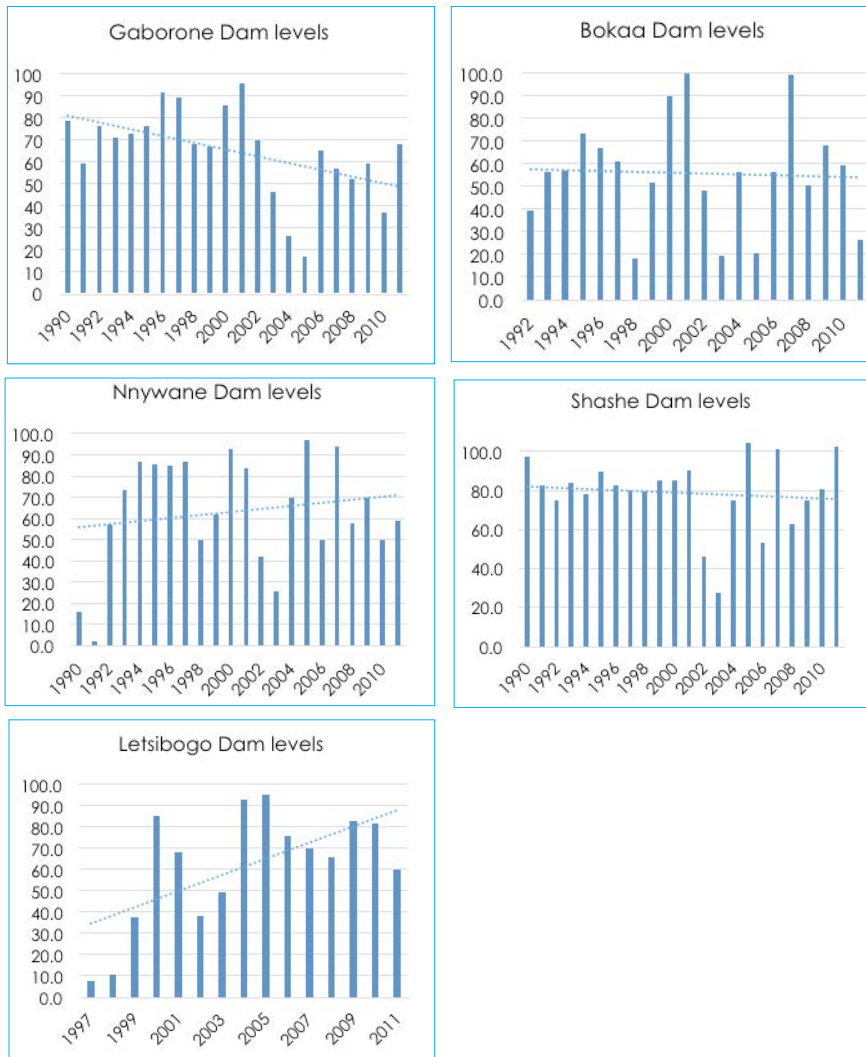
Dash (-) = no data

Source: Water Utilities Corporation.

Table 1:5: Dam levels by percentage of full capacity (2014)

	Gaborone	Nnywane	Bokaa	Letsibogo	Shashe	Ntimbale	Thune	Lotsane	Dikgathong	Molatedi
Feb	13.2	74.4	38.5	100.9	98.3	100.0	41.6	99.1	101.0	20.2
Mar	16.0	-	57.0	103.7		102.0	55.5	108.3	106.5	26.0
Apr	15.1	73.0	56.2	97.7	97.3	98.4	55.7	96.4	98.9	35.3
May	13.7	67.6	50.2	93.6	94.3	97.5	58.7	94.2	98.3	34.6
Jun	-	-	-	-	-	-	58.7	-	-	-
Jul	11.3	54.6	41.8	86.6	87.9	94.1	-	84.5	95.6	31.0
Aug	9.8	54.1	36.3	77.5	83.4	90.5	52.0	82.9	95.4	28.4

Figure 1.2 Percentage dam levels trends for selected dams



1.2. Water production

Potable water production is carried out through fifteen (15) management centres throughout the country by Water Utilities Corporation (WUC). The management centres are listed in Table 1.6. The management centres treat and provide water sourced from both surface and groundwater. Figure 1.3 shows water production trends over the years for Gaborone, Francistown, Lobatse, Jwaneng, Selibe Phikwe and Sowa.

Gaborone city shows the highest water production to meet the demand of its population, which is the highest among all the cities and towns. Production peaked during the year 2009 for Gaborone and Francistown. However, in subsequent years there was a downward slide in water production in Gaborone and gradual increases in the city/towns of Francistown, Selibe Phikwe, Jwaneng and Sowa. A possible reason for declining water production in Gaborone is water demand management measures used to encourage water saving due to falling levels of water in Gaborone dam. Between 2006 and 2011, Lobatse experienced a remarkable rise in water production.

Figure 1.4 shows the monthly water production for the cities and towns for a period of about 24 months. The period is limited for seasonal trend analysis, but shows some months to have higher production than others. Gaborone's water production peaked in March and April of 2013, while that of Francistown peaked in July 2013 and January 2014. Francistown's production peaked in the month of July for both the years 2012 and 2013. Selibe Phikwe water production peaked during October, November and December in the year 2013, while Lobatse's highest water production during the period was in January 2013. Jwaneng water production peaked in May, June and July of the year 2013 and Sowa in September 2013.

Table 1.6: List of water management centres (MCs)

Region	Management Centre
Southern region	1 Gaborone
	2 Molepolole
	3 Lobatse
	4 Mochudi
	5 Kanye
	6 Tsabong
	7 Ghanzi
Northern region	8 Selibe Phikwe
	9 Palapye Management
	10 Serowe
	11 Letlhakane
	12 Mahalapye Management
	13 Kasane Management
	14 Masunga Management
	15 Francistown Management

Figure 1.3: Water production trends in cities and towns (kilolitres)

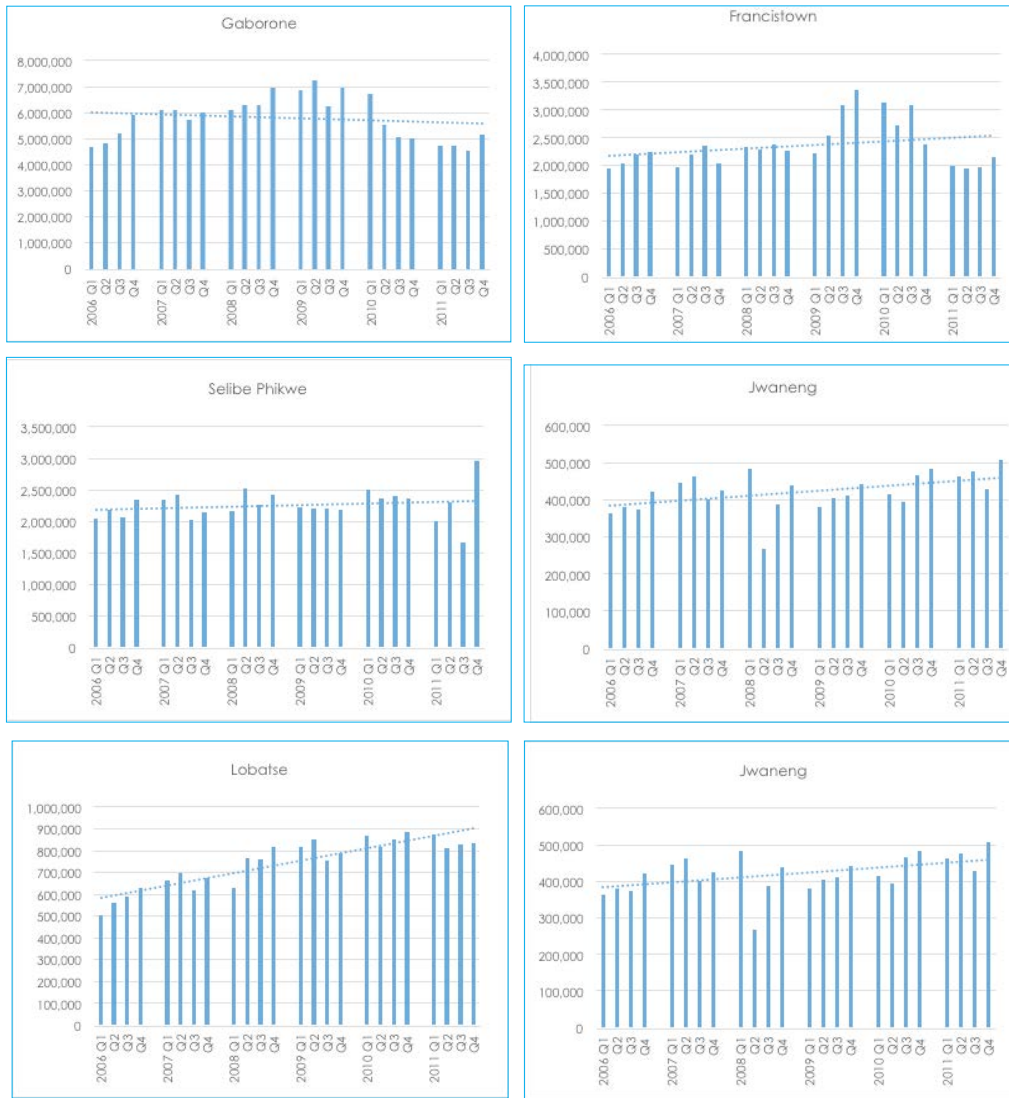
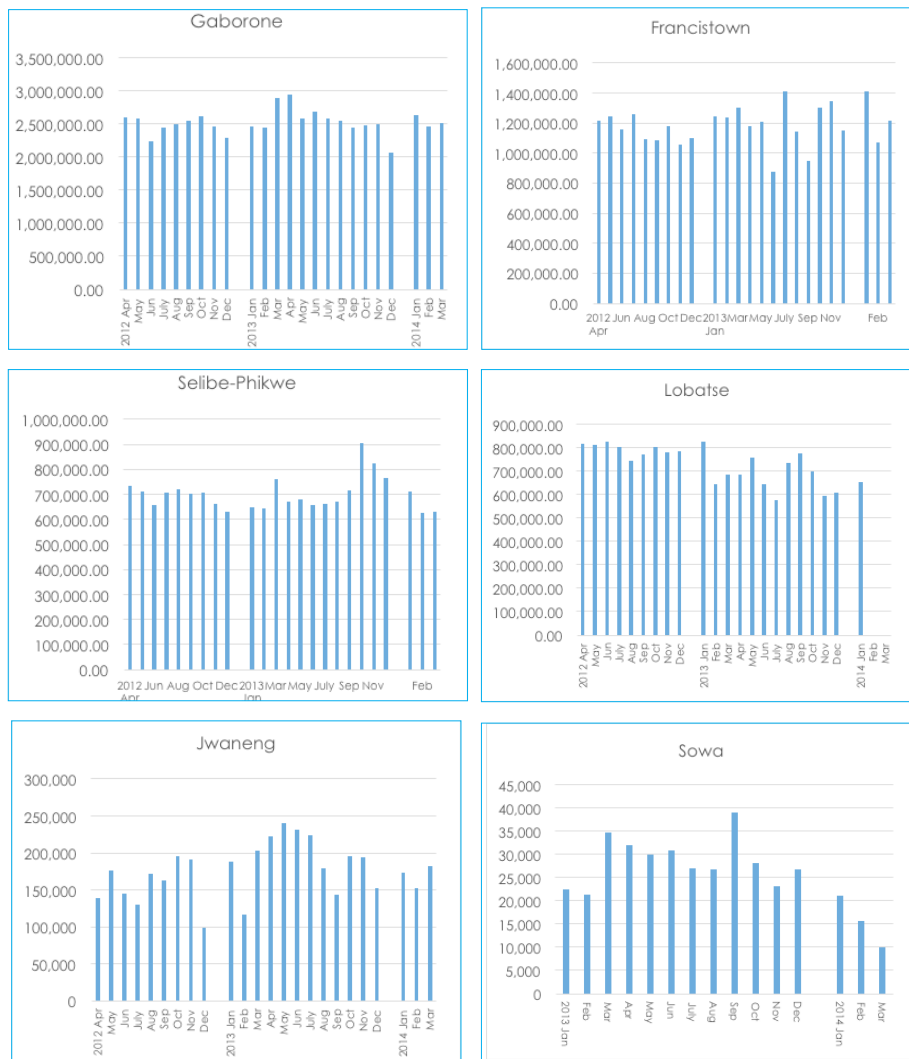


Figure 1.4: Monthly water production in cities and towns (2012-2013) (kilolitres)



Tables 1.7 and 1.8 show the water production trends by management centres in the northern and southern regions. Water production is higher in the southern regions than in the northern regions of the country. Water demand is higher in the southern than the northern regions due to the concentration of population in the southern regions, where the capital city Gaborone is located.

Table 1.9 and Figure 1.5 show the total water production and average monthly productions for the management areas over the period April 2012 to March 2014. The cities of Gaborone and Francistown have the highest production of water, at a total of 60,582,973 and 28,421,293 kilolitres respectively, as these management centres serve areas of higher populations. The average monthly figures for the period under study show that Gaborone needed the most water on a monthly basis at 2,524,291 kilolitres per month, followed by Francistown (1,184,221), Lobatse (729,717), Selibe Phikwe (700,789) and Kanye (550,960).

Table 1.7 Southern water production by management centres (kilolitres)

Year	Month	Gaborone	Molepolole	Lobatse	Mochudi	Kanye	Tsabong	Ghanzi	Total Southern Region	
2012	Apr	2,605,694.00	363,016.00	818,044.00	278,357.00	517,647.00	32,499.00	125,426.00	4,740,683.00	
	May	2,590,836.00	368,979.00	813,525.00	284,978.00	569,704.00	22,379.00	126,946.00	4,777,347.00	
	Jun	2,234,208.00	309,404.00	826,530.00	258,117.00	563,761.00	31,425.00	121,492.00	4,344,937.00	
	Jul	2,451,412.00	369,426.00	804,721.00	410,789.00	565,863.00	24,154.00	120,642.00	4,747,007.00	
	Aug	2,505,470.00	342,162.00	745,471.00	252,243.00	587,446.00	23,290.00	123,756.00	4,579,838.00	
	Sep	2,547,216.00	340,278.00	773,733.00	302,837.00	538,534.00	24,430.00	126,735.00	4,653,763.00	
	Oct	2,625,707.00	343,430.00	803,497.00	231,159.00	620,816.00	29,030.00	133,914.00	4,787,553.00	
	Nov	2,470,925.00	324,769.00	782,900.00	298,942.00	541,738.00	30,597.00	128,979.00	4,578,850.00	
	Dec	2,298,238.00	363,348.00	784,045.00	290,644.00	537,133.00	24,448.00	122,466.00	4,420,322.00	
	2013	Jan	2,458,374.00	380,825.00	826,833.00	314,696.00	524,711.00	26,145.00	128,724.00	4,660,308.00
		Feb	2,445,300.00	358,022.00	645,293.00	314,086.00	497,319.00	25,135.00	121,731.00	4,406,886.00
		Mar	2,897,066.00	370,169.00	686,330.00	280,390.00	636,285.00	29,490.00	131,864.00	5,031,594.00
Apr		2,941,956.00	347,989.00	687,568.00	287,045.00	590,007.00	107,384.00	125,772.00	5,087,721.00	
May		2,580,440.00	326,156.00	757,968.00	299,738.00	624,734.00	117,946.00	119,539.00	4,826,521.00	
Jun		2,691,511.00	375,533.00	645,399.00	265,141.00	567,436.00	110,917.00	126,416.00	4,782,353.00	
Jul		2,590,229.00	347,075.00	578,556.00	224,238.00	515,836.00	125,554.00	112,046.00	4,493,534.00	
Aug		2,555,954.00	358,510.00	738,497.00	267,384.00	572,396.00	131,696.00	115,160.00	4,739,597.00	
Sep		2,443,516.00	330,456.00	776,988.00	305,670.00	497,060.00	103,323.00	120,948.00	4,577,961.00	
Oct		2,487,473.00	373,110.00	701,207.00	250,369.00	583,448.00	129,310.00	114,761.00	4,639,678.00	
Nov		2,497,082.00	381,658.00	593,363.00	300,643.00	557,212.00	138,095.00	112,607.00	4,580,660.00	
Dec		2,059,495.00	367,424.00	609,847.00	269,572.00	501,727.00	113,611.00	102,341.00	4,024,017.00	
2014	Jan	2,635,700.00	444,326.00	653,449.00	301,593.00	504,174.00	135,035.00	110,765.00	4,785,042.00	
	Feb	2,456,118.00	399,541.00	-	298,779.00	526,849.00	109,174.00	120,090.00	3,910,551.00	
	Mar	2,513,053.00	347,610.00	-	248,796.00	481,199.00	115,432.00	104,557.00	3,810,647.00	

Dash (-) = no data

Source: Water Utilities Corporation

Table 1.8: Northern water production by management centres (kilolitres)

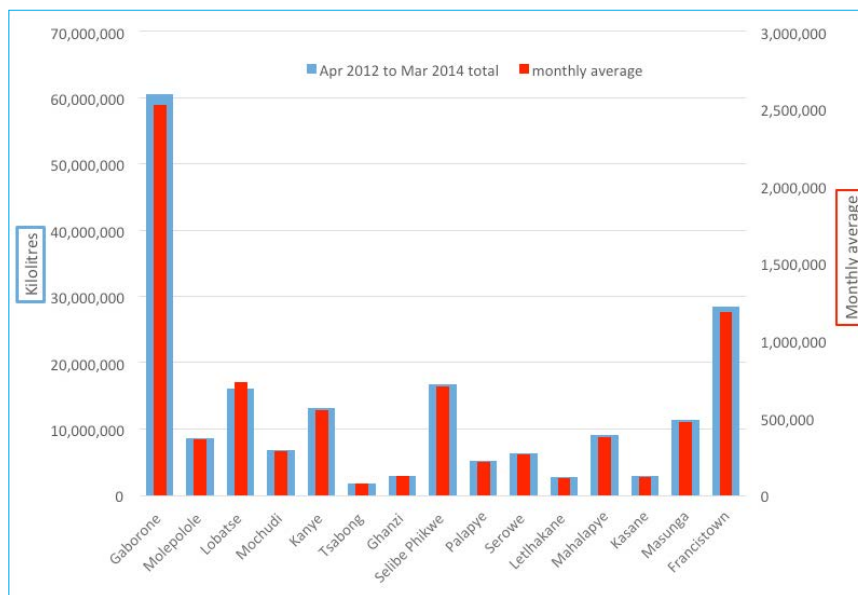
Year	Month	Selibe Phikwe	Palapye	Serowe	Leflhakane	Mahalapye	Kasane	Masunga	Francistown	Total Northern Region	
2012	Apr	736,244.00	169,020.00	324,961.00	114,478.00	386,026.00	125,941.00	463,000.00	1,213,405.00	3,533,075.00	
	May	711,801.00	197,331.00	286,086.00	125,780.00	376,495.00	125,709.00	514,197.00	1,243,637.00	3,581,036.00	
	Jun	659,507.00	143,062.00	265,558.00	116,892.00	419,465.00	125,908.00	521,450.00	1,157,674.00	3,409,516.00	
	Jul	708,702.00	159,194.00	251,430.00	121,044.00	352,711.00	126,206.00	518,300.00	1,260,338.00	3,497,925.00	
	Aug	720,952.00	182,172.00	265,783.00	108,860.00	326,641.00	125,014.00	517,208.00	1,091,474.00	3,338,104.00	
	Sep	701,876.00	194,590.00	261,754.00	115,245.00	336,474.00	126,504.00	545,497.00	1,082,584.00	3,364,524.00	
	Oct	709,239.00	202,703.00	245,338.00	124,964.00	392,553.00	127,098.00	530,330.00	1,178,627.00	3,510,852.00	
	Nov	661,403.00	242,781.00	242,383.00	117,387.00	384,295.00	121,441.00	511,140.00	1,058,341.00	3,339,171.00	
	Dec	628,739.00	215,545.00	236,476.00	116,135.00	422,407.00	130,973.00	535,910.00	1,098,231.00	3,384,416.00	
	2013	Jan	649,735.00	185,456.00	294,463.00	109,289.00	463,778.00	128,880.00	439,893.00	1,243,500.00	3,514,994.00
		Feb	644,922.00	256,155.00	267,014.00	115,283.00	373,197.00	104,470.00	518,242.00	1,234,420.00	3,513,703.00
		Mar	762,589.00	267,088.00	289,682.00	109,154.00	427,319.00	159,570.00	425,181.00	1,302,746.00	3,743,329.00
Apr		671,254.00	210,106.00	297,054.00	117,310.00	388,360.00	116,401.00	482,813.00	1,178,641.00	3,461,939.00	
May		681,496.00	285,883.00	328,241.00	105,235.00	354,221.00	119,900.00	463,149.00	1,208,080.00	3,546,205.00	
Jun		656,850.00	154,735.00	219,343.00	116,308.00	343,991.00	118,830.00	449,932.00	873,175.00	2,933,164.00	
Jul		661,222.00	331,475.00	324,149.00	105,368.00	386,590.00	126,110.00	434,865.00	1,409,844.00	3,779,623.00	
Aug		671,657.00	184,786.00	203,890.00	107,664.00	350,848.00	117,380.00	436,877.00	1,140,350.00	3,213,452.00	
Sep		715,122.00	221,334.00	298,158.00	101,144.00	340,735.00	113,400.00	461,000.00	946,190.00	3,197,083.00	
Oct		906,665.00	288,851.00	252,421.00	98,057.00	372,609.00	112,300.00	472,078.00	1,306,370.00	3,809,351.00	
Nov		822,638.00	210,887.00	230,607.00	117,480.00	378,055.00	106,800.00	372,516.00	1,343,766.00	3,582,749.00	
Dec		766,469.00	156,502.00	253,904.00	109,020.00	373,114.00	118,900.00	454,536.00	1,153,961.00	3,386,406.00	
2014	Jan	712,949.00	267,310.00	242,698.00	110,891.00	379,359.00	101,400.00	497,695.00	1,409,800.00	3,722,102.00	
	Feb	624,484.00	237,459.00	247,972.00	100,493.00	358,529.00	76,000.00	430,227.00	1,071,098.00	3,146,262.00	
	Mar	632,418.00	162,333.00	216,986.00	129,292.00	368,667.00	108,000.00	336,824.00	1,215,041.00	3,169,561.00	

Source: Water Utilities Corporation

Table 1.9: Total production and monthly average water production (kilolitres)

Management Centre	Apr 2012 to Mar 2014 total	monthly average
Gaborone	60,582,973	2,524,291
Molepolole	8,633,216	359,717
Lobatse	16,053,764	729,717
Mochudi	6,836,206	284,842
Kanye	13,223,034	550,960
Tsabong	1,760,498	73,354
Ghanzi	2,897,676	120,736
Selibe Phikwe	16,818,932	700,789
Palapye	5,126,758	213,615
Serowe	6,346,351	264,431
Lethakane	2,712,773	113,032
Mahalapye	9,056,438	377,352
Kasane	2,863,136	119,297
Masunga	11,332,860	472,203
Francistown	28,421,293	1,184,221

Figure 1.5: Total production and monthly average water production



2. CLIMATE

2.1. Rainfall

Rainfall is measured by the Department of Meteorological Services (DMS) at 15 rainfall stations and 17 synoptic stations around the country. The synoptic stations are manned by meteorologists. The stations are listed in Table 2.1 and the distribution of rainfall stations illustrated in Figure 2.1. Only those stations with available data have been considered in this report.

Table 2.1: List of rainfall and synoptic stations

Rainfall stations		Synoptic stations	
1	Ghanzi Airport	1	Ghanzi
2	Mahalapye Meteorological Station	2	Mahalapye
3	Tsabong Airport	3	Tsabong
4	Francistown Airport	4	Francistown
5	Maun Airport	5	Maun
6	Gaborone Meteorological Station (Headquarters)	6	Sir Seretse Khama Airport
7	Tshane Meteorological Station	7	Tshane
8	Shakawe Meteorological Station	8	Shakawe
9	Palapye Police Station	9	Selibe Phikwe
10	Molepolole Police Station	10	Letlhakane
11	Mochudi Police Station	11	Good Hope
12	Serowe Police Station	12	Sua Pan
13	Lobatse Police Station	13	Jwaneng
14	Kanye Seepapitso Senior Secondary School	14	Werda
15	Kasane Airport	15	Pandamatenga
		16	Kasane
		17	Lephephe

Figure 2.1: Rainfall stations in Botswana



Table 2.2 shows the total monthly rainfall for the 15 meteorological stations for the period ranging from 2010/11 to 2012/13. The meteorological year (July to June) is used. The year 2010/11 was the wettest, followed by the years 2012/13 and 2011/12 respectively. Lobatse recorded the highest monthly rainfall during the 2010/11 season at 391.5 mm in January. For the 2011/12 season, the highest recorded monthly rainfall was in Maun at 171mm, in December. During the 2012/13 season Sua Pan recorded the highest monthly rainfall (267.8 mm) in January.

Monthly rainfall trends are in consonance with Botswana's seasonal variations with the winter months of June and July normally being dry. Rainfall during these months is an unusual occurrence. The wet season begins in October and ends in March.

Table 2.2: Monthly total rainfall (millimetres)

		Francistown Airport	Gaborone Met H/Q	Ghanzi Airport	Kanye Seepapitso SSS	Lobatse Police Station	Mahalapye Met. Station	Maun Airport	Mochudi Police Station
2010/11	Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Aug	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Sep	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Oct	32.3	13.7	3.5	0.0	2.1	100.1	0.2	0.0
	Nov	92.3	44.2	91.0	14.4	65.8	38.7	45.3	54.7
	Dec	117.4	95.6	89.7	110.2	103.8	28.7	84.3	144.6
	Jan	198.5	140.8	204.6	268.1	391.5	81.5	213.3	177.4
	Feb	25.8	26.4	32.8	60.6	41.0	76.0	46.3	0.0
	Mar	14.3	88.0	79.1	34.5	2.4	3.8	182.8	96.0
	Apr	60.0	105.0	90.8	37.1	118	35.8	54.1	42.0
	May	3.1	5.5	4.5	0.0	9.0	0.0	1.6	0.0
	Jun	0.0	12.4	0.0	33.7	46.0	1.6	0.0	0.0
2011/12	Jul	0.0	0.6	0.0	1.8	0.0	1.4	0.0	0.0
	Aug	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Sep	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Oct	5.2	2.3	0.0	0.0	0.0	10.7	0.0	22.0
	Nov	115.9	17.7	8.3	28.7	80.2	76.4	86.5	28.2
	Dec	125.3	108.0	72.0	56.0	48.7	67.7	171	86.0
	Jan	-	82.9	39.3	89.0	76.6	31.0	70.5	98.5
	Feb	15.8	43.1	73.4	0.0	43.0	9.3	62.9	31.6
	Mar	31.1	24.7	37.6	50.7	59.4	16.7	15.4	51.0
	Apr	0.0	1.4	4.5	0.0	0.0	1.5	0.0	0.0
	May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Jun	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2012/13	Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Aug	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Sep	0.0	0.9	0.0	0.0	1.0	0.0	0.0	0.0
	Oct	29.5	68.7	15.7	36.1	33.8	80.0	11.0	41.5
	Nov	78.3	51.1	16.9	5.1	12.7	61.4	28.6	44.5
	Dec	54.4	118.7	71.0	129.2	75.3	95.6	99.0	20.6
	Jan	208	34.8	65.4	60.9	53.3	69.0	207.9	37.0
	Feb	4.2	37.8	3.5	1.5	41.7	0.7	3.1	8.6
	Mar	6.5	18.3	0.0	48.3	10.5	12.7	5.4	9.7
	Apr	6.6	33.3	0.0	8.7	12.8	28.5	0.0	31.0
	May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Jun	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2013/14	Jul	0.0	20.6	0.0	4.8	2.0	0.0	0.0	0.0
	Aug	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
	Sep	0.0	2.4	0.3	0.0	0.0	0.0	0.0	0.0
	Oct	24.9	10.0	16.8	30.2	21.6	14.5	7.0	7.0
	Nov	31.8	33.3	39.7	13.1	23.4	57.7	20.8	82.0
	Dec	133.3	174.1	89.5	84.8	71.1	152.6	142.9	103.1

Dash (-) = no data

Source: Department of Meteorological Services

Table 2.2: Monthly total rainfall (Millimetres) continued

		Molepolole Police Station	Palapye Police Station	Serowe Police Station	Shakawe Met. Station	Tsabong Airport	Tshane Met. Station	Kasane Airport
2010/11	Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Aug	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Sep	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Oct	5.5	61.2	12.0	0.0	0.0	23.7	10.7
	Nov	49.0	146.0	110.8	51.3	78.6	83.2	112.0
	Dec	86.5	56.5	35.0	98.3	80.4	142.9	42.8
	Jan	163.0	156.8	70.0	142.7	153.2	40.4	129.6
	Feb	34.0	27.0	0.0	78.6	18.1	26.2	55.7
	Mar	66.0	4.8	65.0	66.4	3.2	34.7	56.5
	Apr	44.5	19.0	27.5	44.4	54.0	40.9	7.4
	May	0.0	0.0	0.0	11.3	11.0	22.3	0.0
Jun	0.0	2.0	48.7	0.0	14.5	1.6	1.6	
2011/12	Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Aug	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Sep	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Oct	0.0	40.0	0.0	0.7	0.0	0.0	7.4
	Nov	22.0	88.0	0.0	86.5	6.9	0.2	52.5
	Dec	15.0	68.0	31.8	78.9	46.7	47.9	170.0
	Jan	-	-	34.5	141.7	27.2	37.9	126.4
	Feb	-	-	0.0	127.4	65.6	69.3	164.5
	Mar	29.0	37.5	34.2	50.6	43.4	52.2	49.1
	Apr	0.0	0.0	0.0	0.0	13.7	4.4	0.0
	May	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Jun	0.0	0.0	0.0	0.0	9.9	0.0	0.0
2012/13	Jul	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Aug	0.0	0.0	0.0	0.0	0.0	0.0	0.2
	Sep	0.0	0.0	0.0	1.2	0.4	0.0	0.6
	Oct	103.2	28.0	0.0	26.2	3.7	0.7	6.8
	Nov	35.5	0.0	106.3	31.3	1.0	15.0	80.8
	Dec	81.0	147.6	133.8	96.1	77.1	65.3	56.4
	Jan	52.1	104.0	145.9	147	35.9	49.6	161.3
	Feb	15.2	34.0	1.0	30.0	5.3	6.5	95.1
	Mar	22.0	0.0	0.0	57.7	36.9	2.6	5.2
	Apr	0.0	37.5	9.3	16.0	0.0	9.7	0.0
	May	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Jun	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2013/14	Jul	16.1	0.0	0.0	0.0	4.2	0.0	0.0
	Aug	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Sep	0.0	0.0	0.9	0.0	0.0	0.0	0.0
	Oct	0.0	0.0	13.5	9.4	1.5	25.0	17.5
	Nov	29.5	28.0	51.6	0.8	14.0	11.2	81.7

Dash (-) = no data
Source: Department of Meteorological Services

Table 2.3 and Figure 2.2 show the total annual rainfall for the rainfall stations. Figure 2.2 also shows the 3 year average for the rainfall stations for 2010/11 to 2012/13. The year 2010/11 had the wettest rainfall season of the period 2010/11 to 2012/13. Kasane, Maun and Shakawe have the highest rainfall as indicated by 3 year averages.

Table 2.3: Total annual rainfall (mm) by rainfall stations 2010/11 to 2012/13

	2010/11	2011/12	2012/13	3 year average
Francistown Airport	543.7	293.3	387.5	408.2
Gaborone Met H/Q	531.6	280.7	363.6	392
Ghanzi Airport	596	235.1	172.5	334.5
Kanye Seepapitso SSS	558.6	226.2	289.8	358.2
Lobatse Police Station	779.6	307.9	241.1	442.9
Mahalapye Met. Station	366.2	214.7	347.9	309.6
Maun Airport	627.9	406.3	355	463.1
Mochudi Police Station	514.7	317.3	192.9	341.6
Molepolole Police Station	448.5	66	309	274.5
Palapye Police Station	473.3	233.5	351.1	352.6
Serowe Police Station	369	100.5	396.3	288.6
Shakawe Met. Station	493	485.8	405.5	461.4
Tsabong Airport	413	213.4	160.3	262.2
Tshane Met. Station	415.9	211.9	149.4	259.1
Kasane Airport	416.3	569.9	406.4	464.2

Note - figures based on meteorological year (July to June)

Figure 2.2: Total rainfall and 3 year average 2010/11 to 2012/13 (millimetres)



2.2. Temperature

Data for temperature trends monitoring is available from 8 stations across the country. These are Ghanzi Airport, Mahalapye meteorological station, Tsabong airport, Francistown airport, Maun airport, Tshane meteorological station, Shakawe meteorological station and Sir Seretse Khama airport.

2.2.1 Mean monthly Minimum temperatures

Table 2.4 shows the individual stations' mean monthly minimum temperatures recorded from July 2000/01 to December 2013/14. The lowest mean monthly minimum temperature recorded during the period under study was for Tsabong airport at -0.2 oC, in July of the 2002/03 meteorological year. The highest mean monthly minimum temperature recorded was for Maun airport, at 22.2 oC in December of the 2003/04 meteorological year.

Table 2.4: Mean monthly minimum temperatures (°C) (2000/01-2013/14)

		Ghanzi Airport	Mahalapye Met. Station	Tsabong Airport	Francistown Airport	Maun Airport	Tshane Met. Station	Shakawe Met. Station	Sir Seretse Khama Airport
2000/01	Jul	4.7	4.1	1.5	4.4	8	4.4	5.8	2.8
	Aug	7.5	7.7	5.9	6.4	10.7	7.8	7.3	7
	Sep	11.8	12.7	8.6	12.6	15.8	10.9	13.6	11.5
	Oct	16.6	16	15.1	15.7	19.8	17	15.9	15.9
	Nov	15.8	17.1	14.4	16.8	19.8	16.2	17.3	19.3
	Dec	18.2	18.4	19.1	17.4	20.4	19.5	19.5	18.6
	Jan	18.8	19.8	17.6	18.1	21	18.2	18.8	19.4
	Feb	19	18.8	18.7	18.6	19.6	18.1	19.9	19.1
	Mar	17.3	16.9	17.3	16.5	18.8	17	18.3	17.1
	Apr	15.6	14.7	15.2	14.3	17.2	16.4	17.2	14.1
	May	8.4	9	6.9	7.8	11.9	8.4	11.2	8
	Jun	5.2	5.8	3.8	4.5	9.2	6.2	6.9	4.5
2001/02	Jul	4	5.7	1.4	4.3	8	4.2	5.4	3.6
	Aug	8.1	9.9	3.2	8.5	12.8	7	10.1	6.8
	Sep	10.2	13.3	7.8	13.9	16	9.4	14.3	10.4
	Oct	16.6	17.1	14.7	16.4	19.9	17.5	16.5	16
	Nov	17.9	18.2	17	18.3	20.5	18.3	19.7	16.5
	Dec	18.4	18.5	17.1	18.6	20.6	18.8	19.4	17.4
	Jan	19.3	18.9	17.7	18.5	21.7	19.9	19.9	18.3
	Feb	18.4	19.1	18.3	18.1	21	19.9	19.4	18.1
	Mar	16.5	18	16.3	18.4	20.4	18	19.4	16.6
	Apr	13.8	14.4	12.9	13.4	17	15.2	15.5	12.9
	May	8.3	9.7	6.7	7.4	11.8	9.1	9.5	7.8
	Jun	3.5	6.8	2.3	6.3	9.1	4.3	6.8	5
2002/03	Jul	4.1	5.3	-0.2	4.4	8.7	3.8	6	2.1
	Aug	9.2	11.2	6.5	10	13.4	9.9	10.9	9.2
	Sep	10.1	12.9	8.7	12.4	15.8	11.8	13.1	11.1
	Oct	15.5	16.6	14.2	16.3	19.7	16.6	17.6	15.5
	Nov	16.9	18	14.8	17	20.6	17.7	19.2	16.2
	Dec	18.9	19.4	18.9	19.8	21.3	19.8	20.4	19
	Jan	19.2	20.3	20.1	20.3	21.6	21.2	20.5	19
	Feb	18.4	21.1	20.6	20.3	21.5	21.6	20.4	20.5
	Mar	16.3	17.7	16.4	17	19.7	17.8	19.4	16.8
	Apr	14.1	15.4	14	14.4	18.1	16	16.4	15.2
	May	8.2	10.1	6	9.7	12.8	9.2	10.5	7.7
	Jun	5.1	9	0.8	9.3	11.2	4.4	9.6	6.6
2003/04	Jul	3.8	5.7	1.6	5.6	8.5	4.7	5.3	3.7
	Aug	6.7	8.5	2.2	7.6	10.4	5.9	7	5.7
	Sep	13.3	13.4	9.4	13	16.9	12.1	13.5	12.3
	Oct	17.1	17.6	15.1	16.1	19.5	17.2	17.1	16.8
	Nov	19.5	19.8	18.2	18.8	22.1	19.5	20	18.4
	Dec	19.6	20.2	17.5	18.7	22.2	19.7	20.3	19.5
	Jan	19.5	19.1	21	19.6	21	20.5	20.1	19.6
	Feb	18.4	19.3	19.6	19.5	20.7	19.6	20	18.6
	Mar	17.8	17.9	17.6	18	19.4	18.4	19.8	16.9
	Apr	13.2	14.8	12.8	14.7	16.6	14.2	15.8	13.5
	May	7.8	8.7	6.9	6.5	10.6	9.6	7.6	8
	Jun	4	6.3	1.6	5.9	9.2	5.9	5.7	4.7

Table 2.4: Mean monthly minimum temperatures (°C) (2000/01-2013/14)

		Ghanzi Airport	Mahalapye Met. Station	Tsabong Airport	Francistown Airport	Maun Airport	Tshane Met. Station	Shakawe Met. Station	Sir Seretse Khama Airport
2004/05	Jul	3.8	4.7	0.2	3.9	7.2	3.2	4.6	3.2
	Aug	9	9.5	4.4	8.6	12.2	8.5	9.6	7.6
	Sep	10.9	12.1	6.2	12.2	13.9	9.7	11.5	9.8
	Oct	15.4	16.3	12.0	16.7	18.7	15.4	15.9	15.7
	Nov	19.1	19.9	17.5	19.8	20.6	19.7	19.3	19.0
	Dec	20.1	19.5	19.0	19.3	20.8	19.4	19.6	19.6
	Jan	20.7	20.6	19.6	20.3	21.3	20.6	20.6	20.5
	Feb	19.6	19.5	19.6	19.1	20.7	19.8	20.2	20.1
	Mar	17.9	17.8	16.0	18.0	19.8	17.6	19.9	17.2
	Apr	15.6	15.5	11.8	15.2	-	14.6	16.8	14.5
	May	10.2	10.7	5.5	9.9	14.1	10.0	11.7	8.4
	Jun	8.2	8.8	3.7	7.8	11.3	7.7	7.4	6.9
2005/06	Jul	4.3	5.7	1.6	5.5	9.0	4.8	5.9	4.2
	Aug	10.1	12.2	5.1	10.9	13.5	8.8	11.4	9.5
	Sep	12.0	14.6	8.6	12.9	16.1	11.5	11.4	13.5
	Oct	18.7	17.8	14.6	17.5	21.3	17.1	17.6	17.7
	Nov	18.9	19.0	16.3	19.9	19.7	17.4	19.7	19.2
	Dec	18.7	18.5	18.3	18.8	19.6	18.3	19.0	18.9
	Jan	19.6	19.8	20.8	19.7	20.5	19.7	20.6	20.0
	Feb	19.5	19.5	20.0	19.6	20.1	19.5	19.7	19.3
	Mar	17.1	17.1	16.5	16.8	18.1	16.9	18.2	16.7
	Apr	12.2	13.3	12.8	13.6	14.7	14.0	14.5	12.5
	May	7.4	7.9	4.6	7.0	10.0	6.6	8.4	5.1
	Jun	2.9	6.3	1.5	5.1	7.7	4.2	5.0	3.5
2006/07	Jul	6.4	6.6	2.4	3.8	8.6	6.3	4.7	4.8
	Aug	6.3	8.7	3.8	7.9	9.9	6.0	6.1	5.5
	Sep	9.8	11.4	7.7	11.2	14.5	10.0	11.2	9.8
	Oct	16.7	18.4	15.5	18.6	19.4	16.0	18.0	16.4
	Nov	16.9	18.6	17.5	18.1	20.4	17.6	18.8	17.1
	Dec	18.8	20.6	20.6	19.3	21.7	19.5	19.9	19.9
	Jan	18.3	19.2	20.1	18.5	18.8	19.4	19.5	19.8
	Feb	17.5	20.2	19.0	19.1	20.3	18.3	18.1	20.0
	Mar	18.1	18.5	16.8	17.8	19.8	19.5	17.8	18.5
	Apr	14.6	15.3	14.2	14.5	16.8	14.2	15.0	15.4
	May	6.8	7.5	4.7	7.3	11.4	6.8	7.7	7.2
	Jun	4.2	6.5	1.4	5.7	8.5	3.9	4.7	6.1
2007/08	Jul	3.7	5.0	0.2	4.4	7.8	2.5	3.4	4.1
	Aug	7.4	8.6	3.7	7.4	10.0	5.8	5.7	6.9
	Sep	13.3	14.7	11.0	12.8	16.7	12.7	10.6	14.5
	Oct	16.0	16.2	15.0	16.8	17.6	15.6	16.9	15.9
	Nov	17.9	17.9	16.4	17.4	20.5	16.8	18.5	16.9
	Dec	17.9	17.6	18.6	18.8	20.0	19.0	19.0	17.5
	Jan	18.7	18.0	19.7	18.9	19.8	19.4	19.6	18.5
	Feb	18.3	17.7	20.1	17.3	19.0	19.1	18.3	18.6
	Mar	16.8	16.9	17.0	16.6	18.0	17.2	16.7	16.9
	Apr	10.3	11.4	10.5	10.8	13.4	11.1	11.0	10.7
	May	10.3	9.9	10.2	9.3	12.2	10.9	9.4	8.8
	Jun	5.5	6.1	4.3	5.4	8.7	5.8	6.1	4.2

Table 2.4: Mean monthly minimum temperatures (°C) (2000-2013)...continued

		Ghanzi Airport	Mahalapye Met. Station	Tsabong Airport	Francistown Airport	Maun Airport	Tshane Met. Station	Shakawe Met. Station	Sir Seretse Khama Airport
2008/09	Jul	5.5	6.6	2.1	5.6	7.9	4.7	6.1	3.8
	Aug	8.5	9.3	6.8	8.2	11.5	8.5	7.1	7.5
	Sep	12.0	12.6	8.1	12.3	15.7	9.7	10.8	9.6
	Oct	17.9	17.9	16.2	18.4	21.5	17.3	16.8	-
	Nov	19.5	19.4	18.3	19.4	21.5	19.2	20.0	18.4
	Dec	19.8	19.2	20.8	19.2	20.8	20.5	19.3	19.5
	Jan	20.3	19.9	21.1	19.5	21.2	20.5	20.2	20.2
	Feb	18.8	18.1	20.2	17.8	19.8	19.3	19.3	18.0
	Mar	16.6	16.6	16.9	15.4	18.2	16.6	17.0	15.9
	Apr	12.1	12.3	13.2	12.3	14.5	12.7	12.8	11.4
	May	10.4	9.8	7.9	8.8	12.9	9.8	10.9	8.4
	Jun	8.7	7.8	5.8	5.3	10.5	7.7	7.9	6.7
2009/10	Jul	4.1	4.8	1.7	5.4	7.8	5.4	5.2	2.9
	Aug	7.1	7.1	5.5	6.3	10.6	7.1	6.5	6.2
	Sep	13.6	13.5	10.7	12.4	16.7	12.1	13.9	12.2
	Oct	17.6	17.0	16.6	17.4	20.6	17.6	18.2	16.7
	Nov	17.0	17.4	15.5	17.2	19.7	17.0	18.7	16.3
	Dec	20.3	19.4	19.3	19.2	21.2	19.9	19.4	18.8
	Jan	19.8	20.3	20.4	20.0	21.2	19.9	20.4	-
	Feb	19.5	20.2	19.3	19.9	20.7	19.2	20.4	19.9
	Mar	18.0	18.4	18.3	18.4	19.4	17.6	18.9	18.3
	Apr	19.5	16.5	14.2	16.2	17.9	15.2	18.3	15.4
	May	11.3	11.7	9.7	11.8	14.2	11.3	13.4	10.4
	Jun	4.1	5.6	1.8	5.4	8.4	4.7	4.7	4.0
2010/11	Jul	6.0	5.9	3.8	8.1	10.8	6.1	8.1	5.7
	Aug	7.0	7.6	4.6	7.8	11.1	7.2	6.7	7.0
	Sep	12.0	13.2	11.4	12.5	16.5	12.8	12.3	12.4
	Oct	16.0	17.2	13.9	17.4	20.5	14.6	16.4	17.2
	Nov	18.6	18.6	17.2	18.7	20.9	17.9	19.8	18.7
	Dec	19.0	18.0	18.8	18.7	20.6	18.8	19.4	19.3
	Jan	18.9	19.2	20.0	18.8	20.2	19.5	19.7	19.4
	Feb	18.0	17.8	19.8	17.6	20.0	18.8	18.9	18.6
	Mar	18.1	17.6	19.4	18.0	19.8	18.7	19.1	18.1
	Apr	15.5	15.3	14.7	15.2	17.5	14.7	16.4	14.4
	May	10.1	11.1	8.8	9.1	13.0	9.6	9.9	8.4
	Jun	5.0	5.7	2.1	3.4	7.2	4.5	2.7	2.7
2011/12	Jul	2.9	3.9	0.4	3.9	7.4	2.4	3.2	1.6
	Aug	7.0	7.1	4.2	7.1	10.8	6.3	6.3	4.6
	Sep	11.2	11.0	9.3	12.2	15.8	11.4	11.0	10.5
	Oct	15.1	15.0	12.8	16.9	19.8	14.6	16.2	15.1
	Nov	18.3	17.8	14.7	19.7	21.9	16.9	19.8	17.9
	Dec	19.5	17.2	18.8	18.8	20.5	19.2	20.4	18.3
	Jan	19.9	17.4	20.4	18.8	20.7	20.0	19.5	18.3
	Feb	19.2	18.6	19.2	19.2	20.3	19.6	19.5	20.1
	Mar	17.2	16.8	17.2	16.7	18.9	17.4	17.9	17.1
	Apr	13.4	11.9	11.3	10.6	14.9	12.5	12.4	11.9
	May	8.8	8.1	7.1	7.1	12.1	8.3	6.6	7.4
	Jun	4.9	5.1	3.0	4.3	9.0	3.7	5.1	3.8

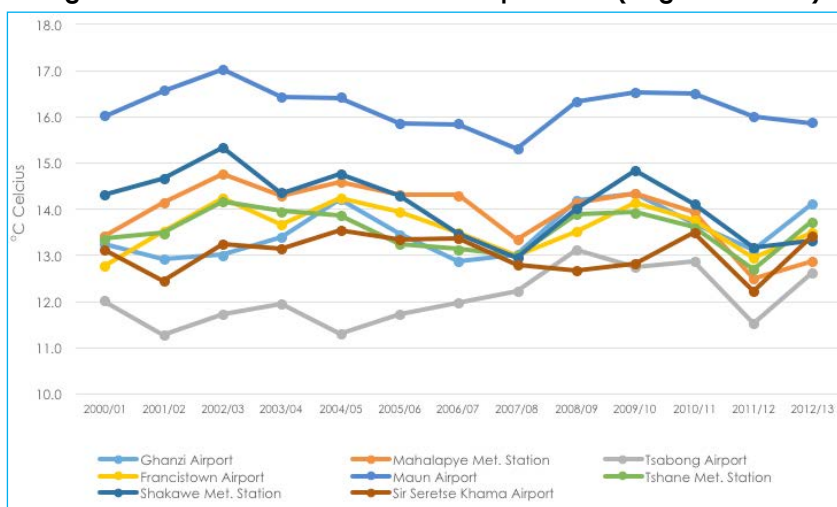
Table 2.4: Mean monthly minimum temperatures (°C) (2000-2013)...continued

		Ghanzi Airport	Mahalapye Met. Station	Tsabong Airport	Francistown Airport	Maun Airport	Tshane Met. Station	Shakawe Met. Station	Sir Seretse Khama Airport
2012/13	Jul	4.6	4.8	2.2	3.7	7.6	3.7	3.0	3.9
	Aug	8.9	7.5	6.7	6.7	11.2	8.0	6.8	8.1
	Sep	11.6	11.8	7.6	13.7	15.9	9.6	11.0	11.2
	Oct	17.7	15.9	13.9	18.2	20.2	16.0	18.8	16.5
	Nov	19.9	17.4	18.0	18.5	20.9	19.0	19.3	19.2
	Dec	19.0	17.5	19.1	19.4	19.9	18.9	19.8	18.8
	Jan	20.0	18.2	21.2	19.0	20.1	20.4	19.5	20.1
	Feb	20.1	18.0	20.8	18.2	20.0	20.1	19.4	19.6
	Mar	18.6	16.7	18.0	17.4	19.1	18.4	17.4	18.0
	Apr	12.1	12.7	10.9	13.0	14.6	16.7	12.4	13.4
	May	9.3	8.1	6.6	7.8	11.6	8.4	7.1	7.3
	Jun	7.4	5.8	6.3	6.2	9.3	5.4	5.4	5.0
2013/14	Jul	7.9	6.2	3.6	6.4	9.9	7.2	6.8	6.3
	Aug	8.2	7.1	8.5	9.2	12.1	5.7	8.4	7.7
	Sep	12.7	13.2	12.4	13.9	17.3	9.6	10.6	14.0
	Oct	16.4	15.5	16.2	16.3	19.9	14.8	18.6	16.4
	Nov	18.9	19.2	19.4	19.4	21.5	18.5	20.5	19.7
	Dec	19.4	18.4	-	19.9	20.0	19.7	21.3	19.6

Dashes show no data
Source: Department of Meteorological Services

Figure 2.3 shows the mean annual minimum temperatures for the individual stations from 2001/02 to 2013/14. Tsabong recorded the lowest mean annual minimum temperatures, while Maun airport recorded the highest.

Figure 2.3: minimum annual mean temperatures (Degrees Celsius)



2.2.2 Mean monthly maximum temperatures

Table 2.5 shows the mean monthly maximum temperatures of the stations. The highest mean monthly temperature for the period is of Maun at 37.6 oC recorded in October of the meteorological year 2005/06. The lowest mean monthly maximum temperature for the period is of Tsabong at 19.2 oC for the month of July in the meteorological year 2009/10.

Table 2.5: Mean monthly maximum temperatures (°C) 2000/01-2013/14

		Ghanzi	Shakawe	Maun	Francistown	SSKA	Mahalapye	Tsabong	Tshane
2000/01	Jul	23.1	25.3	24.8	21.4	21.3	21.9	22.1	22.0
	Aug	26.8	28.0	28.0	25.4	25.8	25.9	26.5	26.3
	Sep	31.3	33.2	33.1	30.0	28.7	29.2	28.5	28.9
	Oct	34.2	35.6	35.5	31.7	31.0	31.1	33.8	33.7
	Nov	33.7	35.7	35.0	31.5	33.1	31.2	32.1	31.9
	Dec	33.5	31.9	32.6	31.2	29.8	31.8	34.5	33.0
	Jan	35.6	33.1	35.7	33.8	34.3	34.4	35.5	34.1
	Feb	32.3	29.4	30.9	27.7	30.2	29.7	33.7	32.5
	Mar	30.7	29.7	30.4	27.0	28.2	28.2	32.4	31.3
	Apr	29.1	29.9	30.8	29.0	25.8	27.8	27.6	27.8
	May	25.9	27.8	27.8	26.2	23.4	25.5	25.0	25.0
	Jun	24.5	26.3	26.4	23.9	21.8	23.2	23.1	23.0
2001/02	Jul	23.3	24.9	24.9	22.6	21.1	22.4	21.2	21.7
	Aug	27.9	30.4	29.9	29.3	26.1	27.7	23.7	25.3
	Sep	31.3	33.5	33.6	31.1	27.5	29.5	26.2	28.3
	Oct	34.7	35.2	35.5	32.5	30.6	31.7	32.8	33.5
	Nov	31.9	31.7	31.9	30.1	27.4	28.4	30.8	31.5
	Dec	34.3	33.0	33.5	30.5	30.4	29.9	34.0	33.8
	Jan	34.8	33.4	34.8	33.5	31.7	33.3	35.2	33.9
	Feb	32.9	33.3	34.2	33.3	29.4	33.2	34.7	33.8
	Mar	33.0	33.6	34.9	32.9	31.8	32.9	33.9	33.0
	Apr	31.6	31.4	32.5	29.8	29.9	30.0	31.4	31.3
	May	28.1	29.6	29.9	27.4	26.3	26.9	25.9	26.2
	Jun	23.2	25.4	25.2	22.8	21.3	22.3	21.5	21.8
2002/03	Jul	25.9	28.3	28.0	25.6	23.1	24.7	22.3	23.5
	Aug	28.1	29.8	29.6	27.4	25.9	26.6	25.4	25.7
	Sep	30.8	32.5	32.5	28.6	28.4	28.3	29.3	29.3
	Oct	33.9	34.7	35.3	31.7	31.9	31.3	32.6	33.2
	Nov	32.8	33.7	34.6	31.3	32.1	32.0	33.1	32.7
	Dec	34.0	33.8	34.4	32.6	31.6	32.1	35.0	34.3
	Jan	35.8	33.7	35.4	34.1	34.3	34.5	36.9	35.7
	Feb	33.6	31.9	33.6	32.5	33.0	33.4	34.1	33.2
	Mar	33.6	33.4	34.5	30.8	32.6	31.8	34.1	34.0
	Apr	31.7	31.5	32.4	30.3	31.1	30.9	31.2	31.2
	May	27.6	28.8	29.1	26.8	25.7	26.4	24.7	25.7
	Jun	23.6	25.9	25.7	21.8	21.6	21.5	21.8	22.2
2003/04	Jul	23.8	25.6	25.7	23.1	22.8	22.9	23.8	24.2
	Aug	26.8	28.9	28.6	26.6	24.6	25.5	23.6	24.9
	Sep	32.5	34.1	33.9	30.7	29.6	29.5	28.8	29.7
	Oct	33.8	35.6	36.1	31.9	31.7	31.4	33.0	33.2
	Nov	33.9	34.4	35.9	32.4	31.2	32.8	34.5	33.4
	Dec	34.4	32.1	34.0	32.9	34.4	31.3	35.9	35.2
	Jan	32.8	30.6	32.7	31.8	31.8	29.8	34.3	33.2
	Feb	31.9	31.1	32.0	30.4	29.9	29.6	33.9	33.1
	Mar	28.8	29.0	29.4	26.6	27.9	26.1	31.8	30.3

Table 2.5: Mean monthly maximum temperatures (°C) ...continued

		Ghanzi	Shakawe	Maun	Francistown	SSKA	Mahalapye	Tsabong	Tshane
	Apr	28.7	29.2	30.4	27.2	26.5	26.8	27.8	27.6
	May	26.8	26.9	27.9	25.1	25.7	25.8	27.2	26.8
	Jun	23.2	24.8	24.9	22.6	21.5	22.2	22.2	22.3
2004/05	Jul	22.9	24.8	25.1	23.2	21.5	22.9	20.4	21.2
	Aug	28.7	30.5	30.0	28.2	26.7	27.7	25.9	26.7
	Sep	30.5	32.3	32.2	30.0	28.1	28.7	27.1	27.8
	Oct	33.3	35.3	35.1	32.1	31.8	31.1	31.1	30.4
	Nov	35.1	35.2	36.4	35.1	33.4	33.9	35.8	34.1
	Dec	34.3	32.8	33.9	31.1	31.9	30.7	35.6	33.9
	Jan	34.5	34.0	34.4	32.5	33.2	32.6	36.1	34.7
	Feb	33.4	33.5	34.4	33.1	33.5	32.8	35.2	33.6
	Mar	32.0	31.4	32.6	31.2	31.2	30.6	31.3	31.5
	Apr	28.8	32.0	32.1	29.6	26.2	27.3	26.7	28.5
	May	28.8	30.4	30.7	28.6	26.5	26.8	25.7	27.4
	Jun	27.1	28.7	28.9	26.9	25.3	25.9	23.9	25.6
2005/06	Jul	24.6	26.1	26.4	24.0	23.6	23.5	24.5	24.4
	Aug	29.1	31.6	31.6	30.1	28.0	28.4	25.6	27.5
	Sep	32.2	33.6	33.7	32.1	31.8	31.4	30.5	30.5
	Oct	35.1	37.4	37.6	34.1	33.6	33.0	32.1	33.0
	Nov	33.5	34.1	34.5	33.4	33.3	32.8	32.9	32.3
	Dec	33.1	30.1	30.9	28.1	30.8	30.3	35.6	33.4
	Jan	29.8	29.5	28.4	30.0	29.9	29.5	32.8	30.9
	Feb	28.4	29.0	30.3	29.7	29.1	29.6	30.6	30.2
	Mar	27.7	27.9	29.2	27.0	27.1	26.5	28.2	27.7
	Apr	28.0	28.8	29.9	27.7	26.1	27.0	26.9	26.1
	May	25.1	27.1	27.7	26.0	22.8	24.4	22.9	23.0
	Jun	23.9	25.4	26.0	23.3	22.1	23.0	22.7	22.5
2006/07	Jul	25.6	26.8	27.0	25.2	23.8	24.5	23.9	24.6
	Aug	25.7	28.4	28.7	26.0	23.8	24.5	23.7	23.6
	Sep	29.9	31.2	31.5	28.8	28.6	27.9	28.8	28.5
	Oct	30.9	33.5	34.2	33.0	32.0	32.4	32.1	31.1
	Nov	32.7	32.3	34.0	30.9	30.7	31.9	33.9	31.3
	Dec	33.6	32.2	34.1	32.7	33.4	33.6	34.6	33.5
	Jan	32.6	34.5	33.2	30.7	33.7	36.2	35.8	34.5
	Feb	34.5	31.9	34.6	32.9	34.4	34.1	36.4	35.1
	Mar	34.0	32.7	34.9	32.5	33.0	32.8	33.3	32.9
	Apr	29.4	30.8	31.7	28.1	28.8	28.0	29.6	28.6
	May	26.5	28.6	28.8	26.4	25.5	25.6	25.2	25.5
	Jun	24.6	26.9	26.6	24.9	21.6	23.2	21.8	22.4
2007/08	Jul	23.9	26.0	25.8	23.5	22.0	22.3	22.2	22.2
	Aug	27.7	30.0	29.5	27.2	25.7	26.0	25.4	25.9
	Sep	33.8	35.2	34.9	30.8	31.2	30.8	32.4	32.6
	Oct	33.0	35.0	31.8	29.2	28.0	28.1	30.5	31.2
	Nov	34.7	34.6	35.0	31.7	30.8	30.7	32.0	33.4
	Dec	31.0	32.0	31.0	27.1	28.1	27.0	32.1	31.7
	Jan	30.2	28.7	29.7	27.7	28.9	28.1	31.8	30.9
	Feb	31.5	29.8	31.8	30.8	30.9	31.2	33.4	33.0

Table 2.5: Mean monthly maximum temperatures (°C) ...continued

		Ghanzi	Shakawe	Maun	Francistown	SSKA	Mahalapye	Tsabong	Tshane
	Mar	28.1	29.1	31.8	30.1	27.8	29.2	29.5	28.9
	Apr	27.7	29.1	30.7	29	26.7	28	27.7	28.1
	May	28	28.8	29.8	27.6	25.2	26.4	35.9	26.9
	Jun	25.1	26.5	27	25.2	23.2	24.3	23.5	24.3
2008/09	Jul	25.1	26.5	25.2	24.2	22	22.8	22.6	22.8
	Aug	28.1	30.1	29.5	27.9	26.5	27.5	26.4	26.9
	Sep	32.4	34.7	34	31.9	30.3	31.3	27.9	30
	Oct	35.1	37.1	36.8	34.7	33.3	33.3	32.6	33.9
	Nov	32.6	31.3	33.1	31.9	31	30.8	33.8	34.2
	Dec	34.3	30.8	32.7	30.7	33	31.3	35.3	35
	Jan	32.5	31.4	32.6	31.4	30.9	31.6	34.2	33.6
	Feb	29.5	31.2	31.7	28.9	29.2	29.7	31.2	30.8
	Mar	28.1	29.6	29.6	27.6	27.6	27.4	30.3	30.2
	Apr	29.5	30.2	30.8	28	27.7	28	29.8	29.8
	May	27.4	29.4	28.9	27	24.5	25.8	24.5	26
	Jun	23.6	27.5	26.2	24.6	21.6	23.3	20.7	23.1
2009/10	Jul	21.4	24.6	23.4	21.5	19.6	20.6	19.2	20
	Aug	26.6	29	28.3	26.2	23.8	25	24.6	25.6
	Sep	31.9	33.4	33	30.5	28.9	30.1	29.9	30.9
	Oct	31.8	34.3	35.1	32.3	29.7	31	30.6	30.6
	Nov	33.3	33.7	33.6	31.1	29.6	30.3	31.6	33
	Dec	35.2	32.4	33.8	33	32.4	32.7	37	36
	Jan	31.6	31.8	32.5	32.1	30.3	32.2	31.9	31.2
	Feb	31.5	31.4	32.1	31.3	31.3	32.3	33.2	32.1
	Mar	30.6	30	30.4	30.6	28.6	31.3	32.2	31.1
	Apr	27.6	29.4	29.3	27.1	24.9	25.8	27.3	27.3
	May	26.3	28.9	28.8	26.9	24.3	25.4	25.1	25.1
	Jun	23.4	24.8	25.5	23.9	21.5	21.8	22.1	23.3
2010/11	Jul	22.9	25.6	25.3	23.3	21.3	21.7	22.5	21.9
	Aug	27.3	29.5	29.2	25.8	24.8	25.2	26.1	26.2
	Sep	32.4	34.3	34.2	31.8	30.4	30.6	30.9	31.3
	Oct	34.9	36.9	37	35	33.1	33.6	32.8	33
	Nov	32.2	34.3	33.4	32.2	31.7	30.5	33.4	32
	Dec	31.9	31.1	31.9	30.8	31.6	30.8	34.8	32.9
	Jan	29.3	29	30.3	28.1	28.7	28.4	31.8	30.1
	Feb	30.9	30.4	32.4	29.9	30.4	29.6	32.4	31.2
	Mar	30.1	29.9	31.4	32.3	30.7	30.7	32.4	29.8
	Apr	26.7	29.2	30.1	28.1	25.2	26.4	27.7	27.1
	May	26.3	30.6	28.3	27	23.8	25.4	24.8	24.6
	Jun	24.2	26.1	26.1	25.2	22.3	23.4	21.4	22.5
2011/12	Jul	22.3	25	24.5	23	20.9	21.5	20.8	20.6
	Aug	26.8	28.7	28.8	26.4	24.9	24.6	25.4	25.1
	Sep	32.4	33.9	34.2	31.9	30.6	30.8	30.6	30.9
	Oct	34	35.4	36	33.5	32	32.2	31.5	32.2
	Nov	34	34.3	35.9	33.1	32.5	31.8	33.6	33.6
	Dec	31.7	30.5	31.7	29.3	30.3	28.8	33.8	32.7
	Jan	33.8	31.4	33.1	32.7	32.2	32.3	35.8	34.1
	Feb	30.9	30.4	31.4	33.7	33	32.2	32.8	31.9

Table 2.5: Mean monthly maximum temperatures (°C) ...continued

		Ghanzi	Shakawe	Maun	Francistown	SSKA	Mahalapye	Tsabong	Tshane
	Mar	31.3	31.6	32.7	32.6	31.6	32.2	32.7	31.1
	Apr	29.7	30.5	31.4	28.2	27.5	28.5	27.8	28.4
	May	28.6	29.2	30	28	26.7	27.3	27.3	27.5
	Jun	24.4	26.3	26.2	24.6	22.4	23.4	21.1	22.7
2012/13	Jul	24.3	26.1	26.3	24.7	23	24	26	22.9
	Aug	27.7	29.9	29.6	27.9	26.1	27.1	25.1	25.9
	Sep	31.3	33.8	33.5	31.3	28.7	29.9	27.3	28.6
	Oct	34.8	36.1	34.4	31.9	30.7	30.1	32.8	33.8
	Nov	34.2	33.8	33.7	32.6	32.9	31.6	35.4	34.6
	Dec	31.9	30.9	32.5	31.4	29.3	30.5	33.2	32.1
	Jan	33	31.5	32.2	29.8	31.2	30.5	35.8	34.6
	Feb	35.6	32	33.8	32.4	33.2	33.3	35.9	35.8
	Mar	34.1	33.9	34.3	31.3	31.3	31.1	33.6	33.4
	Apr	30.7	31.7	32.3	29.1	27.6	28.7	27.8	28.3
	May	28	29.1	29.1	27	25.5	26.1	26.1	26.6
	Jun	26.2	27.6	27.6	25.6	23.7	25.3	27.6	24.2
2013/14	Jul	25.4	27	26.4	24	22.6	23.4	23.6	24
	Aug	27.1	30.2	29	27.8	25	25.9	22.8	24.5
	Sep	31.6	31.7	33.4	32.3	30.6	31.4	28.4	29.3
	Oct	33.7	36	35.2	32.4	30.9	31.1	32.2	32.2
	Nov	31.2	34.2	34.1	33.1	34.3	33.7	34.3	33.8
	Dec	29.8	30.3	29.8	29.5	28.9	29.3	32.7	31

Source: Department of Meteorological Services

Figure 2.4 shows the mean annual maximum temperatures of the stations. Maun airport had the highest mean annual maximum temperatures over the period, while Sir Seretse Khama Airport (SSKA) had the lowest mean annual maximum temperatures.

Figure 2.4: Mean annual maximum temperatures (degrees Celsius)



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Annex 1: Water production and sales in towns and cities (kilolitres)

Year	Gaborone	Lobatse	Jwaneng	Selibe-Phikwe	Francistown	Sowa	Sales (Pula)
2003	23,977,709.0	2,589,689.0	1,594,425.0	9,054,474.0	6,759,856.0	536,518.0	430,247,650.0
2004	24,529,020.0	2,607,674.0	1,686,921.0	8,681,348.0	7,185,879.0	463,493.0	501,353,260.0
2005	19,643,169.0	505,326.0	505,326.0	9,305,079.0	7,715,038.0	501,959.0	405,119,463.0
2006	20,669,603.0	2,282,253.0	1,543,636.0	8,594,176.0	8,419,012.0	517,717.0	421,029,698.0
2007	23,973,239.0	2,656,014.0	1,736,555.0	8,906,098.0	8,566,130.0	441,988.0	466,665,882.0
2006 Q1	4,706,577.0	503,632.0	364,865.0	2,034,483.0	1,945,758.0	113,840.0	100,987,421.0
Q2	4,848,705.0	562,527.0	382,175.0	2,175,378.0	2,037,438.0	154,352.0	102,143,777.0
Q3	5,200,148.0	588,340.0	373,851.0	2,053,131.0	2,187,229.0	120,814.0	103,728,623.0
Q4	5,914,173.0	627,754.0	422,745.0	2,331,184.0	2,248,587.0	128,711.0	114,169,877.0
2007 Q1	6,128,022.0	664,125.0	446,651.0	2,341,251.0	1,973,254.0	109,111.0	122,336,154.0
Q2	6,109,970.0	697,300.0	463,525.0	2,412,454.0	2,194,094.0	119,979.0	118,216,374.0
Q3	5,710,645.0	620,014.0	400,689.0	2,019,773.0	2,353,476.0	96,390.0	112,601,298.0
Q4	6,024,602.0	674,575.0	425,690.0	2,132,620.0	2,045,306.0	116,508.0	113,512,056.0
2008 Q1	6,109,627.0	628,172.0	481,920.0	2,152,639.0	2,336,645.0	127,764.0	117,500,096.0
Q2	6,291,264.0	766,555.0	268,133.0	2,520,308.0	2,294,401.0	123,374.0	122,621,556.0
Q3	6,313,052.0	758,330.0	388,979.0	2,260,705.0	2,368,583.0	125,146.0	124,434,575.0
Q4	6,943,420.0	815,662.0	439,575.0	2,414,659.0	2,269,867.0	125,611.0	137,885,712.0
2009 Q1	6,845,188.0	819,656.0	381,132.0	2,228,727.0	2,220,849.0	116,972.0	13,049,724.0
Q2	7,236,338.0	849,652.0	403,243.0	2,208,227.0	2,544,499.0	109,833.0	13,564,692.0
Q3	6,267,847.0	752,176.0	410,579.0	2,203,269.0	3,086,926.0	124,251.0	-
Q4	6,978,014.0	788,037.0	440,874.0	2,183,455.0	3,354,395.0	144,570.0	14,591,445.0

Annex 1: Water production and sales in towns and cities (kilolitres) continued

Year	Gaborone	Lobatse	Jwaneng	Selibe-Phikwe	Francistown	Sowa	Sales (Pula)
2010 Q1	6,710,171.0	867,764.0	415,048.0	2,494,264.0	3,129,491.0	100,884.0	16,226,206.0
Q2	5,536,241.0	814,777.0	394,718.0	2,367,839.0	2,730,707.0	122,573.0	13,355,073.0
Q3	5,073,786.0	848,805.0	466,125.0	2,407,279.0	3,076,847.0	128,335.0	13,118,869.0
Q4	4,995,433.0	883,491.0	483,072.0	2,363,041.0	2,385,715.0	125,966.0	14,254,254.0
2011 Q1	4,721,472.0	876,672.0	461,423.0	1,999,938.0	1,989,304.0	124,627.0	17,586,786.0
Q2	4,752,822.0	812,314.0	476,749.0	2,297,013.0	1,942,824.0	134,441.0	13,889,992.0
Q3	4,549,912.0	827,165.0	429,377.0	1,654,294.0	1,967,235.0	127,722.0	13,327,773.0
Q4	5,153,892.0	836,107.0	507,915.0	2,961,830.0	2,154,069.0	131,053.0	21,656,285.0
2012 Jan	-	-	-	-	-	-	-
Feb	-	-	-	-	-	-	-
Mar	-	-	-	-	-	-	-
Apr	2,605,694.0	818,043.9	138,315.0	736,244.0	1,213,404.8	-	-
May	2,590,836.0	813,524.6	175,999.0	711,800.5	1,243,636.8	-	-
Jun	2,234,208.0	826,530.1	144,920.0	659,507.0	1,157,673.6	-	-
July	2,451,412.0	804,721.2	129,687.0	708,702.0	1,260,338.4	-	-
Aug	2,505,470.0	745,471.4	171,316.0	720,952.0	1,091,474.0	-	-
Sep	2,547,216.0	773,732.6	162,625.0	701,876.0	1,082,584.0	-	-
Oct	2,625,707.0	803,496.7	195,027.0	709,239.0	1,178,627.2	-	-
Nov	2,470,925.0	782,900.0	191,170.0	661,403.0	1,058,340.9	-	-
Dec	2,298,238.0	784,045.1	98,517.0	628,739.3	1,098,230.7	-	-
2013 Jan	2,458,374.0	826,833.0	187,990.0	649,734.7	1,243,500.0	22,590.0	-
Feb	2,445,300.0	645,293.0	116,134.0	644,921.8	1,234,420.0	21,260.0	-
Mar	2,897,066.0	686,330.1	202,926.0	762,588.5	1,302,746.0	34,800.0	-
Apr	2,941,956.0	687,568.0	222,665.0	671,254.0	1,178,641.0	31,990.0	-
May	2,580,440.0	757,968.0	240,320.0	681,496.0	1,208,080.0	30,030.0	-
Jun	2,691,511.0	645,399.0	230,926.0	656,850.0	873,175.0	30,810.0	-
July	2,590,229.0	578,556.0	223,978.0	661,222.0	1,409,844.0	26,970.0	-
Aug	2,555,954.0	738,497.0	179,787.0	671,657.0	1,140,350.0	26,720.0	-
Sep	2,443,516.0	776,988.0	142,671.0	715,122.0	946,190.0	38,990.0	-
Oct	2,487,473.0	701,207.0	195,082.0	906,665.0	1,306,370.0	28,060.0	-
Nov	2,497,082.0	593,363.0	194,401.0	822,638.0	1,343,766.0	23,260.0	-
Dec	2,059,495.0	609,847.0	152,228.0	766,469.0	1,153,961.0	26,730.0	-
2014 Jan	2,635,700.0	653,449.0	173,549.0	712,949.0	1,409,800.0	21,040.0	-
Feb	2,456,118.0	0.0	151,602.0	624,484.0	1,071,098.0	15,680.0	-
Mar	2,513,053.0	0.0	182,543.0	632,418.0	1,215,041.0	10,080.0	-

Dash (-) = no data

Source: Water Utilities Corporation

Annex 1: Water production and sales in towns and cities (kilolitres) continued

Year	Gaborone	Lobatse	Jwaneng	Selibe-Phikwe	Francistown	Sowa	Sales (Pula)
Apr	2,941,956.0	687,568.0	222,665.0	671,254.0	1,178,641.0	31,990.0	-
May	2,580,440.0	757,968.0	240,320.0	681,496.0	1,208,080.0	30,030.0	-
Jun	2,691,511.0	645,399.0	230,926.0	656,850.0	873,175.0	30,810.0	-
July	2,590,229.0	578,556.0	223,978.0	661,222.0	1,409,844.0	26,970.0	-
Aug	2,555,954.0	738,497.0	179,787.0	671,657.0	1,140,350.0	26,720.0	-
Sep	2,443,516.0	776,988.0	142,671.0	715,122.0	946,190.0	38,990.0	-
Oct	2,487,473.0	701,207.0	195,082.0	906,665.0	1,306,370.0	28,060.0	-
Nov	2,497,082.0	593,363.0	194,401.0	822,638.0	1,343,766.0	23,260.0	-
Dec	2,059,495.0	609,847.0	152,228.0	766,469.0	1,153,961.0	26,730.0	-
2014 Jan	2,635,700.0	653,449.0	173,549.0	712,949.0	1,409,800.0	21,040.0	-
Feb	2,456,118.0	0.0	151,602.0	624,484.0	1,071,098.0	15,680.0	-
Mar	2,513,053.0	0.0	182,543.0	632,418.0	1,215,041.0	10,080.0	-
May	2,590,836.0	813,524.6	175,999.0	711,800.5	1,243,636.8	-	-
Jun	2,234,208.0	826,530.1	144,920.0	659,507.0	1,157,673.6	-	-
July	2,451,412.0	804,721.2	129,687.0	708,702.0	1,260,338.4	-	-
Aug	2,505,470.0	745,471.4	171,316.0	720,952.0	1,091,474.0	-	-
Sep	2,547,216.0	773,732.6	162,625.0	701,876.0	1,082,584.0	-	-
Oct	2,625,707.0	803,496.7	195,027.0	709,239.0	1,178,627.2	-	-
Nov	2,470,925.0	782,900.0	191,170.0	661,403.0	1,058,340.9	-	-
Dec	2,298,238.0	784,045.1	98,517.0	628,739.3	1,098,230.7	-	-
2013 Jan	2,458,374.0	826,833.0	187,990.0	649,734.7	1,243,500.0	22,590.0	-
Feb	2,445,300.0	645,293.0	116,134.0	644,921.8	1,234,420.0	21,260.0	-

Dash (-) = no data

Source: Water Utilities Corporation

